



National Institute for Public Health
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Strategic Policy Plan

Strategic Policy Plan
RIVM-Centre for Infectious Disease Control 2011-2015

Strategic Policy Plan RIVM-Centre for Infectious Disease Control 2011-2015

Colophon

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Abstract

Strategic Policy Plan RIVM-Centre for Infectious Disease Control 2011-2015

In the strategic policy plan topics are identified that will require additional attention in the years ahead in order to improve the RIVM-CIb fulfilling of its directing role and to strengthen the RIVM-CIb as a network organisation.

The policy plan is based on the experience gained in the past five years and the findings of several evaluations.

Key feature of the strategy is a commitment to strengthening the RIVM-CIb's role as a network organisation in order to facilitate optimal prevention en control of infectious diseases. In this view, the RIVM-CIb also commits to international cooperation in the field of infectious diseases, commits to ensuring the existence of a national laboratory infrastructure and commits to consolidating the solid basis of research. In addition, the RIVM-CIb aims to award grants to support activities, which aid the prevention of infections/infectious diseases and which are effectively and efficiently undertaken by organisations other than the RIVM. The RIVM-CIb aims to assure the effectiveness of the National Immunisation Programme (NIP) and to reduce the burden of disease attributable to antimicrobial resistance and healthcare-related infections. The RIVM-CIb aims to reduce the burden of STDs by coordinating STD control, and to reduce the risk and burden of disease related to zoonoses by working with its network partners to provide relevant sectors and government departments with advice that is based on early detection and research.

Key words:

Strategic Policy Plan, RIVM-CIb, 2011-2015, infectious disease control

Rapport in het kort

Strategisch Beleidsplan RIVM-Centrum Infectieziektebestrijding 2011-2015

In het strategisch beleidsplan is een selectie gemaakt van onderwerpen waarvoor het RIVM-CIb zich de komende jaren extra moet inspannen om haar regerol en haar functie als netwerkorganisatie te versterken.

Het beleidsplan is gebaseerd op de ervaringen van de afgelopen vijf jaar en de resultaten van verschillende evaluaties.

Belangrijke keuze voor de toekomst is die voor de versterking van het RIVM-CIb als netwerkorganisatie om zo tot een optimale preventie en bestrijding van infectieziekten te komen. Met dit doel zorgt het RIVM-CIb ook voor internationale samenwerking op het gebied van infectieziekten, voor een nationale laboratorium-infrastructuur en voor een stevige onderzoeksbasis. Daarnaast zal het RIVM-CIb subsidies verlenen voor activiteiten, gericht op de preventie van infectieziekten, die effectief en efficiënt door andere organisatie dan het RIVM-CIb worden uitgevoerd. Het RIVM-CIb streeft naar het garanderen van de effectiviteit van het Rijksvaccinatieprogramma en naar het verminderen van de ziektelest door antimicrobiële resistentie en zorggerelateerde infecties. Ten slotte streeft het RIVM-CIb naar het verminderen van soa door regie te voeren op de soa-bestrijding, en naar het verminderen van het risico en de ziektelest van zoonosen, door samen met netwerkpartners op basis van signalering en onderzoek relevante sectoren en ministeries hierover te adviseren.

Trefwoorden:

Strategisch Beleidsplan, RIVM-CIb, 2011-2015, infectieziektebestrijding

Summary of Strategic Policy Plan RIVM-Clb 2011-2015

The Centre for Infectious Disease Control (RIVM-Clb) was created, as a specific entity within the RIVM, in 2005. Its mission is to detect, control and prevent infectious diseases for the benefit of public health in the Netherlands. Five years after the Clb's formation, the Dutch Ministry of Health, Welfare and Sport commissioned Boer & Croon to carry out a policy evaluation. The evaluation found that RIVM-Clb's creation had led to considerable improvement in infectious disease control in the Netherlands, but that further change is nevertheless required. In light of the findings of evaluations and the experience gained in its first five years of existence, the RIVM-Clb has drawn up a Strategic Policy Plan for the period 2011-2015. The plan maps out the path towards realisation of the necessary changes and adaptations including the identification of topics that will require additional attention in the years ahead. Key features of the strategy include a commitment to strengthening the RIVM-Clb's role as a network organisation and to improving the RIVM-Clb's fulfilling of its directing role by operating on a more intervention-oriented basis. For each element of this Strategic Policy Plan, strategic goals and more operational, measurable objectives have been formulated. The fact that certain activities (e.g. surveillance and detection, control, epidemiology, and the topics of respiratory and gastrointestinal infection control) are not explicitly covered in the Strategic Policy Plan does not indicate that they are any less important. On the contrary, these activities will be continued, evaluated and adjusted if necessary, and will be addressed in the RIVM-Clb's annual Work Plan.

Strengthening the network organisation

Strategic goal:

The RIVM-Clb aims to be a stronger network organisation, with a view to optimising the prevention and control of infectious disease.

Infectious disease control is by definition a network activity, in which numerous different disciplines each play a role. While it is itself part of the infectious disease control network, the RIVM-Clb also has responsibility for directing that network. By working to provide a good infrastructure, the aim is to ensure that adequate early detection and response is possible, irrespective of which infectious disease it concerns. The RIVM-Clb has a wide and complex package of responsibilities. The combination of different roles brings considerable benefits as well as exacting requirements of the organisation's internal management. The RIVM-Clb therefore wishes to devote more time to

strategic discussion. The RIVM-Clb unites practice, science and policy. Each of these domains has its own dynamics and requires different (core) competences. As an organisation, the RIVM-Clb has to make a conscious effort to come to terms with the dynamic diversity across the three domains and with the diversity in the requirements that are consequently made of its personnel. In recognition of the continuous change taking place in the environment within which it operates, the RIVM-Clb wishes to increase the flexibility of its workforce, and to move to a situation where fewer of its personnel are employed on a permanent basis. In addition, the RIVM-Clb will seek to promote a culture of internal and external cooperation. By 2015 the RIVM-Clb is to be more of a network organisation than it is today; it will maintain good relations with its partners in infectious disease control, engage them in strategic discussion and explicitly acknowledge the value of their work in this field.

Grant-funding policy

Strategic goal:

The RIVM-Clb aims to award grants to support activities, which aid the prevention of infections/infectious diseases and which are effectively and efficiently undertaken by bodies other than the RIVM.

The RIVM-Clb was given the role of grant-funding when it was set up in 2005. The responsibility for grant-funding provides the RIVM-Clb with an instrument to direct infectious disease control. For 5 years, the RIVM-Clb has given grants worth roughly 8 million euros a year to 12 organisations active in the field of infectious disease control. With a view to remaining in step with a changing environment, the existing grant-funding policy needs to be made more flexible. The existing institutional grants are therefore to be substantially reduced or replaced by project grants and contracts. The RIVM-Clb is responsible for the surveillance of infectious diseases in the Netherlands. Grants for surveillance activities will be replaced by contracts. The RIVM-Clb sees a role for NGOs in the field of infectious disease control. In terms of the health issues addressed by its grant-funding activities, the RIVM-Clb prioritises infections that are associated with a substantial burden of disease, and for which effective means of prevention are available.

International cooperation

Strategic goal:

The RIVM-CIb commits to international cooperation on infectious disease, with a view to increasing expertise and providing for a more rapid response to any emergency that might arise in the Netherlands.

The Netherlands has a great deal of international contacts through travel and migration, as well as through the internationalisation of trade in food and other goods. Moreover, in a small country like the Netherlands, the prevention and control of infectious diseases inevitably depends on what happens in other countries and on how infectious disease control is organised elsewhere. The RIVM-CIb's primary focus is on the other EU countries, partly because of the organisational cohesion provided by the European Centre for Disease Prevention and Control (ECDC) and partly because the most intensive cross-border trade and travel contact is with other EU countries. The RIVM-CIb is currently the national centre for infectious disease control in the Netherlands. However, since the ECDC is likely to acquire a more prominent role, the role of national centres like the RIVM-CIb may change over time. Vaccination and other measures may further reduce the incidence of some infectious diseases in the Netherlands and other EU countries. This is liable to lead to the loss of knowledge regarding the illnesses in question. In order to ensure that our knowledge regarding vanishing infectious diseases remains adequate, the RIVM-CIb needs to invest in collaboration with established and emerging knowledge centres in developing countries, especially those where infectious diseases remain a major cause of morbidity and mortality.

Research

Strategic goal:

The RIVM-CIb aims to undertake research and/or utilise the results of others' research in order to ensure that the prevention and control of infectious disease is underpinned by a sound research base.

Knowledge about how microorganisms spread and how people (and animals) react to them is constantly developing. Scientific research is therefore necessary if an authoritative contribution is to be made to the prevention and control of infectious diseases.

The RIVM-CIb's existing research themes are vaccine-related research, enteral infections, antibiotic resistance and care-related infections, respiratory infections, zoonoses, sexually transmitted diseases and preparedness and response. The RIVM-CIb's research is funded from various sources. The research strategy for the period ahead will build on the organisation's existing research activities. However, greater emphasis will be placed on multidisciplinary research and on intervention strategies. In terms of the subject matter studied, more attention will be given to vaccine-related research, as a result of integration of parts of the Netherlands Vaccine Institute (NVI) with RIVM-CIb. Research budgets are allocated using a system of periodic project assessment, taking account of relevance and input to policy, practice and science and of the degree of effective multidisciplinary cooperation. The RIVM-CIb encourages researchers to seek additional funding for research that supports the RIVM-CIb's mission. Research will be prioritised for each theme individually and accounted for in a similar fashion. In the period ahead, theme leaders will be given a greater role in prioritisation and accounting. The intention is that the research programmes should more closely reflect the relative importance of infections. In the future, the RIVM-CIb wishes to place greater emphasis on the pooling of information about infectious diseases, whether through surveillance activities or through the external sourcing and onward communication of data. Theme leaders will also be given a prominent role in the translation of research results into practice. At present, the RIVM-CIb's research is predominantly biomedical. However, insight into human behaviour is also vital for effective infectious disease prevention and control. In the period ahead, the RIVM-CIb will work with various university research groups to develop social science research, in close cooperation with other researchers within the RIVM. The research will concentrate on themes such as guideline implementation, risk perception and communication.

Role and significance of laboratories

Strategic goal:

The RIVM-CIb ensures the existence of a national laboratory infrastructure to support infectious disease control.

A strong laboratory infrastructure is vital for good infectious disease control in the Netherlands. The expectation is that, in the period ahead, a number of reference laboratories will be selected at the European

level. The RIVM-Clb already performs various national reference functions in relation to specific pathogens. The RIVM-Clb also performs a European reference function in relation to *Salmonella*. In addition, the RIVM-Clb is increasingly doing research into (detection and classification of) sources of national outbreaks, unless another body has responsibility for doing so. This involves the collection of materials and data suitable for retention in a professional databank for further study by the RIVM-Clb and other bodies. Most medical microbiology laboratories are independent organisations with no formal status in the context of infectious disease control. As a result, there is no particular body that the RIVM-Clb can refer to or deal with on policy matters concerning medical microbiology diagnosis and research.

Nevertheless, cooperation between the peripheral laboratories and the RIVM-Clb has improved significantly since the latter's formation. With the development of ISIS-AR, excellent cooperation was initiated between the RIVM-Clb and medical laboratories, which can serve as the basis for consolidating further collaboration. The laboratory-related aspects of the response to (new) infectious disease problems for which the RIVM-Clb has responsibility has yet to be worked out in detail. Where laboratory activities are concerned, the boundary between the diagnosis and (genetic) typing of infectious diseases for intramural patient care, and the diagnosis and (genetic) typing of such diseases in primary and public health care has become increasingly indistinct. Clear agreements regarding role demarcation are therefore needed.

Vaccination programmes

Strategic goal:

The RIVM-Clb aims to assure the effectiveness of the National Immunisation Programme (NIP) as a means of preventing disease; to that end it aims to promote quality within the NIP by providing evidence-based advice regarding the programme's content and organisation.

The RIVM-Clb coordinates the provision of the NIP.¹ From 1 January 2011, the public tasks of the Netherlands Vaccine Institute (NVI) are transferred to the RIVM.

The integration of these tasks will reinforce the RIVM-Clb's knowledge in the field of vaccinology.

¹ The RIVM has installed a temporary programme directorate under which the operational tasks have been brought, including purchase, storage and distribution of vaccines. The temporary programme directorate also received the assignment to integrate these operational tasks structurally within the RIVM.

However safe and effective the NIP may be, there is every reason for looking critically and proactively to the future. Support for the NIP appears to be waning, partly because the infectious diseases against which vaccination is provided have been eradicated or become much less prevalent. Yet, due to the dedication of many people, the vaccine coverage of the Dutch NIP is still very high. The RIVM-Clb studies the effectiveness of the vaccines used in the NIP. The timing of vaccinations (the vaccination scheme) and the combinations in which vaccines are administered, are generally decided by the extrapolation of knowledge, not by reference to specific scientific research. In the years ahead, research will be focused on interactions between vaccines and optimisation of the vaccination schedule. The RIVM-Clb will also focus on questions like 'how can the high vaccination coverage be maintained?', or 'how do we monitor decision-making processes within the community and how can we best support informed choices in favour of voluntary participation in the NIP?'. Information and publicity about the NIP is currently communicated by traditional means, typically involving leaflets. A plan will be developed for the use of modern media to disseminate information about the NIP and other vaccines.

Antimicrobial resistance and care-related infections

Strategic goal:

The RIVM-Clb aims to reduce the burden of disease attributable to antimicrobial resistance and care-related infections; to that end, it advises relevant sectors and government departments on addressing adverse developments.

In the Netherlands, antimicrobial agents are used sparingly, so as to avoid promoting resistance development. Nevertheless, surveillance of unusually resistant microorganisms indicates that, despite the policy of cautious use, antimicrobial resistance is increasing sharply in the Netherlands, as it is elsewhere. Because of the use of antibiotics in agriculture, many animals carry (multi-)resistant microorganisms in their intestinal tract. These animal populations may be regarded as reservoirs, from which both resistant bacteria and resistance genes may be transferred to humans. The environment contains resistant microorganisms that originate from people and animals treated with antimicrobial agents. Human exposure to such agents can occur in various ways.

It is hard to predict how resistance to antimicrobial agents and care-related infections will develop. The RIVM-Clb is

working to strengthen its central directing role as the antimicrobial resistance and care-related infection knowledge and service centre for both professionals and the general public. Research into the spread, prevention and control of antimicrobial resistance and its public health implications is one of the RIVM-Clb's main priorities. In the period ahead, the RIVM-Clb will continue to focus particularly on *S. aureus* (MRSA) and gram-negative bacteria (ESBLs and carbapenemase-producing microorganisms).

Zoonoses

Strategic goal:

The RIVM-Clb aims to reduce the burden of disease related to zoonoses and the risk of zoonoses. Therefore, it takes up its coordinating role by working with its network partners to provide relevant sectors and government departments with advice that is based on early detection and research.

The presence of zoonotic microorganisms in animals or vectors within our food chain or our everyday environment is an ongoing threat to public health. The ability to control zoonoses and vectors in the Netherlands is perceived to be insufficient. The RIVM-Clb seeks to reduce the zoonosis-related public health risk by specifically addressing zoonoses originating from livestock, vectors and wild animals in the Netherlands. To that end, the RIVM-Clb continues to invest in building up long-term relationships with key national and regional organisations and specialists involved in the identification, surveillance, investigation and control of zoonoses. Over the last few years, the RIVM-Clb has invested in determining the public health risks associated with a number of zoonoses. This has translated into intervention-oriented research in a number of fields, but in relation to zoonoses insufficient progress has yet been made. The RIVM-Clb aims to define clear priorities in the years ahead, one of which will be research on the effectiveness of interventions. The nature of the RIVM-Clb's existing research programmes is such that the organisation's research capability is not flexible enough to respond to developments as they occur. The RIVM-Clb is currently discussing ways to ensure flexibility and improve the relevance for practice. In addition to exchanging signals that already reach participating organisations, the RIVM-Clb will promote a more active approach to the reporting of unusual symptoms/syndromes by veterinarians, livestock farmers, GPs and relevant medical specialists. The RIVM-Clb also wishes to bring about significant improvements in the communication of information about zoonoses to the

public and the promotion of relevant professional expertise. Furthermore, the Clb will work to create a better infrastructure for the control of vectors (mainly mosquitoes and ticks) in the Netherlands.

Sexually Transmitted Diseases (STDs)

Strategic goal:

The RIVM-Clb aims to reduce STDs; to that end, it aims to promote the quality of STD control programmes by working with its network partners to provide evidence-based advice regarding the content and organisation of such programmes.

The burden of disease that continues to be associated with STDs is concentrated in certain high-risk groups. Despite easier access to tests and more sensitive and rapid diagnostic techniques, the incidence of STDs is unlikely to diminish in the period ahead, due to persistent risk-taking behaviour, the threat of increasing resistance, suboptimal treatment of partners, emerging STDs and STD transmission risks.

To supplement regular STD prevention and treatment activities, a low-threshold programme has been developed for certain high-risk groups.

The RIVM-Clb will play a coordinating role within the field of STD control using the expertise of the partners in its network. The diversity of the expertise that exists in curative and preventive care makes it necessary for the RIVM-Clb to play a strong coordinating role. The RIVM-Clb will seek to bring about cohesion within the field of STD control by promoting clear consultation structures that yield transparent decisions, and by harmonising support for STD control so as to enhance cohesion between preventive and curative health care and between STD control and general infectious disease control. The municipal health authorities will retain a central role in direct control (prevention and cure). In order to keep overview, the RIVM-Clb will endeavour to provide the most uniform possible surveillance, with a view to identifying and analysing STD trends, and evaluating the effects of intervention on the burden of disease associated with STDs in various populations. The RIVM-Clb will also work to harmonise STD control and the promotion of sexual health. The current grant-funding system ('soa/sense-regeling' in Dutch) will be supported in the regions by a quality and visitation programme provided by professionals. The Clb is acting as the secretariat for this initiative.

Introduction

Background

By the middle of the last century, many people believed that infectious diseases would soon be a thing of the past. The mortality and burden of disease associated with infectious diseases had by then already been substantially reduced by improved hygiene, clean drinking water, good sewers and better education. The introduction of antibiotics after the Second World War brought about a medical revolution by turning many infectious diseases into readily treatable conditions. Effective vaccines also became available, making it possible to prevent serious infectious diseases such as diphtheria and polio. The global eradication of smallpox in the late 1970s reinforced the mood of optimism. Medical science appeared well on the way to eliminating many infectious diseases.

A revision in thinking was triggered by recognition of the HIV/AIDS problem in the 1980s. This previously unfamiliar viral condition was spreading across the world, claiming millions of lives. Despite mankind's greatly increased understanding of biology, an effective vaccine proved elusive and it was nearly fifteen years before antiviral agents came onto the market and HIV/AIDS went from being an inevitably fatal condition to a serious chronic disease. The virus appeared to have originated in the animal kingdom. Moreover, people came to see that its transfer to the human population was not an exception: in the decades since the identification of HIV/AIDS, new

infectious diseases have been appearing constantly, many of them having crossed from animal populations. Because of the optimism that had developed regarding the disappearance of infectious diseases, the control of such illnesses had ceased to be a priority in many industrialised countries. The Netherlands was no exception in that regard; infectious disease control was the responsibility of local government, and there was no central coordination. The shortcomings of that arrangement were brought home by the polio epidemic of 1992/1993. In response, the Preparedness and Response Unit (LCI) was established, with the remit of working closely with the municipal health authorities to streamline control arrangements in the Netherlands. However, the global SARS outbreak of 2003 and the emerging threat of biological weapons made it clear that more was required than mere streamlining. So it was that the Centre for Infectious Disease Control (CIB) came into being at the start of 2005. The CIB was created as part of the RIVM because of the latter organisation's epidemiological and laboratory expertise, its existing national role in infectious disease surveillance and its involvement in infectious disease research. It was additionally envisaged that the CIB's creation within the RIVM would expedite the parent body's transformation from a research-oriented organisation into a public health institute where research, policy and coordination came together.

Placing the LCI under RIVM-CIB control ensured that knowledge was pooled and also that coordination,

laboratory work and the surveillance of infectious diseases were brought together. Incorporation of the Zoonosis and Environmental Microbiology Laboratory within the RIVM-Clb meant that the Netherlands had a strong, broad-based infectious disease centre.

The Public Health Act of October 2008 further regulated the organisation of and responsibilities for infectious disease control.

The need for better coordination and management of infectious disease control was recognised at the European level as well. Hence, the European Centre for Disease Prevention and Control (ECDC) was created, also in 2005. This Stockholm-based centre has responsibility for collecting data on infectious diseases within the EU, providing policy support to the European Commission and coordinating infectious disease control in the member states.

The role of RIVM-Clb

The mission of the RIVM-Clb is to detect, control and prevent infectious diseases for the benefit of public health in the Netherlands. Pursuant to that mission, the RIVM-Clb has the following tasks:

- To gain insight into infectious diseases by carrying out diagnostic microbiology, surveillance and scientific research.
- To ensure uniform prevention nationwide and strengthen vigilance and rapid outbreak response by coordinating infectious disease control activities and international cooperation, and by supervising the provision of the National Immunisation Programme (NIP).
- To promote effective infectious disease control and prevention by advising professionals and ministries, making grants available and providing information to the public.

The RIVM-Clb works closely with and gives support to professionals and organisations engaged in infectious disease control. The main features of the RIVM-Clb's role are described below.

Ministerial agency

Under the Public Health Act, the Minister of Health, Welfare and Sport is responsible for ensuring that the Netherlands has a good system of public health. Expert, responsive nationwide infectious disease control geared to current requirements is an essential component of such a system. The public expects the national government to take steps to prevent or deal effectively with national epidemics. The Clb, part of the RIVM, acts as an arm of government in this

context. As a governmental agency, the RIVM is answerable to the Minister of Health, Welfare and Sport. This ensures that policy and control are properly integrated.

The ministry and the RIVM-Clb have distinct fields of responsibility. The ministry is responsible for defining policy, making political and administrative judgements, setting financial parameters and providing a legislative and regulatory basis for any measures that may be required. Political communication also lies within the ministry's remit. The RIVM-Clb undertakes its activities within the policy parameters defined by the Minister of Health, Welfare and Sport. Within these parameters, RIVM-Clb also works for other ministries (Ministry of Economic Affairs, Agriculture and Innovation: zoonoses; Ministry of Social Affairs and Employment: occupational health in relation to infectious diseases).

Connecting policy, control and science

The RIVM-Clb occupies a central position within the network that embraces policy, control and science. From that position, it seeks to create strong ties between the three domains, with the support of prevention and control as its starting point. The RIVM-Clb both translates policy of the Ministry of Health, Welfare and Sport into practice and uses its practical insight to inform the Minister of Health, Welfare and Sport. It ensures that knowledge obtained through research is quickly made available to professionals, and it identifies gaps in knowledge within the control system in order that appropriate research may be encouraged or undertaken in house. The RIVM-Clb works with the healthcare professionals and scientific community to enhance the quality and uniformity of infectious disease control.

Focus on person-to-person transmission and on transmission through the environment

A well-organised network of medical, veterinary and alimentary experts is essential for the early identification of zoonoses and the implementation of appropriate response measures. That in turn implies intensive information exchange, the integration of human medical data with data from the veterinary, food-related and water-related domains (e.g. early warning or surveillance data) and closer scientific research cooperation at the national and international levels. The RIVM-Clb acts as a bridge between the veterinary, alimentary and medical disciplines.

Research as the basis of the RIVM-Clb's activities

Research and knowledge integration are at the heart of the RIVM-Clb's activities. The research undertaken by the RIVM-Clb is geared to infectious disease control. Intramural research lines support the RIVM-Clb's authoritative status, while cooperation with other research centres allows for the optimal utilisation of research and knowledge in the service of infectious disease control. The

RIVM-Clb's research has always been based upon the close alignment of laboratory work and epidemiology.

Demarcation and cooperation

Numerous professions and organisations are active in the prevention and control of infectious diseases. The RIVM-Clb cooperates closely with other stakeholders and works to achieve clearer demarcation, in line with its responsibility to promote the quality and uniformity of prevention and control. The RIVM-Clb prioritises those aspects of prevention and control that, from a public health perspective, are not yet addressed or adequately organised. Improvements are constantly sought in cooperation with the other parties concerned.

Since its formation, the RIVM-Clb has occupied a central position in the national (and international) infectious disease control network. An Advisory Committee of representatives from organisations active in the field, scientific bodies and professional associations was established in 2005 to oversee the work of the RIVM-Clb. This Advisory Committee meets twice a year to give feedback on the programme planned for the year ahead and to review the RIVM-Clb's performance in the preceding twelve months. Numerous other personal and institutional ties exist between the RIVM-Clb and organisations and bodies in the Netherlands and abroad.

The RIVM-Clb attaches great importance to its duties under the Public Health Act (Wpg). The Wpg defines two roles that the RIVM-Clb is required to fulfil:

- directing the control activities that the municipal health authorities undertake in relation to category-A infectious diseases; and
- coordinating other infectious disease control activities.

The RIVM-Clb is the 'focal point' for the Netherlands under the World Health Organisation's (WHO) International Health Regulations (IHR).

Reflecting on the RIVM-Clb's first five years

Five years after the RIVM-Clb's formation, the time was felt to be right for reviewing what had been achieved and for defining objectives for the next five years. The Ministry of Health, Welfare and Sport commissioned Boer & Croon to carry out a policy evaluation. To that end, representatives of the key organisations active in infectious disease control in the Netherlands were interviewed. The evaluation was debated by a national and international supervisory committee before being published in 2009.

The evaluation found that infectious disease control in the Netherlands had improved considerably since the

RIVM-Clb's creation. It was concluded that the RIVM-Clb was a prominent, effective organisation, which acted with authority, was proactive in its approach, defined the agenda and performed a vital role within the system. Nevertheless, a number of points were identified as warranting improvement. In a written statement to parliament, the minister accordingly indicated that he expected the RIVM-Clb to perform a stronger network function and a stronger directing role in the future. He also said that the RIVM-Clb's research activities had to support policy and practice and to facilitate optimal utilisation of the expertise of other bodies. Furthermore, the RIVM-Clb was expected to be involved across the breadth of the infectious disease control domain, with particular emphasis on influencing behaviour, promoting health and communicating effectively with the public. The minister envisaged the RIVM-Clb at the hub of an extensive network of executive agents and researchers working in infectious disease control. The RIVM-Clb was to act as a repository for the knowledge needed to furnish the minister with coherent, interdisciplinary and expert policy support advice.

The recommendations made by the minister in his written statement of 7 May 2010 are incorporated and developed in this Strategic Policy Plan as follows:

- Strengthening the RIVM-Clb's network/directing role:
As well as forming one of the Plan's general themes, this objective is directly addressed in the section 'Strengthening the network organisation'. The advice regarding the exchange of information is dealt with in 'Role and significance of laboratories', while the directing role envisaged for the RIVM-Clb in relation to grants is described in 'Grant-funding policy'.
- Recalibration of research activities by the RIVM-Clb:
This concept is developed under 'Research', 'Role and significance of laboratories' and in the three focus points 'Vaccination programmes', 'Antimicrobial resistance and care-related infections' and 'Zoonoses'.
- Strengthening the RIVM-Clb's role in infectious disease prevention:
This recommendation is reflected in the plans described in 'Vaccination programmes', 'STDs' and 'Grant-funding policy'.
- Strengthening the RIVM-Clb's advisory role:
The action needed to implement this recommendation is summarised in 'Strengthening the network organisation'.
- International integration:
The section 'International cooperation' addresses the minister's wishes on this point.

In May 2010, a second evaluation was undertaken, this time examining the scientific quality of the centre. The international audit committee concluded that, on the

European stage, the RIVM-CIb was an important player in infectious disease control. The RIVM-CIb's scientific research – regarded as a prerequisite for good performance as a knowledge centre – was generally considered to be of a high standard. The committee did nevertheless have certain criticisms of the research programme: better coordination and clearer prioritisation of the research to reflect the burdens of disease associated with infectious diseases were felt to be needed. In addition, the committee warned the RIVM-CIb against pursuing the aim of developing its own social-scientific research line.

Evaluation of the Q fever epidemic by the Van Dijk Committee in 2010 indicated that outbreak control needed to be organised in conjunction with the direct stakeholders and the relevant sectors. This conclusion is, of course, particularly valid in relation to zoonoses.

In consultation with the Ministry of Health, Welfare and Sport, it was decided to formulate a Strategic Policy Plan for the period 2011-2015, drawing upon the findings of the two evaluations and the experience gained in the preceding five years. Two of the defining features of the new strategy were to be strengthening of the RIVM-CIb as a network organisation and greater operational emphasis on interventions. The RIVM-CIb directs infectious disease control on behalf of the Ministry of Health, Welfare and Sport. In fulfilment of that role, the RIVM-CIb will work more resolutely and overtly to ensure the existence of a coherent infrastructure of organisations that contribute to infectious disease control. The increased emphasis on interventions will be reflected in, for example, the translation of research into control practices and conversely the direction of research to produce the knowledge needed to inform control decisions. The Strategic Policy Plan seeks to define the way forward in terms of measurable objectives, so that in five years' time it will be possible to determine whether the plan has been realised. The Strategic Policy Plan is the product of input from various people at the RIVM-CIb and was developed on the basis of discussions within the RIVM-CIb and with numerous outside parties. It succeeds the Strategic Policy Plan for 2005-2009, in which the general goals of the RIVM-CIb were defined. Those goals remain valid and are as follows:

Diagnosis, surveillance, early detection:

realising a nationwide network of good laboratories offering diagnostic services to various users, particularly including municipal health authorities and ensuring the availability of a representative network for the surveillance of infectious diseases.

Chain supervision:

realising a chain of professionals and organisations that collaborate effectively both at the national level and at the local/regional level.

Support for quality and innovation:

promoting the development of guidelines on infectious disease control (professionalism, uniformity, evidential basis).

Outbreak/Crisis management:

realising cooperative arrangements with a view to coping with major threats and outbreaks.

Prevention:

using vaccination, screening and influencing behaviour to prevent infectious diseases and their complications.

Policy evaluation and advice:

promoting the optimal utilisation of knowledge and of practical and scientific insight in governmental decision-making in the field of infectious disease control.

Science:

promoting a national infectious disease research programme, in which research and practice are optimally aligned

Communication:

providing clear, evidence-based and up-to-date information about infectious disease control for professionals and the general public.

International affairs:

ensuring optimal alignment and interaction between national and international infectious disease control mechanisms.

What the Strategic Policy Plan does and does not include

This policy plan is deliberately confined to those topics that have been identified in the evaluations *and* on the basis of recent experience as warranting additional attention in the next five years. Hence, the plan deals first with five strategic topics: strengthening the network organisation, grant-funding policy, international cooperation, research and the role and significance of laboratories. It goes on to consider four operational topics: vaccination programmes, antimicrobial resistance and care-related infections, zoonoses and STDs.

The fact that certain activities (e.g. surveillance and early detection (in the human population)) are not explicitly covered in the Strategic Policy Plan does not indicate that they are any less important. On the contrary, such activities will be continued, subject to periodic adaptation where necessary, and will be addressed in the RIVM-Clb's annual Work Plan. A full list of all the RIVM-Clb's activities is provided in the Project Schedule, which is appended to the annual Work Plan. One important point that has yet to be decided is how the RIVM-Clb should organise communication both with professionals and with the public. A separate memorandum on that subject is currently being prepared, in close alignment with the RIVM's overall communication policy.

The strategic policies described in this plan are components of the RIVM's strategy for the years ahead (as set out in the plan for change entitled 'Koersvast verder' ('Continuing On Course')) and, as such, they have been discussed by the RIVM's directors. It has not been possible to address the disbanding of the Netherlands Vaccine Institute (NVI) and the transfer of its public vaccine activities to the RIVM in any great detail in this Strategic Policy Plan, because the decision-making process has yet to be concluded. It is nevertheless clear that the move provides the RIVM-Clb with an opportunity, since incorporation of the NVI's public vaccine research and advisory teams will significantly bolster the RIVM-Clb's expertise in the relevant fields. It should also be noted that the findings of the influenza pandemic evaluation may necessitate refinement of the objectives set out in the document.

What activities has the RIVM-Clb discontinued?

The Strategic Policy Plan sets out ambitions that have to be realised in a period when additional funding is unlikely to be available. This implies that, in the short term, the RIVM-Clb will critically review its existing programme on the basis of the following three prioritisation principles:

- The RIVM-Clb engages in activities aimed at infectious disease control.
- The RIVM-Clb's activities address public health problems.
- The RIVM-Clb's tasks are governmental.

In concrete terms, this means that the RIVM-Clb will review its research portfolio in the period ahead. On the basis of this review, primary funding will be withdrawn from in-depth research activities, for which the RIVM-Clb will compete to secure alternative funding in collaboration with university research groups. Diagnostic activities will also be reviewed and the RIVM-Clb will withdraw from those diagnostic activities that have relatively little bearing on public health or that can be left to other bodies in the Netherlands, which are equally capable of undertaking them.

Until 1 January 2011, operational coordination of the NIP and the national screening programmes was undertaken by the Clb's Regional Coordination of Programmes Unit (RCP). However, this unit was placed under a temporary programme directorate that received the assignment to integrate these operational tasks structurally within the RIVM. That is the reason why this strategic policy plan does not further mention the RCP's activities. Of course, the RIVM-Clb nevertheless wishes to maintain good relations with RCP, which will continue to play an important role in the prevention of infectious disease in the Netherlands.

Strengthening the network organisation

Strategic goal:

The RIVM-CIB aims to be a stronger network organisation, with a view to optimising the prevention and control of infectious disease.

Objective 1: The RIVM-CIB is to act more as a network organisation by promoting a culture of internal and external cooperation.

Objective 2: The RIVM-CIB is to seek to increase the flexibility of its workforce, by for example employing fewer personnel on permanent contracts.

Introduction

Infectious disease control is by definition a network activity, in which numerous different disciplines each play a role. While it is itself part of the infectious disease control network, the RIVM-CIB also has responsibility for directing that network. Boer & Croon observed that infectious disease control in the Netherlands had improved since the RIVM-CIB's creation. It was concluded that the RIVM-CIB was a prominent, effective organisation, which acted with authority, was proactive in its approach, defined the agenda and performed a vital

role within the system. At the same time, the point was made that the RIVM-CIB needed to act more as a network organisation, taking account of the roles and requirements of the various actors in the field.

In relation both to existing infectious diseases and to emerging infectious diseases in particular, the RIVM-CIB is responsible for making sure that prevention and control are optimal. By working to provide a strong infrastructure, the RIVM-CIB helps to ensure that good problem identification and response are possible irrespective of the infectious disease it concerns. As the coordinator, the RIVM-CIB sees itself as the organisation that directs the infectious disease prevention and control network, thus ensuring that the Netherlands is prepared for emerging infectious disease problems.

The RIVM-CIB unites *practice, science and policy*. The RIVM-CIB is able to use its scientific insight to inform policy and practice. The choice of research topics is shaped by the needs of policymakers and professional practitioners. The RIVM-CIB has network partners in all three of the above-mentioned domains. In reference to the management of the RIVM-CIB itself, each of these domains has its own dynamics and requires different (core) competences.

The requirements of *practice* are such that the RIVM-CIB needs a network that is fully geared to the professionals

active in the field: municipal health authorities, academic associations such as the Netherlands Association of General Practitioners (NHG), and organisations that work to promote professionalisation, such as the Dutch Working Party on Infection Prevention (WIP), the RIVM's Centre for Healthy Living (CGL), the Centre for Youth Health (JGZ) and the Dutch Centre for Occupational Health (NCvB), plus bodies such as the Dutch STD and AIDS Foundation (Soa Aids Nederland) and the KNCV Tuberculosis Foundation. In case of outbreaks or calamities, it is important personnel are able to work to predefined, verifiable procedures and guidelines, make decisions quickly (sometimes on the basis of incomplete information), communicate sensitively with bodies practising in the field and respond flexibly to developments. Personnel who work mainly with practitioners need to be able to abide by decisions or procedures and must be team players.

The requirements of *science* are such that the RIVM-CIb needs a network that is geared to innovation and research: knowledge institutes and universities and hospital research groups in the Netherlands and elsewhere, scientific societies, such as the Infectious Diseases Society (VIZ), biotechnology companies and ZonMW. The RIVM-CIb's scientific needs also mean that it should encourage and nurture creative, innovative developments, seek and encourage internal and external scientific debate, and pursue complete and reliable information. Scientific work requires personnel to view themselves and others critically, look for new opportunities, show perseverance and enjoy discussion in national and international scientific forums.

The requirements of *policy* are such that RIVM-CIb personnel need to build and maintain networks of practitioners and scientists, work constructively with ministerial policy advisors and inspectors, and cooperate with health promotion bodies, the National Association of Municipal Health Authorities (GGD Nederland) and international organisations to encourage policy development. The RIVM-CIb needs to proactively identify policy development opportunities and combine the most important insights from practice and science. Such insights should then be accessibly and correctly communicated in policy reports that reflect the needs and capabilities of government departments and political reality. Policy advisors at the RIVM-CIb need to be able to weigh up different viewpoints and interests and to network effectively; they should also have administrative insight and the ability to combine vision and pragmatism.

The RIVM-CIb has an extensive network and a wide and complex package of responsibilities. That brings considerable benefits, but also makes exacting requirements of the organisation's internal management. Diversity is a strength, but also necessitates a great deal of

discussion, harmonisation and willingness to overcome language and cultural differences. The RIVM-CIb therefore wishes to devote more time to strategic discussion and to promote a culture of cooperation. The RIVM-CIb's responsibilities must inevitably change over time, as the infectious disease challenges and public expectations change. The RIVM-CIb therefore needs flexible personnel and the ability to adjust its workforce in line with changes in its responsibilities.

In 2011, the NVI's public research operation will be transferred to the RIVM-CIb. This will mean the integration of a team of more than 120 FTEs within a team comprising roughly 250 FTEs. The merger will lead to the adaptation and harmonisation of related activities. It will also strengthen the RIVM-CIb's expertise in fields such as vaccinology, thus enhancing the advisory process in the relevant fields.

Vision for the future

By 2015, the RIVM-CIb will operate more as a network organisation, maintaining good relations with its partners in infectious disease control, recognising and valuing the abilities of various organisations and the complementary contributions that they make to the prevention and control of infectious disease. The field in which activities are undertaken is public health in the broad definition, including occupational health in relation to infectious diseases. This will enable the RIVM-CIb to achieve the following aims in the field of infectious disease control:

- Effective performance of the RIVM-CIb's directing role: within the network, the RIVM-CIb will work to ensure that all players accept its directing role.
- Pooling the knowledge and expertise of various organisations to facilitate the control of infectious disease problems: through the network, the RIVM-CIb will have access to a wide variety of disciplines and fields of expertise, such as the social sciences.
- Development, implementation and monitoring of a common strategy and objectives for prevention and control: through the network it will be possible to accumulate complementary, mutually reinforcing knowledge and experience, especially in fields where the RIVM-CIb has no expertise itself.
- Promoting efficiency in the prevention and control of infectious diseases.

In 2015 the RIVM-CIb will operate as a single organisation that gives due attention to all its personnel, whether they are engaged in *research*, in *practice* support work or in *policy* formulation. The RIVM-CIb will have a structure that reflects the diversity in core competences and is designed to ensure cohesion between various competences, with a

view to optimising the organisation's pursuit of its mission.

By 2015, due to budgetary contraction, the RIVM-Clb will have withdrawn from certain activities, will have secured additional research funding and will have introduced economies in line with overall RIVM strategy. On the basis of careful external and internal evaluation, the NVI's research activities will have been integrated within the RIVM-Clb.

Plans for the period up to 2015

- The RIVM-Clb will develop into a network organisation by promoting a culture of internal and external cooperation. Every year, various internal and external debates will be organised surrounding operational topics; these debates will include the Transmission Day, the Tuberculosis Practice Days, the STD/HIV Expert Meeting, the ISIS-AR and the Surveillance Network Infectious Diseases in Nursing Homes (SNIV) Participation Days. In addition, the RIVM-Clb will organise themed conferences and strategic discussion meetings. RIVM-Clb personnel will spend time on secondment to the Ministry of Health, Welfare and Sport, in order to reach a better understanding of the policy context of their activities. Furthermore, the RIVM-Clb will arrange reciprocal personnel secondments with other organisations. At least two study internships per year will be made available for people working in infectious disease control in the Netherlands, such as communicable disease consultants and medical microbiologists. In each unit, there will be at least two dual appointees (personnel who also hold positions within the national network). There will be greater recognition of the expertise of network partners; this will manifest itself in, for example, co-authorships and joint presentations at congresses. In the context of its infectious disease control management role, the RIVM-Clb will invite relevant network partners, patients' associations and research groups to express their views.
- The RIVM-Clb also wishes to make itself more open to input from the social sciences. In fulfilling the directing role in infectious disease control, the RIVM-Clb will increasingly use the insights of relevant network partners, patient associations and research groups.
- A smooth cooperation between RIVM-Clb, the municipal health authorities and the medical microbiology laboratories is essential for disease control. The regional advisors (RAC) are the linking pins between RIVM-Clb and bodies involved in disease control at the regional level. By investing in an optimal approach, the RIVM-Clb aims to prepare for emerging problems and changing situations, like zoonoses or the field of occupational health.
- Management skills will be improved. To that end, there will be investment in the management skills of all managerial personnel. The RIVM-Clb will develop a leadership profile for departmental and other managers and a customised training and peer review programme. Individual staff members will be enabled to develop competences relevant to the dimension within which they work. This development will be encouraged by a coaching leadership style, selection, development, performance and appraisal interviews and a considered remuneration policy. Each unit will draw up an annual training plan and foster personnel mobility and flexibility.
- The RIVM-Clb's various dimensions and responsibilities will be reflected in the makeup of the Management Team (MT) and management will be based on cooperation. Once a year, the units and the MT will hold a(n) (away-day) session, during which operational and management topics will be addressed. Internal communication will be reinforced using Insite and by means of staff and work discussion meetings.
- In view of the dynamic nature of the requirements made of it, the RIVM-Clb wishes to increase the flexibility of its workforce by, for example, employing fewer people on permanent contracts. To that end, the RIVM-Clb will work closely with the RIVM's HRM Department to develop an alternative appointment policy for the organisation.

Grant-funding policy

Strategic goal:

The RIVM-CIB aims to award grants to support activities, which aid the prevention of infections/infectious diseases and which are effectively and efficiently undertaken by bodies other than the RIVM.

Objective 3: As of 2012, the existing institutional grants are to be substantially reduced or withdrawn. The RIVM-CIB will instead make project grants available for activities that support the prevention and control of infectious diseases or the promotion of sexual health.

Introduction

The RIVM-CIB was given the role of grant-funding when it was set up in 2005. The responsibility for grant-funding provides the RIVM-CIB with an instrument to direct infectious disease control. The statutory basis for the RIVM-CIB's grant-funding activities is provided by the General Administrative Law Act and the Ministry of Health, Welfare and Sport's Funding Regulations.

For 5 years, the RIVM-CIB has given grants worth roughly 8 million euros a year to twelve organisations active in the field of infectious disease control. These grant-funding

activities are a continuation of the activities previously undertaken by the Ministry of Health, Welfare and Sport. Funding is given to organisations that are active in the following fields: sexually transmitted diseases, viral hepatitis, tuberculosis, prion diseases, antimicrobial resistance and care-related infections.

At the request of the Minister of Health, Welfare and Sport, an operational review of the RIVM-CIB's grant-funding activities was undertaken at the end of 2008 by a committee chaired by Professor P.J. van der Maas. The committee's observations were backed up by the findings of Boer & Croon's 2009 evaluation of the RIVM-CIB. The main conclusion of both the evaluations was that in practice the RIVM-CIB was insufficiently capable of directing the grant-funding activities based on policy or scientific insights.

Vision for the future

In the interests of infectious disease control, the RIVM-CIB encourages a network of community organisations that develop, support and improve activities aimed at the prevention of infectious disease and the promotion of sexual health, including activities that are aimed at intermediaries. In order to facilitate the activities of its network partners, the RIVM-CIB makes grants available to support activities aimed at the prevention of infections/infectious disease or the promotion of sexual health. In

terms of the health issues addressed by its grant-funding activities, the RIVM-Clb prioritises infections and infectious diseases that are associated with a substantial burden of disease and for which effective preventive measures are available (at least for certain groups); the RIVM-Clb also prioritises activities that are clearly beneficial to the health of at-risk groups. The focuses continue to be sexually transmitted diseases (including the promotion of sexual health), viral hepatitis, tuberculosis, prion diseases, antimicrobial resistance and care-related infections. If new infectious disease problems should emerge, funding may also be provided for activities that address them. Specific topics could in time become less of a priority and therefore no longer be eligible for grants.

The RIVM-Clb will formulate the requirements for grant-funding before 1 July 2011 in consultation with external bodies that are active in the field of infectious disease control and prevention. The RIVM-Clb finds that it is important that grants are awarded for activities that are complementary to activities of other bodies and the RIVM-Clb itself. The requirements for receiving grants will be adjusted yearly and made available through the website of the RIVM before the 1st of July. The requirements and terms will be checked by the Grant-Funding Expertise Centre of the Ministry of Health, Welfare and Sport.

Grant applications have to satisfy the general conditions applicable to government funding. The initiative to apply for grants lies with the applicant. In recent years, a number of organisations have arranged for independent evaluations. The organisations in question may use the findings of those evaluations to support applications for institutional and project grants. When awarding grants, the RIVM-Clb pays particular attention to the quality of the activities, as evidenced by operational reports and financial accounts.

Because of RIVM-Clb's coordinating role and because data on infectious diseases should be speedily and comprehensively available to infectious disease control, the responsibility for the surveillance of infectious diseases in the Netherlands is with the RIVM-Clb. Therefore, the RIVM-Clb will no longer award grants for surveillance activities. However, other organisations' surveillance activities may contribute to the discharge of this responsibility. The RIVM-Clb will migrate to the support of such activities by means of contracting, as opposed to grant-funding.

With a view to remaining in step with a changing environment, the RIVM-Clb's grant-funding policy needs to be made more flexible. The existing institutional grants are therefore to be substantially reduced or replaced by

project grants and contracts. In the future, limited institutional grants are available only to organisations whose infrastructure is utilised for preventive infectious disease control activities, and only insofar as they can continuously and immediately be put to effective use, and only insofar as the preventive activities in question are consistent with the RIVM-Clb's operational parameters for grant-funding (see below). Projects grants are by nature temporary, thus facilitating operational adaptation to dynamic circumstances. Before the summer of 2011, the RIVM-Clb will examine which activities are eligible for grants and which are not.

Organisations will be made aware of the possibility to file for appeal with an independent Appeals Commission against the way a grant application was handled.

Plans for the period up to 2015

- The RIVM-Clb will make grants available only to support activities that contribute to the prevention and control of infections/infectious diseases or the promotion of sexual health.
- The existing institutional grants are to be substantially reduced or replaced by project grants and contracts. Project grants will be made available only for the activities described above and will have a maximum term of three years. The exclusivity criterion implies that grants will not be made available for policy support, representation, surveillance or research, since all such activities are organised or funded via other channels: national policy support is undertaken by the RIVM-Clb, and municipal policy support by the municipal health authorities; patient representation is funded through the PGO Fund and research through the ZonMW and other national and international research support bodies.
- Since surveillance data should be readily and fully accessible to RIVM-Clb, grant-funding is not the designated way to organise surveillance activities by other organisations. Support for surveillance activities will therefore be through the award of contracts. When deciding whether to award a contract, the RIVM-Clb will consider whether it is more cost-effective or qualitatively desirable for the activity in question to be performed by the RIVM-Clb itself or by an outside body. The budget currently available for grants for surveillance activities will be transferred to the budget available for contracts, including annual indexation.
- The implication of the foregoing is that some of the existing institutional grants will be substantially reduced, while others will be withdrawn altogether; from 2012 such grants will be largely replaced by a range of project grants for preventive activities and contracts

for surveillance activities and the like. The RIVM-CIb will ensure that the transition is as smooth as possible.

- There will in principle be a single annual round of project grant awards. However, if the value of the grants awarded is less than the total budgeted amount, a second round may take place. In its departmental budget, the Ministry of Health, Welfare and Sport will publicly define the financial parameters (i.e. the overall budget for infectious disease-related grants), within which the RIVM-CIb will receive assistance by a reviewing committee when considering grant applications and making awards.

The RIVM-CIb will further apply its own operational parameters, as follows:

- o Consideration may be given only to applications concerning preventive activities that are demonstrably effective, of good quality, innovative and lend themselves to implementation beyond the term of the project grant. These elements are underpinned in the application by literature and preferably by the results of external evaluations and insights from abroad.
- o Consideration may be given only to applications concerning preventive activities aimed at infectious disease problems with a substantial burden of disease.
- o Consideration may be given only to applications concerning preventive activities that have the potential to yield definite health benefits, at least for high-risk groups.
- o Consideration may be given only to applications concerning preventive activities that, in combination with the activities of other funded or non-funded organisations, contribute to a coherent preventive portfolio of complementary activities that do not overlap.

In addition, the RIVM-CIb may fund small investments by contributing up to 50% of the cost of symposia, books or websites on the subject of infectious disease control (subject to a ceiling of 15,000 euros per award).

The RIVM-CIb intends to establish a committee to assess project grant applications within the parameters set out above. The committee is to advise the Director of the RIVM-CIb, who will have ultimate responsibility for deciding whether a grant is made available. The committee will be made up of personnel from the RIVM, the Ministry of Health, Welfare and Sport and external bodies. Maximal transparency is pursued relating to the interests of committee members. The committee will appoint one of its members as the chair. The RIVM-CIb facilitates the committee by acting as the secretariat. A representative of the Ministry of Health, Welfare and Sport will observe committee meetings.

- The portfolio of grants for which the RIVM-CIb has responsibility will be rationalised following review on the basis of the following three questions:
 - o Does the Ministry of Health, Welfare and Sport currently have responsibility for any grants, which would form a more natural part of the RIVM-CIb's portfolio?
 - o Does the RIVM-CIb currently have responsibility for any grants, which would form a more natural part of the Ministry of Health, Welfare and Sport's portfolio?
 - o Are any activities supported by contracting, which it would be more appropriate to support by grant-funding, and vice versa?
- Within the field of 'Sexually and blood-borne transmissible disease', the RIVM-CIb will in the period ahead devote more attention to the quality and effectiveness of interventions, the reallocation of the budget across the target groups in line with epidemiological developments and the harmonisation of partner-organisations' intermediary-related activities. The envisaged STD/HIV plan will guide activities in this field.
- Within the field of 'Care-related infections and antimicrobial resistance', the RIVM-CIb will in the period ahead endeavour to achieve greater cohesion between the activities of the Dutch Working Party on Antibiotic Policy (SWAB), WIP, and RIVM-CIb; it will also encourage the involvement of the curative sector and relevant specialists, with a view to improving insight into the problems that exist and providing better solutions for them.
- In the plan period, the RIVM-CIb's funding of tuberculosis-related activities will be guided by the national tuberculosis control plan. Because of the overlap between the activities and responsibilities of the KNCV Tuberculosis Foundation and those of the RIVM-CIb, closer personal cooperation is desirable.

International cooperation

Strategic goal:

The RIVM-CIB commits to international cooperation on infectious disease, with a view to increasing expertise and providing for a more rapid response to any emergency that might arise in the Netherlands.

Objective 4: Where international cooperation is concerned, the RIVM-CIB is to invest primarily (but not exclusively) in building up cooperative ties within the EU.

Objective 5: Before the end of 2015, the RIVM-CIB is to establish long-term working relationships with one or two infectious disease knowledge centres in developing countries.

Introduction

The Netherlands has a great deal of international contact through travel and migration, as well as through the internationalisation of trade in food and other goods. Moreover, in a small country like the Netherlands, the prevention and control of infectious diseases inevitably depends on what happens in other countries and on how infectious disease control is organised elsewhere.

Considerable infectious disease expertise exists in the Netherlands' universities, hospitals, municipal health authorities and national knowledge institutes, including of course the RIVM-CIB itself. The experts working within such organisations typically have their own national and international networks, within which they share knowledge, undertake research and make presentations. Such networks are vital for experts to remain abreast of developments and perform innovative research. However, they are at least as important in the prevention and control of infectious disease, because they make it possible to draw upon specific expertise that exists in other countries. The networks are also essential as access channels to the latest knowledge, since there is always a delay before new findings are reported in academic journals. Furthermore, even though the Netherlands possesses great expertise, there are gaps in our knowledge, especially in relation to infectious diseases that are rare or absent here. Such conditions can give rise to unexpected threats; when they do, close ties with experts in other countries can be highly advantageous.

It is therefore essential that the RIVM-CIB pursues international cooperation in the field of infectious disease control. Without an international network, effective control is not possible. The (scientific) personnel are accordingly expected to participate actively in both national and international networks.

Vision for the future

The RIVM-CIb is currently the national centre for infectious disease control in the Netherlands. However, since the ECDC is likely to acquire a more prominent role, the role of national centres like the RIVM-CIb may well change over time. A contributory factor in that regard may be further specialisation, which could make the Netherlands more dependent on the expertise possessed by other EU countries. Economic factors may add momentum to the process, since domestic sources of funding – primarily the Ministry of Health, Welfare and Sport at present – are liable to have less money at their disposal for expertise maintenance. The way ECDC has been positioned will not enable it to bring all the required expertise in house; rather, it will act mainly as a network organisation, supporting knowledge centres in EU member states. In view of the RIVM-CIb's strong current position in various fields of infectious disease control, it will be well placed to operate as an EU knowledge centre in those fields.

The fields in which the RIVM-CIb considers itself best qualified for the role of EU knowledge centre are antimicrobial resistance (including MDR/XDR tuberculosis), zoonoses and vaccine-related activities. That is significant not only in the context of the maintenance and strengthening of infectious disease control at the national level – which will remain necessary for the foreseeable future, even against the backdrop of ongoing European integration – but also for knowledge innovation, one of the drivers of our economy.

Vaccination and other factors may bring about further declines in the incidence of some infectious diseases in the Netherlands and other EU countries. This in turn is liable to lead to the dissipation of local knowledge. However, due to globalisation, the diseases in question will remain potential threats as long as they continue to circulate in other countries. Knowledge regarding declining infectious diseases will therefore remain valuable, and the RIVM-CIb sees two possible ways of retaining it. The RIVM-CIb wishes to invest in collaboration with established and emerging knowledge centres in developing countries, especially those where infectious disease remains a major cause of morbidity and mortality. By doing so, a contribution is made to the international control of infectious disease and to capability uplift in developing countries. Short, limited-scope ('hit and run') projects in developing countries yield less for either side than long-term cooperative relationships characterised by familiarity and trust.

Plans for the period up to 2015

- The RIVM-CIb represents the Netherlands on international bodies that require expertise in the field of infectious disease, by delegating a member of its own staff or a staff member from a Dutch professional association.
- The RIVM-CIb maintains an international network of research and control experts. This network is funded primarily from projects and permanent funding channels, which pay for people to attend congresses and so forth. A limited amount of money is also available for inviting experts from other countries, preferably for extended secondments, and sending RIVM-CIb personnel on secondments to institutes in other countries. Such exchanges have a stimulating and innovative effect. An English-language programme is being developed for external faculty and sabbatical visitors. In that context, emphasis is placed on the unique data available at the RIVM and the opportunities for high-level research during the placement.
- In the field of knowledge transfer and training, the RIVM-CIb participates in or organises various training courses, mostly under the EU umbrella. These activities yield useful contacts and contribute to the RIVM-CIb's international profile.
- The RIVM-CIb invests in various collaborative EU projects, particularly in the fields of antimicrobial resistance (including MDR/XDR-tuberculosis), zoonoses and vaccine-related activities. The RIVM-CIb will increasingly need to act as a representative of all the Netherlands' infectious disease experts and organisations, rather than in an independent capacity. The RIVM-CIb already participates in numerous infectious disease projects within Europe and a few geographically wider projects. More vigorous encouragement will be given to participation in such projects, because they offer the opportunity to harvest knowledge internationally, thus benefitting public health in the Netherlands. The funding available for such projects is often insufficient to cover the true cost. It has accordingly been decided to allocate extra funds from the RIVM Strategic Research (SOR) budget managed by the RIVM for the encouragement of international projects. In addition, relevant EU projects will be reviewed to determine whether they tie in with national projects for which contra-funding is possible. The RIVM-CIb will seek support with the reporting and administration of international (EU) projects.
- The RIVM-CIb will additionally invest in its relationship with the WHO, by for example sending delegates to WHO Expert Meetings or by acting as a WHO Collaborating Centre or WHO Reference Laboratory.
- The RIVM-CIb will not focus exclusively on Europe. On the international stage, cooperation with the WHO and

the Food and Agriculture Organization of the United Nations (FAO) – in the form of secondments, for example – is at least equally important. The RIVM-CIB also wishes to establish long-term working relationships with one or two infectious disease knowledge centres in developing countries. In that context, the intention is to draw up a plan for stationing personnel locally and setting up joint projects, to align this plan with the Ministry of Health, Welfare and Sport and to discuss it with the Ministry of Foreign Affairs (development cooperation). In order to qualify for funding from the Ministry of Foreign Affairs, the RIVM will need to obtain recognition as a partner.

Research

Strategic goal:

The RIVM-CIB aims to undertake research and/or utilise the results of others' research in order to ensure that the prevention and control of infectious disease is underpinned by a sound research base.

Objective 6: On the basis of a five-year strategy document, a programme budget will be made available annually for each theme, which will be used to initiate or reinforce activities aimed at the priorities within that theme.

Objective 7: By 2015, at least 30% of the RIVM-CIB's research will be externally funded and the number of dual appointments made with universities and other (research) bodies will have increased to at least 15. In addition, at least 40 PhD students will by that date be working within the RIVM-CIB.

Introduction

Knowledge about how microorganisms spread and how people (and animals) react to them is constantly developing. Scientific research is therefore necessary if an authoritative contribution is to be made to the prevention and control of

infectious diseases. Furthermore, good lines of research form the basis of the national and international scientific network required for effective control. The CIB's research concentrates on infectious diseases that constitute a (potential) threat to public health in the Netherlands. In line with the advice of the international audit committee that evaluated the CIB's research activities in 2010, the RIVM-CIB is adopting a programme-based approach, so that research lines may be reinforced. To that end, seven themes have been defined on the basis of the research strategy for the period 2008-2013. For each theme, a theme leader has been appointed, who has the task of integrating the research, which often takes place in different departments. The existing themes are:

- vaccine-related research;
- enteral infections;
- antibiotic resistance & care-related infections;
- respiratory infections;
- emerging infections, preparedness and response;
- zoonoses;
- sexually transmitted diseases.

Within these themes, the RIVM-CIB also undertakes more generic research, in areas such as modelling, bio-informatics, phylogenetics and risk assessment. The RIVM-CIB's research is funded from various sources. In the summer of each year, drawing on input from the external advisory committee and requests made by the Ministry of Health, Welfare and Sport, a draft plan is produced for the

following year, identifying the projects to be funded via the RIVM-Clb's programme budget. This draft is submitted to the Ministry of Health, Welfare and Sport for approval in the autumn. Some RIVM-Clb projects involve a considerable amount of research, while others involve little or none. Research is additionally supported from the RIVM's strategic research budget and out of indirect and other funds. If warranted by developments, *ad hoc* research may be initiated. The theme leaders promote the exchange of research ideas and experience amongst the researchers working within their themes. Together, the relevant researchers and the theme leaders have formulated a strategy.

At the strategic level, the Clb contributes to the development of a national infectious disease research programme by engaging in discussions about the priorities for the research programmes of ZonMW, the European Commission and various research schools and consortiums. In addition, the professors affiliated to the Clb encourage research aimed specifically at public health, and thus contribute to a national infectious disease research programme.

Vision for the future

In the plan period, the RIVM-Clb's research strategy will build upon the existing strategy. However, more emphasis will be placed on multidisciplinary research and on intervention strategies. In terms of the subjects addressed, the integration of the NVI will lead to increased involvement in vaccine research. The RIVM-Clb also plans to conduct more research in collaboration within the RIVM and with university research groups and knowledge institutes. Research budgets are to be allocated using a system of periodic project assessment, taking account of relevance and input to policy, practice and science and of the degree of effective multidisciplinary cooperation.

The RIVM-Clb encourages researchers to seek additional funding for research that supports the RIVM-Clb's mission. Where gaps are identified in the RIVM-Clb's research lines, researchers with the relevant expertise will be recruited. Primary funding will not be made available for in-depth research activities, for which the RIVM-Clb will compete to secure alternative funding.

Innovation in research is encouraged by vigorous academic debate, by the existence of critical mass, by the influx of new ideas and by collaboration with external researchers. The RIVM-Clb therefore prefers to work in association with universities and other research bodies. Cooperation will be sought with all universities in the Netherlands, both through postgraduate research projects and by means of

the dual appointment of scientific researchers. The RIVM-Clb also intends to work with research groups in other countries, particularly EU countries, which are active in the relevant field. HRM policy will be geared more towards innovation than has previously been the case. The number of permanent research posts will gradually be reduced. In their place, the RIVM-Clb will look to appoint postdoctoral researchers on fixed-term contracts. Furthermore, in line with the advice of the scientific audit committee, effort will be made to increase the ratio of postdoctoral researchers to senior and postgraduate researchers.

Research will be prioritised for each theme individually and accounted for in a similar fashion. The theme leaders will be given a greater role in prioritisation and accounting. The intention is that the research programmes should more closely reflect the relative importance of infections. In the future, the RIVM-Clb wishes to place greater emphasis on the pooling of information about infectious diseases, whether through surveillance activities or through the external sourcing and onward communication of data.

In the future, the RIVM-Clb intends to place even greater emphasis on the translation of research results into practice. In this context too, the theme leaders will play an important role. At present, the RIVM-Clb's research is predominantly biomedical. However, insight into human behaviour is vital for effective infectious disease prevention and control. Social science has in recent years acquired a prominent role, particularly in the prevention of STDs, in the promotion of sexual health, in communication regarding the NIP and in vaccine-related research. In the plan period, the RIVM-Clb expects to expand its social science activities in conjunction with research groups at, for example, the University of Leiden, the University of Maastricht, IQ Healthcare Nijmegen and TNO Quality of Life. The development of these activities will take place in close consultation with other researchers within the RIVM. The research is to focus on themes such as guideline implementation, risk perception and communication.

The RIVM-Clb needs to be prepared for future technological developments in data collection and analysis, diagnostics, prevention and control. Consideration will be given to appropriate mechanisms in the context of internal discussions. Investment in technological developments will be harmonised with external research groups, with a view to securing joint funding and realising shared use.

Integration of the RIVM-Clb and the public vaccine research arm of the NVI with effect from 1 January 2011 will lead to integrated research programming in the field of vaccinology from 2012.

Plans for the period up to 2015

- In 2011, the RIVM-CIb will update its research strategy for 2008-2013 in line with the integrated vaccine research programme. The update will draw upon the vaccine research strategy document that is to be developed in 2011 on the basis of an international scientific audit and in consultation with the Ministry of Health, Welfare and Sport.
- The theme leaders are to encourage innovation within their themes by inviting researchers to formulate proposals.
- For each theme, a strategy document defining that theme's research priorities will be drawn up every five years by the theme leader.
- Between 3 and 5% of the programme budget for each theme will be made available for funding multi-year projects. The RIVM-CIb intends to formulate its theme budgets in a way that encourages internal and external cooperation. The funding structure and parameters are to be defined in 2011.
- The acquisition of additional research funding will be encouraged and facilitated: 30% of the research is to be externally funded by 2015.
- By 2015, there are to be 15 researchers with dual appointments (professorships and (senior) university lecturer's posts). The aim is also that, by that date, there will be 10 researchers on secondment to the RIVM-CIb from university research groups or other research bodies and at least 40 PhD students working at the RIVM-CIb.
- The RIVM-CIb will train its senior personnel to have a strong affinity for prevention, control and policy within key research dossiers.
- Expertise in behavioural science research is to be pooled within the RIVM organisation as a whole and implemented within the RIVM and/or in conjunction with one or more external research groups.
- The RIVM-CIb is to organise internal discussions about preparation for future technological developments in diagnostics, prevention and control.

Role and significance of laboratories

Strategic goal:

The RIVM-Clb ensures the existence of a national laboratory infrastructure to support infectious disease control.

Objective 8: The RIVM-Clb is to develop outbreak guidelines for coordinated laboratory upscaling and response. There will be systematic collaboration with medical microbiology laboratories for typing of common pathogens. By the end of 2014, there will be upscaling and response guidelines for at least three microorganisms.

Objective 9: Before the end of 2013, the RIVM-Clb is to realise a national professional biobank for infection-related materials and data, in conjunction with a reference laboratory structure.

Introduction

The RIVM-Clb has the task of working as a network organisation to organise infectious disease control in collaboration with various partners. One element of that task is directing laboratory activities undertaken in the context of public health care. Patient care-related diagnostic laboratory activities are undertaken primarily

by medical microbiology laboratories. Some of those laboratories also provide diagnostic services to municipal health authorities. The RIVM-Clb is expected to identify gaps in microbiological diagnostic capability and to put forward solutions. With that end in mind, the RIVM-Clb updated the Pathogen Report in 2009. The findings of the inventory serve to inform selection of the laboratory activities that the RIVM-Clb will undertake itself (since they are not undertaken elsewhere in the national laboratory infrastructure) and those that may be left to network partners. What that means in practice is that the RIVM-Clb carries out diagnostic work almost exclusively in connection with diseases that are less prominent in medical microbiology practice, such as certain import diseases, vector-transmissible diseases and zoonoses. The RIVM-Clb additionally supports municipal health authorities with diagnostic services if, during outbreaks, they are unable to source diagnostic services from mainstream providers.

Providing BSL-3/4 laboratory capacity is related to the issue of offering special diagnostic services. BSL-3 pathogen work (including diagnostic work) is already undertaken within the mainstream programmes and will be secured mainly through relocation. The BSL-4 laboratory is in a different position, however, since no BSL4-level work currently takes place in the Netherlands. Construction of the Spronck Laboratory had been approved at the political level in order to ensure the

availability in case of calamities. Setting up diagnostic methods for BSL-4 pathogens is now the first goal. This will involve training personnel, since the relevant expertise is currently lacking in the Netherlands. The expectation is that the training will continue for a large part of 2011, after which the implementation of BSL-4 diagnostic activities can begin. In addition, a survey will be undertaken to identify whether other bodies in the Netherlands are interested in doing BSL-4 work.

To ensure the availability of additional research (e.g. genetic typing of microorganisms) and support in the event of outbreaks that generate demand that exceeds the local capacity, the RIVM-Clb offers reference laboratory services, which may or may not be secured from outside providers. This system was used successfully in the context of the laboratory response to the diagnostic challenges associated with the swine flu pandemic in 2009.

Within the non-human domain, the RIVM-Clb acts as the reference laboratory for parasitic zoonoses, *Salmonella* and pathogens from bivalves; from 2011, the reference function will be expanded to include *Listeria*, pathogenic *E. coli* and *S. aureus*. In addition, the RIVM-Clb is increasingly used for research into (detection and classification of) the non-human sources of national outbreaks, unless another body has responsibility for doing so (e.g. the Food and Consumer Product Safety Authority (nVWA), for food, the Central Veterinary Institute (CVI) for livestock-related outbreaks and the Haarlem Regional Laboratory for Legionella (BEL)). RIVM-Clb's non-human laboratory work requires harmonisation with human diagnostic and classification methods. The RIVM-Clb intends to develop, amongst other things, diagnostic and typing methods for pathogens in wild animals, vectors, food, water and air, and staffs the biological emergency response team.

Most medical microbiology laboratories are independent organisations with no formal status in the context of infectious disease control (unlike the municipal health authorities). As a result, there is no particular body that the RIVM-Clb can refer to or deal with on policy matters. The Public Health Care and Microbiology Committee (COM) was set up to realise the laboratory network and facilitate the management of infectious disease control. The COM consists of a number of physician-microbiologists and the RIVM-Clb's laboratory managers. The COM's role is to identify issues and provide advice, both to the Director of the RIVM-Clb and to local bodies in the control chain. It also acts as a link between partners in the field and the RIVM-Clb laboratories and has encouraged debate regarding the revision of RIVM-Clb activities.

Although new control tasks have been added to the responsibilities of the RIVM-Clb laboratories, there has

been no compensatory reduction in other activities. Partly as a result, little progress has been made in some RIVM-Clb laboratory units in terms of improving alignment with the control agenda. Furthermore, there is no consensus within the medical microbiology profession as to the nature of the directing role that the RIVM-Clb should play, and there are more current topics than the RIVM-Clb can realistically address. While prioritisation is no easy undertaking, it is necessary across the RIVM-Clb's entire activity spectrum. The RIVM-Clb laboratories have also come under pressure due to the number and ad hoc nature of the requests made for prevention and control support. Flexibility in the handling of such requests depends upon effecting a change of culture. Such a change has been set in motion, but has not yet been fully brought about.

Nevertheless, cooperation between the medical microbiology laboratories and the RIVM-Clb has improved considerably over the years since the latter's formation, particularly in terms of emergency response and microorganism surveillance. Examples of this improvement include ISIS-AR, the Surveillance Council (a forum that exists to facilitate the efficient and clear organisation of surveillance activities with external bodies) and labinf@ct (a messaging service for microbiology laboratories and upscaling laboratories). With the development of diagnostic algorithms for common syndromes in municipal health care, steps have been taken towards the professionalisation and standardisation of diagnostic outbreak support. In this context, the RIVM-Clb has a part to play in identifying problems surrounding the quality of diagnostic services and working towards solutions, but responsibility for improving patient diagnostics lies with the profession. In situations where control activities are based upon laboratory diagnostics, the RIVM-Clb plays a directing role and can, where necessary, give advice on diagnostic matters, in consultation with the field. Events surrounding emergence of the new influenza proved to be a useful test in that regard.

With a view to preventing excessive fragmentation of capacity and knowledge, partly because new surveillance (typing), detection and research issues and targets are constantly being formulated within the RIVM-Clb (e.g. Q fever, HPV, new influenza, ESBL and pneumococci), there is a need to reconsider what the RIVM-Clb laboratories' core activities should be. For example, the RIVM-Clb wishes to leave diagnostic work that has less significance for public health to other bodies, insofar as suitable candidates can be identified. The RIVM-Clb needs long-term insights from its own laboratories in order to be prepared for emerging infectious diseases. Therefore, it has opted not to shift its focus from the international knowledge centre role to national diagnostics. The success of the RIVM-Clb is in part

due to many years of investing in depth, thus ensuring that sufficient laboratory expertise has been available in house to respond appropriately to new problems and to fulfil reference functions. The challenge is to create sufficient flexibility to respond to acute needs, without sacrificing the depth or international involvement that are required if the RIVM-CIb is to provide high-quality advice and long-term vision. That is certainly the case on the international stage, where RIVM-CIb laboratories collaborate under the EU/ECDC and WHO umbrellas (e.g. on measles, polio, enteric viruses and tuberculosis). With a view to retaining its depth and international involvement, the RIVM-CIb intends to work more with external funding.

Finally, the integration of vaccine research activities following the NVI's incorporation within the RIVM-CIb will inevitably have implications for the priorities of the laboratory work of the RIVM-CIb, because the 'NVI group' will increase the laboratory capacity by around 70%.

Vision for the future

A strong laboratory with (inter)nationally respected, communicatively able researchers plus well-organised, demarcated and facilitated cooperation with other (human, veterinary and food) laboratories in the Netherlands and beyond are vital for effective and efficient infectious disease control in the Netherlands. This applies in relation to all laboratory infrastructure functions: the provision of a (nationwide) diagnostic network for all infections that are relevant to public health care, emergency response, surveillance, NIP evaluation and scientific research. There is also a need to reinforce and professionalise cooperation with the field. That implies the development of a shared agenda for quality and diagnostics quality monitoring, including the development of a network of reference laboratories with clearly defined duties in the field of public health care and (laboratory) surveillance. To that end, the RIVM-CIb needs to maintain good insight into the primary process. Undertaking diagnostic work in house – such as is currently normal for rare infections – can contribute in that regard. However, the RIVM-CIb should also seek to make dual appointments with mainstream medical microbiology laboratories, train laboratory personnel for reference laboratory work, and establish a public health internship as a fixed element of medical microbiologist training and veterinary microbiologist training.

Where the response to (new) infectious disease problems is concerned, the laboratory functions need to be developed further. To that end, it is important to reinforce the presence within the RIVM-CIb of laboratory personnel with affinity for prevention and control, particularly at the

senior level. It may also be advantageous to investigate how peripheral microbiologists and perhaps veterinary institutes can be utilised in emergencies to undertake control activities under the RIVM-CIb's direction. Detailed arrangements should therefore be made regarding the government's role in relation to laboratory activities under such circumstances.

Where laboratory activities are concerned, the boundary between the diagnosis and typing of infectious diseases for intramural patient care, and the diagnosis and typing of such diseases in primary and public health care has become increasingly indistinct. Clear agreements regarding role demarcation are therefore needed. The RIVM-CIb will invest further in the development of a typing system for microorganisms (TypeNed), where possible accommodating both the desire for typing in the context of local issues (e.g. hospital epidemiology, source tracing) and the desire to support (inter)national surveillance and research. This will enable the RIVM-CIb, working closely with the appointed partner laboratories, to provide for routine microbiological typing, the results of which are stored in readily accessible data systems. Integration with comparable databases in the veterinary and food domains is important. In this field, the RIVM-CIb has a reference role; it facilitates data collection by providing for professionally organised, accessible databases and biobanks, analyses data using sophisticated techniques and undertakes knowledge-deepening research in an international setting with a view to detecting and initiating new developments promptly. In this field, there is a need to develop ICT and analysis methods, for which the RIVM-CIb will seek cooperation with strong bio-informatics institutes in the Netherlands and elsewhere. A user-friendly laboratory web portal is a particular requirement.

A recurring theme in the topics referred to above is the basis for the surveillance activities to which medical microbiology laboratories contribute. If the RIVM-CIb is to perform its public health role properly, it is essential to monitor events by means of such surveillance programmes and to consider what the basis of these activities is and how they may be funded. It is also necessary to define a policy on the non-financial costs and benefits of public health work, such as activities that may lead to publications or patents.

Optimal use should be made of the expertise of RIVM-CIb laboratory personnel with affinity for prevention, control and policy. Specialist training for laboratory personnel may help them to meet the expectations of the field.

The expectation is that, in the period ahead, appropriate bodies will be selected to act as European reference

laboratories. As an internationally prominent public health institute, the RIVM-Clb will seek accreditation as an ECDC/EU reference laboratory in those fields where it already performs a reference role.

Infectious disease research is and will remain a precondition for the RIVM-Clb's effective fulfilment of its function. Whether laboratory research in particular must therefore be undertaken at the RIVM-Clb depends on what expertise is available outside the RIVM-Clb, and on what is required in order to retain a critical mass within the RIVM-Clb. What distinguishes the RIVM-Clb laboratories from university institutes is their concentration on public health; however, this does not exclude the possibility of them undertaking deeper research. Nevertheless, in view of the breadth of the RIVM-Clb agenda, further choices need to be made in order to ensure that, in the long term, the RIVM-Clb retains a healthy research arm aligned with the priority themes. The research groups will therefore be encouraged to obtain more funding through open competition, which will bring about increased turnover and thus greater flexibility.

activities it should undertake itself, and which should be discontinued. The RIVM-Clb will also ensure that it retains an up-to-date national overview of diagnostic capability in relation to the microorganisms that are relevant to public health.

- Working in conjunction with the medical microbiology profession, the RIVM-Clb will seek to promote uniformity in diagnostics and communication, in order to facilitate the national (and international) comparison of surveillance data.

Plans for the period up to 2015

- The RIVM-Clb is to provide outbreak guidelines (complete with organisational and financial plans) for coordinated laboratory upscaling and response in case of major outbreaks. There will be systematic collaboration with medical microbiology laboratories on the classification of at least four common pathogens using the TypeNed model (more contracting out, realignment of RIVM-Clb activities). The RIVM-Clb will also develop a user-friendly web portal for laboratories and enter into cooperation agreements regarding (internal and external) laboratory zoonosis research. The BSL 3/4 lab will be operational in 2012.
- To enhance the response to future issues and enquiries, the RIVM-Clb is to realise a national professional biobank for infection-related materials and data.
- By 2013, the RIVM-Clb will have a model for the selection and organisation of reference laboratories for national public health diagnostic work and will profile itself as a European reference laboratory in at least four fields. By 2015, there will be at least four medical microbiologists who hold dual appointments with the RIVM-Clb and external medical microbiology laboratories; there will also be a structural basis for a public health internship for medical and veterinary microbiologists in training.
- On the basis of the three criteria referred to in the introduction (infectious disease control, public health interest, governmental responsibility), the RIVM-Clb will continually review which new and existing laboratory

Vaccination programmes

Strategic goal:

The RIVM-Clb aims to assure the effectiveness of the National Immunisation Programme (NIP) as a means of preventing disease; to that end it aims to promote quality within the NIP by providing evidence-based advice regarding the programme's content and organisation.

Objective 10: Before the end of 2011, various scenarios will be evaluated for the National Immunisation Programme of the future.

Objective 11: Before the end of 2011, a strategy will be in place for the integration of vaccinology within the RIVM-Clb; this strategy will be based upon an international scientific audit, a strategic review and choices with regard to collaboration with industry.

Objective 12: By the start of 2015, the NVI's public activities will be fully integrated within the RIVM.

Introduction

The Netherlands has two public vaccination programmes: the National Immunisation Programme (NIP) and the National Influenza Prevention Programme (NIPP). In this

section, we focus primarily on the NIP. However, the future of the NIP cannot be considered in isolation from other programmes, as explained in the Health Council's 2007 advisory report 'The future of the national immunisation programme: towards a programme for all age groups'. Consequently, attention is also given to vaccines that are not provided through the NIP.

The RIVM-Clb coordinates the execution of the NIP. The integration of the immunisation record offices – now the five Regional Coordination Programmes (RCP) – has considerably increased the RIVM-Clb's responsibilities in this field. The RCPs are responsible for vaccine distribution, call up children for vaccination, record the administration of vaccines in a database and interfacing with the organisations that perform the vaccinations. Since 1 January 2011, the RCP Units have been brought under a temporary programme directorate within the RIVM. The temporary programme directorate, under which the operational tasks including purchase, storage and distribution of vaccines were brought, also received the assignment to integrate these tasks structurally within the RIVM. The registration of the side-effects of vaccination had been one of the RIVM's functions ever since the NIP was created in 1957. However, from the end of 2010, the responsibility has been transferred to the Dutch Pharmacovigilance Centre (Lareb) to ensure that the independence of the monitoring is demonstrable to all.

However safe and effective the NIP may be, there is every reason for looking critically and proactively to the future. Many of the infectious diseases against which vaccination is provided, have been eradicated from or become much less prevalent in the Netherlands. As a result, parents and even grandparents are sometimes unfamiliar with the illnesses in question and fail to appreciate how serious they can be. Meanwhile, the illnesses remain vigorous in other countries and, against the backdrop of globalisation, there is a danger that they will be re-imported and re-enter circulation in the Netherlands.

Support for the NIP appears to be waning, partly because the infectious diseases against which vaccination is provided have been eradicated or become much less prevalent. A small minority of people decline to participate on religious grounds, and an increasing number who have no moral aversion are nevertheless apt to refuse vaccination, particularly in the form of the combined MMR (measles, mumps and rubella) injection. Certain social groups are increasingly opposed to vaccination on the basis of doubts concerning the value, necessity and possible side-effects of vaccines. In 2009, for example, there was significant debate regarding the introduction of HPV vaccination. Some people regarded it as useful, while others argued that it was unnecessary, unsafe and ineffective. Only 50% of girls aged thirteen to sixteen came forward for vaccination through the catch-up campaign. In 2010, following an innovative information campaign, the rate of HPV vaccination amongst 12-year-old girls was slightly higher. Experts anticipate that it will be some years before confidence in this form of vaccination reaches the same level as confidence in other NIP vaccines. The Clb undertakes research into the effectiveness of the vaccines used in the NIP. However, it is pertinent to ask how we can additionally monitor decision-making processes within the community, how we can best support informed choices in favour of voluntary participation in the NIP, and how vaccination rates can be maintained.

In the future, it is likely that consideration will need to be given to the inclusion of further vaccines in the NIP. The Minister of Health, Welfare and Sport has, for example, recently decided to add universal hepatitis B vaccination to the programme. In its research work, the RIVM-Clb needs to take account of the possible expansion of the NIP and of (evaluation of) new vaccines. Many of the ongoing surveillance and research activities are continuous programme monitoring activities, whose structural nature does not allow any great scope for (re-) prioritisation. The timing of vaccinations (the NIP vaccination schedule) and the combinations in which vaccines are administered are generally decided by the extrapolation of knowledge, not by reference to specific scientific research. The NIP is the product of development over a long period of time,

and the choice of contact moments within the programme is the result of continual re-assessment of what is organisationally most practical. In that context, the availability of combination vaccines has played an important role.

It is worth emphasising that, due to the dedication of many people, the vaccine coverage of the Dutch NIP is still very high: in almost all parts of the country, the vaccination rate for small children is more than 95%, a figure unmatched in many other industrialised countries.

Vision for the future

We face a challenging question: should the content and organisation of the NIP be revised in the future to reflect the public's increasing self-assertiveness and desire for personal autonomy? The RIVM-Clb is working with other stakeholders to address this question. The RIVM-Clb wishes to evaluate the future of the NIP in close consultation with stakeholders and bodies with responsibility in this field, such as the Ministry of Health, Welfare and Sport, the youth health care sector, the Health Council and various community groups. Attention will also be given to the question of how vaccines that, for whatever reason, are not included in the NIP, but do offer health benefits to individuals, should be made available. It is already possible to obtain some of these vaccines – including those against herpes zoster (shingles), chicken pox and rotavirus infections – from a GP. However, for a variety of reasons, very few people actually do so. The RIVM-Clb intends to ensure the availability of good, objective information not only about NIP vaccines, but also about other vaccines.

In February 2009, the then Minister of Health, Welfare and Sport finalised plans for the future of the NVI. First, the organisation's core tasks – purchase, storage, distribution and research and development for both the NIP and the NIPP – were to be incorporated within the RIVM. Second, the production of certain vaccines was to be privatised. It was also indicated that production support services might be privatised at a later date. In February 2010, the necessary statutory provisions were made, setting out how the NVI's public duties were to be incorporated within the RIVM, thus contributing to the emergence of a fundamentally altered RIVM. The research activities of the NVI and the RIVM-Clb were formally merged with effect from 1 January 2011.

The incorporation of the NVI's public duties will significantly enhance the RIVM-Clb's expertise in the field of vaccinology. This may be expected to have major benefits for the provision of expert public health advice to

the Ministry of Health, Welfare and Sport. Furthermore, the Clb's activity portfolio will be expanded to include research into and development of (improved) vaccines and vaccinations, which are not available and/or unlikely to be developed without public funding. It is also anticipated that, following the merger, the 'new' RIVM will take on a modified international role in the transfer of vaccinology knowledge.

In the period ahead, the existing research programmes of the Clb and the NVI will be further harmonised in order to maximise the synergistic benefits. With that aim in mind, three initiatives were prepared in the autumn of 2010: the establishment of an international scientific audit of all the RIVM's vaccinology activities; the definition of a methodology for the strategic review of forward developments; and the identification of options for the future, in collaboration with outside stakeholders, including vaccine manufacturers. These three initiatives will be implemented in the course of 2011 and the findings will form the basis for decision-making and reinforcement of the excellent research functions developed by the two organisations over a long period of time.

From 1 January 2011, the purchasing, storage and distribution of vaccines – a former responsibility of the NVI – will also be transferred to the RCP in a temporary programme directorate. All operational tasks are brought under this temporary programme directorate, including the assignment to integrate these tasks structurally with the RIVM.

Annual influenza vaccination, which is undertaken by GPs and other care providers within the framework of the NIPP, is coordinated by the Centre for Population Screening (CvB), which is part of the RIVM's Public Health and Health Services Division. The expectation is that, in the plan period, the vaccination of older people against other illnesses, such as shingles (herpes zoster), and/or against pneumococci (important cause of pneumonia) will come under consideration. Operational coordination of the NIP and NIPP needs to be firmly aligned with the RIVM-Clb's expertise in the field of vaccinology, particularly following integration of the NVI's public functions. The RIVM-Clb intends to invest considerable energy in placing knowledge development, advisory support and the operational coordination of vaccination activities on a sound organisational footing.

Internationally, the RIVM-Clb will continue to profile itself as a centre for research into the control of diseases such as polio, measles and rubella, which constitute a risk to the Netherlands, due to the nation's specific vulnerabilities (vaccine aversion on the part of certain religious groups). In other fields of vaccine research too, the RIVM-Clb will align

its activities closely with international developments. Some vaccine research is carried out by pharmaceutical companies and/or small biotechnology companies. To ensure the scientific quality of the work, cooperation with private organisations engaged in vaccine research may be necessary. If so, organisational transparency will be systematically implemented to minimise the risk of conflicts of interest.

Plans for the period up to 2015

- Before the end of 2011, various scenarios for the future of the NIP will be evaluated, probably by conducting trials to assess different options. The variables to be examined in the NIP review concern programme implementation, provider selection, cost, vaccination scheduling and communication. Particular account must be taken of the close link between youth health care and the NIP.
- Information and publicity about the NIP is currently communicated by traditional means, typically involving leaflets. A plan will be developed for the use of modern media to disseminate information about the NIP and other vaccines. Greater use will be made of interactive forms of communication, drawing on the experience gained in the HPV campaign.
- If the Minister of Health, Welfare and Sport decides to expand the NIP on the basis of a Health Council advice, the RIVM-Clb will provide an implementation plan covering, amongst other things, recommendations for a public guidance programme and effect and safety monitoring. Similar support will be provided in connection with any decision to change the vaccines used.
- Following incorporation of the NVI's purchasing, distribution, operations and research activities within various RIVM units, steps will be taken to fully integrate these public activities. This exercise is to be completed by the start of 2015.
- In the field of vaccine research, a strategy document will be produced, identifying focus fields of vaccine research for the period ahead. The strategy will be based upon an international scientific audit and a strategic review, both to be undertaken in 2011 in consultation with the Ministry of Health, Welfare and Sport. The scope of these activities will include sero-surveillance and social-scientific research. That latter is of particular importance in relation to vaccine acceptance.

Antimicrobial resistance and care-related infections

Strategic goal:

The RIVM-CIb aims to reduce the burden of disease attributable to antimicrobial resistance and care-related infections; to that end, it aims to advise relevant sectors and government departments on addressing adverse developments.

Objective 13: Before the end of 2012, task demarcation arrangements are to be made with the Dutch Working Party on Antibiotic Policy (SWAB) and the Dutch Working Party on Infection Prevention (WIP), which take account of the RIVM-CIb's public responsibilities and the expertise that exists in the field.

Objective 14: The RIVM-CIb is to expand its surveillance of hospital-acquired infections to include other care-related infections (infections acquired in nursing homes and independent treatment centres); before the end of 2013, such surveillance is to be coordinated with surveillance on the basis of laboratory data.

Objective 15: The RIVM-CIb is to forge closer ties with veterinary experts in order to improve its ability to monitor antimicrobial resistance related to the livestock industry.

Introduction

The incidence of care-related infections is to a large extent determined by underlying illness and by the use of relatively high-risk medical interventions. On any given day, an average of 6% of hospital patients in the Netherlands have a hospital-acquired infection. That equates to an annual nationwide total of nearly 70,000 people with hospital-acquired infections. The cost of such infections is estimated to be between 500 and 800 million euro's, or 2 to 4% of the total hospital care budget.

In the Netherlands, antimicrobial agents are used sparingly, so as to avoid promoting resistance development. In the encouragement of careful use, the guidelines produced by the Dutch Working Party on Antibiotic Policy (SWAB) – a vehicle for cooperation amongst medical specialists from various disciplines, to which the RIVM-CIb is affiliated – play a vital role. When treating an infectious disease, the basic strategy is to employ broad-spectrum antibiotics until the pathogen has been identified, and to adopt a more focused therapy once microbiological research has determined the causal organism and more is known about its resistance pattern. Naturally, that is possible only if microbiological diagnostic tests are performed. With a view to preventing the spread of resistant microorganisms such as MRSA, stricter standards of hygiene are required than those that suffice for sensitive bacteria.

Surveillance of unusually resistant microorganisms indicates that, despite the policy of cautious use, antimicrobial resistance is increasing sharply in the Netherlands, as it is elsewhere. Evidence of this growing problem can also be found in the SWAB's annual resistance data. The SWAB also reports on the use of antimicrobial agents. Worrying though the statistics are, the Netherlands has a significantly smaller problem with the development of antimicrobial resistance by some microorganisms, such as MRSA, than many neighbouring countries, where antibiotics are often used more freely. Such organisms are brought into the Netherlands by travel and migration. Where other resistant microorganisms, such as ESBL-producing *Enterobacteriaceae*, are concerned, resistance development in the Netherlands is on a par with that seen in nearby countries. It appears that the use of antimicrobial agents in health care is not the only driver of resistance-related problems. It may be expected, for example, that population aging will increase the demand for medical and other forms of care and consequently the level of antibiotic use. Greater intramural care consumption and more frequent admission and readmission to various institutions opens the way for resistance problems to spread from hospitals to nursing homes and the general population.

Because of the use of antibiotics in agriculture, many animals carry (multi-)resistant organisms in their intestinal tracts. These animal populations may be regarded as reservoirs, from which both resistant bacteria and resistance genes may be transferred to humans. There are various mechanisms of transfer, including direct contact with animals, the handling and consumption of food (particularly meat and vegetables) and environmental exposure (the spreading of materials from livestock farming, manure dispersal, wastewater dispersal). Livestock-related MRSA serves as a good example of the problems that exist. In Dutch health care, considerable expense is incurred implementing the national 'search-and-destroy' policy in order to keep MRSA prevalence in hospitals down to a level that is lower than in other European countries. This policy entails the active screening of patients entering from hospitals abroad and people who are at risk because of their involvement in livestock farming. Other (multi-)resistant microorganisms are also associated with livestock farming, such as ESBL-producing gram-negative bacteria and multi-resistant *Salmonella*. It is not currently clear to what extent resistance in livestock farming contributes to resistance in health care. The Health Council is due to report on this topic in 2011.

The environment contains resistant microorganisms that originate from people and animals treated with antimicrobial agents. The discharge of untreated or partially treated wastewater and the outwash of manure

lead to these bacteria entering surface waters and soil. People can then be exposed to the bacteria in various ways. Furthermore, bacteria in the environment can exchange resistance genes by horizontal gene transfer. This leads both to the further environmental propagation of resistance genes, and to new resistance gene-bacterium combinations. Because of the large levels of environmental commensal flora excretion, the organisms involved represent a large proportion of the environmental resistance reservoir. Although commensal organisms are not normally pathogenic, people can facilitate the spread of resistance by acting as carriers of resistant commensal flora.

In recent years, the RIVM-Clb has invested in hospital and nursing home surveillance with a view to improving understanding of the incidence of care-related infections and the spread of antimicrobial resistance. The ultimate goal of this work is the reduction of risk factors and consequently antimicrobial resistance. Important roles are played by two networks: PREZIES (Dutch acronym for 'prevention of care-related infections by surveillance') and SNIV (Nursing Home Infectious Disease Surveillance Network). Using these networks, it is possible to undertake knowledge-deepening studies, such as intervention studies to determine the effects of infection prevention measures or the prevalence of certain hospital bacteria.

Just as SWAB has played an important role in the formulation of guidelines on antibiotics use, so the Dutch Working Party on Infection Prevention (WIP) has for years published guidelines on the prevention of infections in hospitals and other care establishments.

Vision for the future

It is hard to predict how resistance to antimicrobial agents and care-related infections will develop. On the one hand, active steps are being taken to reduce care-related infections and antibiotics use; on the other, the trends continue towards increasing resistance and increasing use of major interventions in the treatment of vulnerable patients. It is also unclear whether new antibiotics will come on to the market or, if so, what they will be. Nevertheless, demographic developments alone are liable to lead to a substantially greater incidence of care-related infections in the medium term. In consequence, the problem of antimicrobial resistance may be expected to increase as well.

The RIVM-Clb is working to strengthen its central directing role as the antimicrobial resistance and care-related infection knowledge and service centre for both professionals and the general public. Of particular

importance in this context is ISIS-AR, a surveillance system for antimicrobial resistance, in which medical microbiologists and the RIVM-CIB are actively cooperating on data harvesting and the introduction of uniform microbiological criteria. The work is being done in close consultation with field organisations, such as SWAB, WIP, the Dutch Association for Medical Microbiology (NVMM) and the Dutch Society of Infection Prevention and Control in the health care setting (VHIG). SWAB and WIP were active before the RIVM-CIB was set up, and they consequently acquired a number of public functions. It now seems appropriate to review these functions and consider whether a rationalisation of the task demarcation between the three organisations is in order. Any future arrangement must recognise that surveillance data need to be speedily and generally available and can be collected and interpreted only in close consultation with experts in the field. Consideration will also be given to better harmonisation of the various guidelines, which have hitherto had their own development paths. With regard to cooperation with 'veterinary' partners, such as CVI, nVWA and Animal Health Service (GD), as well as the Wageningen University and Research Centre (WUR) and the Faculty of Veterinary Medicine of the University of Utrecht (FD/UU), the RIVM-CIB intends to position itself at the interface between medical and veterinary science, where public health is at stake.

Research into the development of antimicrobial resistance and its public health implications is one of the RIVM-CIB's main priorities. Research will be carried out into the incidence and spread of antimicrobial resistance and care-related infections in the Netherlands, and into the effectiveness of measures intended to address these problems. The RIVM-CIB intends to reinforce multidisciplinary teams by providing appropriate experts, with a view to performing research into the incidence, spread and control of antimicrobial resistance in health care establishments in the Netherlands and abroad. The RIVM-CIB will continue to invest in maintaining a strong international position in this field. The RIVM-CIB already coordinates and manages the collection for a joint *Staphylococcus* initiative involving 28 European national reference laboratories. The RIVM-CIB has also secured numerous European project commissions in the field of antimicrobial resistance, including projects in molecular epidemiology (TROCAR), burden of disease (Burden) and interventional epidemiology (PROHIBIT). Good cooperation with European partners may be expected to promote understanding of the problem and its control. Research (aligned with the Health Council's recommendations) into the incidence and transmission of resistant bacteria from livestock to humans is expected to clarify what public health risks there may be. This research is to be performed in cooperation with bodies

representing the relevant industries and other partners, such as nVWA, GD, CVI, FD/UU and WUR. Given that resistant bacteria already account for a high proportion of those present in the environment, and that the proportion is expected to grow, the RIVM-CIB intends to work with others to investigate the extent of the associated public health risk and to identify possible countermeasures.

In the period ahead, the RIVM-CIB will continue to focus particularly on *S. aureus* (MRSA) and gram-negative bacteria, in recognition of the rapid spread of ESBLs and carbapenemase-producing gram-negative bacteria.

Priority will be given to:

- Implementation of a molecular platform for the storage of DNA sequence data and exchange of analysis data with field partners.
- Implementation of the online ISIS-AR system – ISIS-AR is a surveillance system that utilises information from a network of medical microbiology laboratories – with particular attention for public health.
- Development of laboratory capacity for ESBLs and carbapenemase-producing gram-negative bacteria.

The RIVM-CIB recognises the need for international initiatives aimed at the development of new antibiotics and alternatives to antibiotics. However, it does not see such work as one of its own core functions. The RIVM-CIB's role in this field is to provide expert support to the relevant ministries.

Plans for the period up to 2015

- Working on the basis of a public health vision, the RIVM-CIB will maintain a standardised system for the surveillance of care-related infections in hospitals, nursing homes and independent treatment centres. The system will generate mirror information to support infection prevention policy in care establishments. The collected data will also serve to support national policymakers.
- With a view to improving understanding of the prevalence and spread of particular microorganisms that cause care-related infections, the RIVM-CIB will investigate the possibility of integrated analysis of the PREZIES and ISIS-AR databases. Possible strategies for realising alignment with additional pathogen classification (TypeNed) will also be examined.
- The RIVM-CIB will help care establishments to improve the quality of care through surveillance, research into the effectiveness of infection prevention measures and guideline implementation.
- The RIVM-CIB will enter into working and task demarcation arrangements with SWAB and WIP with regard to the surveillance of antimicrobial resistance and

the harmonisation of guidelines. In cooperation with professional associations, the RIVM-CIB will upon request and of its own volition prepare policy advice on the basis of the available surveillance data, such as the annual Nethmap report, and will contribute to the MARAN report, whose formulation is being coordinated from within the veterinary profession.

- With a view to reducing the risk of resistance transmission from the livestock industry, the RIVM-CIB will – to complement measures taken in the industry itself – evaluate a number of intervention measures designed to address the possibility of transmission via direct contact with animals, via food or via the environment.

Zoonoses

Strategic goal:

The RIVM-Clb aims to reduce both the burden of disease and the risk of zoonoses; to that end, it aims to promote zoonosis prevention and control by working with its network partners to provide evidence-based zoonosis advice to relevant sectors and government departments.

Objective 16: In 2011, the RIVM-Clb is to set up a medical-veterinary detection forum and calls an Outbreak Management Team Zoonoses (OMT-Z) if necessary; before the end of 2015, the RIVM-Clb is also to develop joint medical-veterinary guidelines for the detection and control of at least three priority zoonoses.

Objective 17: The RIVM-Clb is in its research, specifically in zoonoses related research, more to focus on interventions.

Introduction

The presence of zoonotic microorganisms in animals or vectors within our food chain or our everyday environment is an ongoing threat to public health. The threat stems partly from familiar zoonoses that cause considerable disease burden every year, such as *Salmonella*, *Campylobacter*

and *Toxoplasma*. However, it is also the case that most of the 'new' infectious diseases that have emerged in recent years have crossed from animal reservoirs. Diseases of that kind that have affected the Netherlands in recent years include Q fever, livestock-associated MRSA and avian influenza. Research has shown that 75% of the new infectious diseases to appear over the last few decades have been zoonotic and that new threats in Europe may be expected to cross mainly from wild fauna and via vectors. However, because of the unusually high human and livestock population densities in the Netherlands, livestock farming is also a significant potential source here. Within the RIVM-Clb, therefore, zoonoses have been identified as a priority topic.

The effective control of zoonoses remains a challenge in the Netherlands. The number of different agencies involved (ministries, national knowledge centres, regional controllers, veterinary agencies and care establishments) means that coordination requires more time than with infectious diseases that are exclusive to the human domain. Where zoonoses in livestock farming are concerned, the key question is whether any adverse commercial implications of zoonosis control are in proportion with the perceived public health problem. Although balancing the proportionality of measures may be complex, a decision needs to be made. The audit of the RIVM-Clb undertaken in 2009 concluded that cooperation with the veterinary chain had improved since creation of

the RIVM-Clb, but that alignment between the veterinary and medical domains nevertheless required further development and reinforcement, particularly in the field of detection and control systems. The RIVM-Clb needs to strengthen its directing role in early detection and advising and needs to clarify its position within the network of research institutes.

Medical-veterinary detection of potential zoonotic risks is not sufficiently formalised. In the context of the Emerging Zoonoses (EmZoo) Programme of the Ministry of Economic Affairs, Agriculture and Innovation, it has been observed that there are no structural links between the medical and veterinary detection systems. To address that problem, an as-yet-temporary pilot medical-veterinary detection forum has been set up within the EmZoo Programme. In recent years, the RIVM-Clb has worked with various veterinary organisations – including the nVWA (the Food and Consumer Product Safety Authority, particularly the Veterinary Incidents and Crisis Centre and the laboratories), the Animal Health Service (GD), the Central Veterinary Institute (CVI) and the Faculty of Veterinary Medicine of the University of Utrecht (FD/UU) – to improve exchange. This has led to concrete recommendations for improvement, which are likely to be acted upon in 2011. These moves are in line with one of the key recommendations to emerge from the Van Dijk Committee's evaluation of the Q fever epidemic, namely that a number of extra safeguards should be built into the zoonosis detection system, particularly securing input from the veterinary profession and the early involvement of the business community.

The evaluation report states that the Ministry of Health, Welfare and Sport has the lead in case of a zoonoses related crisis. This is reflected in the way the medical-veterinary detection forum (SO-Z) and the Outbreak Management Team Zoonoses (OMT-Z) are organised: the RIVM-Clb acts as the secretariat for the SO-Z and the Director of the Clb is the chair of the OMT-Z. If specific signals are identified by the SO-Z that indicate an outbreak or increase of incidence, the signals will be discussed by directors of relevant medical and veterinary organisations and a medical-veterinary Response Team, after which an OMT-Z will follow in which the thread is assessed by both medical and veterinary experts. This structure of detection and advising, in which signals are being carefully and earnestly assessed, will contribute to a more proactive attitude towards reports of unexpected symptoms or syndromes by veterinarians, livestock farmers, GPs and relevant medical specialists. The RIVM-Clb is also actively seeking the commitment of leading farming organisations (such as LTO Nederland, which represents farmers and growers), professional associations (e.g. the Royal Dutch Veterinary Science Society and the Netherlands

Association of General Practitioners) and the business community (e.g. the dairy and meat industries). These moves by no means fully address the fact that, in the Netherlands, the surveillance of zoonotic risks associated with pets, wild animals, exotic animals and transmission via vectors is insufficient. Additional surveillance arrangements are needed for those animal populations, as are activities aimed at the prompt identification of possible (unusual) zoonotic transmission to humans, as are a part of the implementation of the EmZoo project.

The RIVM-Clb has recently invested in charting the public health risks associated with a number of zoonoses. Working with various relevant partners from the veterinary domain, the RIVM-Clb has started intervention-oriented research (research into the effectiveness of interventions) in a number of fields, including echinococcosis and avian influenza control. In many cases, the interactions to be investigated are very complex, making it vital to cooperate with experts in other fields, such as ecology, animal disease control, entomology, wildlife management and process technology. There are often numerous prevention and control options, whose effectiveness is unknown, necessitating complex assessments in order to identify the best strategy. Furthermore, where most endemic zoonoses are concerned, information about the associated burden of disease is lacking and assessments have to be made without supporting cost-benefit data. Consequently, the efficiency of the available control measures remains unclear.

A significant part of the funding for the RIVM-Clb's zoonosis research is made available in connection with relatively detailed variable information requests from the nVWA, the Ministry of Health, Welfare and Sport's Food, Health and Prevention Directorate and, to a lesser extent, the Ministry of EL&I's Food, Animals and Consumers Directorate. Being geared to these requests, the RIVM-Clb's existing research programme is not flexible enough to allow to respond nimbly to developments as they unfold. Furthermore, this detailed research programme is often poorly aligned with activities funded from the RIVM-Clb's more generally managed programme for the Ministry of Health, Welfare and Sport's Public Health Directorate. The RIVM-Clb is in the process of consulting its clients in order to assure better alignment and greater flexibility.

Because of the fragmented programming, the RIVM-Clb's zoonosis research agenda lacks cohesion and adequate continuity safeguards. Despite various internal discussions within the RIVM-Clb, the decisions about research content have yet to really feed through into practice – even though it has been decided that vector-borne zoonoses will be an explicit focus topic for the RIVM-Clb. Furthermore, the RIVM-Clb's position in the zoonosis field (particularly the

field of conditions that are not subject to mandatory notification) is not clear. The result is competition with other research organisations, especially in the field of agricultural animals and bacterial zoonoses, and some overlap in activities. It is important to have clear task and role demarcation between the RIVM-CIb and other knowledge institutes. To that end, the RIVM-CIb is in discussion with important knowledge institutes active in this field, including the Central Veterinary Institute (CVI) in Lelystad.

The RIVM-CIb also wishes to bring about significant improvements in the communication of information about zoonoses to the public and the promotion of relevant professional expertise. The website www.ziekdoordier.nl – which provides information about illnesses contracted from animals for the general public, but is also accessible to professionals – receives a lot of traffic (it is amongst the RIVM's ten most visited sites). Where expertise promotion is concerned, it has proved particularly difficult to get GPs interested in the public health issues associated with zoonoses. Because zoonoses do not receive specific attention in the context of professional training, lack of expertise and awareness remain problems. Some initiatives aimed at improving that situation are already underway; for example, a two-week internship at the RIVM-CIb, which does cover zoonoses, has been set up for trainee communicable diseases consultants.

Vision for the future

The RIVM-CIb will work to reduce the risk that zoonoses pose to the public; particular attention will be given to zoonoses from the livestock industry, vectors and wild animals in the Netherlands. In pursuit of those aims, the RIVM-CIb will seek to build up long-term relations with key national and regional organisations involved in zoonosis detection, surveillance, research and control (e.g. municipal health authorities, the nVWA and the FD/UU). In this field, the RIVM-CIb will seek cooperation wherever possible, recognising each party's expertise and formal responsibilities. On the basis of this cooperation, sound detection arrangements and improved surveillance will be established. Important topics in this context include the exchange of information, uniform diagnostics and classification, recognition of the RIVM-CIb's coordinating role and long-term relationships between the various bodies. With a view to intensifying cooperation, dual appointments will be made with veterinary institutes such as the FD/UU and CVI. The RIVM-CIb intends to profile itself more prominently at the interface between medical and veterinary science, where public health is at stake. The RIVM-CIb will also invest in

enhancing communication amongst professionals in the medical and veterinary domains and will contribute to professional expertise promotion in this field.

The RIVM-CIb will continue to invest in its relations with veterinary structures and specialists, partly so that it is able to draw on specialist veterinary expertise in the context of zoonotic outbreak control (when assembling an OMT-Z, for example). For the use of information in focused source investigation in case of zoonotic outbreaks, appropriate arrangements will be defined in the protocols for the SO-Z and the OMT-Z insofar it concerns information that may be traced to individual businesses and/or people.

In its zoonosis work, the RIVM-CIb will clearly identify where research into the effectiveness of interventions needs reinforcing, and where attention should also be given to the efficiency of the response to endemic zoonoses responsible for a sizeable burden of disease. In addition, the RIVM-CIb will evaluate means of reducing the risk of transmission by direct contact with animals, via foods of animal origin and via the environment. Where the reduction of vector-related transmission risk is concerned, the RIVM-CIb will collaborate with the Vector Monitoring Centre (CMV) and the Entomology Department at the WUR and will prioritise research into ways of tackling the spread of vectors. The ambition is to operate at an internationally competitive level in relation to a small number of topics, particularly through participation in cooperative international projects. Topics to be considered for prioritisation in this way include research into and control of Q fever and Lyme's disease. In view of the change in the status of some parts of the Kingdom (particularly Bonaire, St. Eustatius and Saba) investment in dengue fever also appears advisable.

Plans for the period up to 2015

- The RIVM-CIb will ensure adequate detection and control of zoonoses by integrating medical and veterinary expertise. This includes formalising the SO-Z as a vehicle for cooperation between the RIVM-CIb and the GD, the CVI, the FD/UU (including the Dutch Wildlife Health Centre), the nVWA (including the Vector Monitoring Centre and Invasive Exotic Diseases Team). Furthermore, it includes formalising the OMT-Z, the development of valid detection methods and joint control guidelines for a number of priority zoonoses and implementing surveillance in fields where the present arrangements do not adequately reflect the public health risk.
- The RIVM-CIb will work to create a sound infrastructure for the control of vectors (mainly mosquitoes and ticks)

in the Netherlands. That will require not only coordination and harmonisation, but also new initiatives. The RIVM-Clb intends to work closely with other organisations and experts in this field. The RIVM-Clb's has a particular responsibility for, and input in a good vector control mechanism in the interest of public health.

- The RIVM-Clb's zoonosis-related research is to focus more on interventions. By 2015, intervention research projects will have been carried out or set in motion for at least three zoonoses. In addition, the research agenda will be more closely aligned with the agendas and activities (including diagnostic activities) of the CVI and the nVWA.
- Communication and expertise promotion initiatives will be undertaken in order to raise zoonosis awareness amongst professionals. The intention is to promote the two-way reporting of unusual medical and veterinary observations and to partners in the medical-veterinary detection forum. Communication and expertise promotion activities will include further professionalisation of the public website www.ziekdoordier.nl, the development (in cooperation with FD/UU) of a zoonoses module for medical and veterinary science students, the establishment of a week-long internship devoted to human public health and parasitic zoonoses as part of the veterinary microbiology training curriculum, and a two-month public health module within the medical microbiology training curriculum, to be based partly at the RIVM-Clb. The Clb also intends to support municipal health authorities with their decision-making regarding the control of (emerging) zoonoses.

STDs

Strategic goal:

The RIVM-Clb aims to reduce STDs; to that end, it aims to promote the quality of STD control programmes by working with its network partners to provide evidence-based advice regarding the content and organisation of such programmes.

Objective 18: Before the end of 2011, the RIVM-Clb is to develop a new STD/HIV plan in consultation with the Ministry of Health, Welfare and Sport, municipal health authorities and bodies working in the field of STDs and HIV.

Objective 19: Before 2012, the RIVM-Clb is to implement the additional STD/SENSE scheme that the Ministry of Health, Welfare and Sport shortly plans to integrate. This scheme is to be supported by quality and visitation indicators and by regional visitations.

Introduction

The burden of disease that continues to be associated with STDs (including HIV) is concentrated in certain high-risk groups and sometimes difficult to adequately discern. There remains a significant risk that suboptimal control

will lead to an increase in STDs and the associated public health problems. That risk derives from the fact that STDs often develop asymptotically, occur in clusters within high-risk groups whose members are often hard to reach and are liable to remain partially hidden due to stigmatisation. Furthermore, the effectiveness of preventive interventions can be difficult to demonstrate and STDs, other than hepatitis B and C, are not notifiable. Despite easier access to tests and more sensitive and rapid diagnostic techniques, the incidence of STDs is unlikely to diminish in the period ahead, due to persistent risk-taking behaviour, the threat of increasing resistance problems (mainly involving gonorrhoea, but possibly also *Chlamydia trachomatis*), suboptimal treatment of partners, emerging STDs and STD transmission risks. The situation is exacerbated by the fact that, except where hepatitis B and HPV are concerned, there are no effective vaccines for STDs, and none are expected to come onto the market in the next few years. Reducing the incidence of, and the burden of disease associated with, STDs remain nevertheless the focuses of policy in this field.

To supplement mainstream STD prevention and treatment activities by regular health care, an ancillary programme has been developed for certain high-risk groups. This government-funded programme of ancillary curative STD control (ACS) is designed to promote the early detection and treatment of STDs as a means of controlling their spread and limiting the burden of disease. The ACS

activities of the municipal health authorities increase the reach of STD control in high-risk groups such as youngsters and men who have sex with men (MSM). The ACS is an open-ended programme whose cost is rising all the time, necessitating the further prioritisation of target groups, for example. Furthermore, intensive ongoing support and alertness are required because of the need for continuous quality assurance through, for instance, productive cooperation with dermatologists and microbiologists and the way in which and degree to which effective links with the preventive field can be realised. Effective, accessible, good-quality STD control – preferably evidence-based, regular and with a low access threshold – should be assured. In that context, good integration and alignment with mainstream care (GPs, HIV therapists, sexologists) are very important for control, prevention and surveillance.

The diversity of the expertise that exists in curative and preventive care necessitates the RIVM-Clb to play a strong coordinating role. In the curative sector, a good overview of STD trends (risks) is lacking; it is not clear how mainstream (primary) and ancillary (STD clinic) consultations influence one another, and the payment of laboratories for diagnostic testing is a contentious issue. Effective control in high-risk groups such as men who have sex with men (MSM) and ethnic minorities remains a challenge. Stumbling blocks range from stigma and persisting high-risk behaviour to the difficulties related to reaching the risk groups. The deployment of public control measures in the curative care (in relation to HIV carriers) or the necessity for the curative sector to take on other responsibilities (e.g. the increasing life expectancy of HIV carriers) present other challenges.

The cohesion between STD control and sexual health promotion in the broader definition (including prevention of unintended pregnancies and sexual violence) is at the extremity of the RIVM-Clb's expertise and mission. In the field of sexual health promotion, whilst playing a coordinating role, the RIVM-Clb aims to better utilise the knowledge and experience of partner agencies. Furthermore, the RIVM-Clb aims to support a better alignment of priorities and the sharing of knowledge and experience of its partners.

The integration of STD control, which is carried out by the municipal health authorities and funded by the government, with sexual health promotion brings various cultures together in areas such as problem definition, quality assessment and efficacy determination. Improved alignment and underpinning with knowledge from the social sciences domain is also needed. Because such knowledge is relatively scarce within the RIVM, the RIVM-Clb intends to seek it from partner agencies in the STD control network.

Vision for the future

The RIVM-Clb will seek to bring about cohesion within the field of STD control by promoting clear consultation structures that yield transparent decisions, and by harmonising support for STD control so as to enhance cohesion between preventive and curative activities and between STD control and general infectious disease control. In all these activities, the RIVM-Clb will retain and be respectful of the relevant expertise and input from the field. Surveillance will be reinforced by further integrating data from the HIV Monitoring Foundation, from operation of the Ancillary Sexuality Assistance Programme (Sense) and from GP surveillance into the RIVM-Clb's reports. Other aims of the RIVM-Clb include the reduction of STD-related burden of disease and action to address the uneven distribution of that burden across the population. The RIVM-Clb sees tackling stigmatisation as an essential precondition for progress on that front.

The municipal health authorities will retain a central role in direct control (prevention and cure). Their involvement will be based on bespoke consultation opportunities in the context of an integrated ACS/Sense programme, supported by microbiological expertise and web-based provision of preventive advice, consultations and STD testing. The quality of curative care will be monitored by independent visitations based on the quality document and indicators proposed by the professions and realised by the RIVM-Clb; they will take place under the supervision of an integrated quality committee set up by the National Association of Municipal Health Authorities in close consultation with the RIVM-Clb. In the curative sector, the municipal health authorities will be supported by medical (dermato-venereological and microbiological) expertise; in the field of prevention in high-risk groups, they will be supported by the expertise of the various health promotion bodies (STD-AIDS Netherlands, Schorer, Rutgers WPF), using funding from the RIVM-Clb or Ministry of Health, Welfare and Sport, and by representatives of important target groups. Broader preventive initiatives in the field of sexual health will be supported and will undergo efficiency and effectiveness evaluation by the Centre for Healthy Living (CGL), along with other health-promoting interventions. In this context, the RIVM-Clb will adhere to the 2009 Sexual Health Policy Statement, which identifies government policy priorities in this area, including STD control, the prevention of sexual coercion, increasing sexuality and relationship awareness, and focusing on people who are new to the Netherlands.

The RIVM-Clb will endeavour to provide the most uniform possible surveillance in the primary sector, in ancillary care and in the context of additional interventions (HBV

vaccination, HPV vaccination), with a view to identifying and analysing STD trends, and evaluating the effects of intervention on the burden of disease associated with STDs in various populations. The RIVM-CIb will also work to harmonise STD control and the promotion of sexual health.

There needs to be a strong and effective behavioural science unit operating, either within the RIVM or elsewhere, with which the RIVM-CIb can collaborate actively and productively, and which serves as a basis for effective cooperation with experts and professionals in the field of risk perception/behavioural change, particularly in target groups with high STD burdens.

By forging a strong combination of implementation, monitoring and evaluation activities, the quality and effectiveness of control will at least be maintained at its existing level, with the efforts of the RIVM-CIb, the municipal health authorities and agencies active in the field directed towards (new) effective diagnostic procedures and interventions based on surveillance and clinical detection.

Plans for the period up to 2015

- Before the end of 2011, the RIVM-CIb is to develop a new STD/HIV plan in consultation with the Ministry of Health, Welfare and Sport, the municipal health authorities, health promotion agencies, the Centre for Healthy Living and professionals, as announced in the 2009 Sexual Health Policy Statement. The plan will pay explicit attention to the consolidation and sustainability of control activities in vulnerable high-risk groups (including HIV carriers, people of low socio-economic status, ethnic minorities, MSM) in both mainstream and ancillary care, and to the maintenance of high-level STD control expertise within the municipal health authorities. The plan will also outline a framework for preventive activities aimed at various target groups. Where possible, synergy will be sought with comparable plans in other (EU) countries. The RIVM-CIb will execute this plan in consultation with health promotion agencies and other partners like municipal health authorities.
- Differentiated consultation provides a vehicle for effective care and bespoke prevention. An integrated ancillary STD/Sense programme will be set up to implement that principle, utilising a uniform system of triage. To support the programme, there will be a system of quality indicators and a municipal health authority visitation scheme. Implementation of the multidisciplinary guidelines developed by RIVM-CIb in collaboration with the professions will be evaluated, and the development of similar multidisciplinary evidence-based guidelines will be encouraged.
- As in the wider field of infectious disease prevention and control, the RIVM-CIb is to remain the primary national reference centre for the Ministry of Health, Welfare and Sport in connection with policy-related questions, and for the municipal health authorities in connection with questions about individual cure and prevention. The RIVM-CIb will continue to advise the Ministry of Health, Welfare and Sport on STD policy, on the basis of surveillance data, their interpretation and on the basis of knowledge and qualities of its network partners.
- The basis of surveillance will continue to be the epidemiological and microbiological data obtained from the STD centres, which will where possible be analysed in conjunction with data on or from Sense, microbiological and molecular surveillance, the Hiv Monitoring Foundation (SHM), pregnancy screening, GPs, the Rutgers-WPF, and ancillary interventions (e.g. HBV and HPV vaccination). Uniformity in the European surveillance data available through the ECDC networks to which the RIVM-CIb belongs will further enhance surveillance. These various activities will form the basis for the provision of proactive policy support to the Ministry of Health, Welfare and Sport in connection with, for example, the development and evaluation of target group-specific preventive interventions.
- The RIVM-CIb will support the development and evaluation of innovative (multidisciplinary) interventions aimed at high-risk groups in the context of surveillance and practice. Efficacy analysis will guide decision-making about further research and control. Possible ways of increasing the regional budget available to support municipal health authorities and using the funds for the authorities' STD projects will be investigated. Use of the available data for modelling will shed light on the effects of interventions regarding which relatively little information is accessible.

Objectives 2011-2015

1. The RIVM-Clb is to act more as a network organisation by promoting a culture of internal and external cooperation.
2. The RIVM-Clb is to seek to increase the flexibility of its workforce, by for example employing fewer personnel on permanent contracts.
3. From 2012, the existing institutional grants are to be substantially reduced or withdrawn. The RIVM-Clb will instead make project grants available for activities that support the prevention and control of infectious diseases or the promotion of sexual health.
4. Where international cooperation is concerned, the RIVM-Clb is to invest primarily (but not exclusively) in building up cooperative ties within the EU.
5. Before the end of 2015, the RIVM-Clb is to establish long-term working relationships with one or two infectious disease knowledge centres in developing countries.
6. On the basis of a five-year strategy document, a programme budget will be made available for each theme, which will be used to initiate or reinforce activities aimed at the priorities within that theme.
7. By 2015, at least 30% of the RIVM-Clb's research will be externally funded and the number of dual appointments made with universities and other (research) bodies will have increased to at least 15. In addition, at least 40 PhD students will by that date be working within the RIVM-Clb.
8. The RIVM-Clb is to develop outbreak guidelines for coordinated laboratory upscaling and response. There will be systematic collaboration with medical microbiology laboratories on the typing of common pathogens. By the end of 2014, there will be upscaling and response guidelines for at least three microorganisms. Where relevant, these guidelines will include advice on non-human diagnostics.
9. Before the end of 2013, the RIVM-Clb is to realise a national professional biobank for infection-related materials and data, in conjunction with a reference laboratory structure.
10. Before the end of 2011, various scenarios for the future of the National Immunisation Programme will be evaluated.
11. Before the end of 2011, a strategy will be in place for the integration of vaccinology within the RIVM-Clb; this strategy will be based upon an international scientific audit, a strategic review and selectivity with regard to collaboration with industry.
12. By the start of 2015, the NVI's public activities will be fully integrated within the RIVM.
13. Before the end of 2012, task demarcation arrangements are to be made with the Dutch Working Party on Antibiotic Policy (SWAB) and the Dutch Working Party on Infection Prevention (WIP), which take account of the RIVM-Clb's public responsibilities and the expertise that exists in the field.
14. The RIVM-Clb is to expand its surveillance of hospital-acquired infections to include other care-related infections (infections acquired in nursing homes and independent treatment centres); before the end of 2013, such surveillance is to be coordinated with surveillance on the basis of laboratory data.
15. The RIVM-Clb is to forge closer ties with veterinary experts in order to enhance its awareness of antimicrobial resistance in the livestock industry.
16. In 2011, the RIVM-Clb is to set up a medical-veterinary detection forum and calls an Outbreak Management Team Zoonoses (OMT-Z) if necessary; before the end of 2015, the RIVM-Clb is also to develop joint medical-veterinary guidelines for the detection and control of at least three priority zoonoses.
17. The RIVM-Clb is in its research, specifically in zoonoses related research, more to focus on interventions.
18. Before the end of 2011, the RIVM-Clb is to develop a new STD/HIV plan in consultation with the Ministry of Health, Welfare and Sport, municipal health authorities and bodies working in the field of STDs and HIV.
19. Before 2012, the RIVM-Clb is to implement the additional STD/Sense scheme that the Ministry of Health, Welfare and Sport shortly plans to integrate. This scheme is to be supported by quality and visitation indicators and by regional visitations.

Glossary of abbreviations

ACS	Ancillary Curative STD Care
AIDS	Acquired Immune Deficiency Syndrome
BSL	Bio-Safety Level
CDC	Centres for Disease Control and Prevention
CGL	Centre for Healthy Living
CIB	Centre for Infectious Disease Control
CMV	Vector Monitoring Centre
COM	Public Health Care and Microbiology Committee
CvB	Centre for Population Screening
CVI	Central Veterinary Institute
ECDC	European Centre of Disease Prevention and Control
EL&I	Dutch Ministry of Economic Affairs, Agriculture and Innovation
EMZOO	Emerging zoonoses
ESBL	Extended Spectrum Beta-Lactamase
EU	European Union
FAO	United Nations Food and Agriculture Organization
FD/UU	Faculty of Veterinary Medicine of the University of Utrecht
GD	Animal Health Service
HBV	Hepatitis B Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
ICT	Information and Communications Technology
IHR	International Health Regulations
ISIS-AR	Infectious Disease Surveillance Information System – Antibiotics Resistance
KNCV	KNCV Tuberculosis Foundation
KNMvD	Royal Dutch Veterinary Science Society
LAREB	Dutch Pharmacovigilance Centre
LCI	Preparedness and Response Unit (CIB)
LTO	Farmers' and Growers' Association
MARAN	Monitoring of Antimicrobial Resistance and Antibiotic usage in Animals in the Netherlands
MDR/XDR	multi-drug-resistant/extensively drug-resistant
MMR	Measles Mumps and Rubella
MRSA	Methicillin-Resistant <i>Staphylococcus aureus</i>
MSM	Men who have sex with men
MT	Management Team
NIPP	National Influenza Prevention Programme
NVI	Netherlands Vaccine Institute
NVMM	Dutch Medical Microbiology Society
nVWA	Food and Consumer Product Safety Authority
PG	Public Health Directorate
PGO	Patients' organisations, disabled people's organisations and senior citizens' organisations
PREZIES	Prevention of Hospital Infections by Surveillance
PROHIBIT	Prevention of Hospital Infections by Intervention and Training
RCP	Regional Coordination Programmes
RIVM	National Institute of Public Health and the Environment
NIP	National Immunisation Programme
SARS	Severe Acute Respiratory Syndrome
SHM	HIV Monitoring Foundation
SNIV	Infectious Disease Surveillance Network for Nursing Homes
STD	Sexually Transmitted Disease
SOR	RIVM Strategic Research
SWAB	Dutch Working Party on Antibiotic Policy
TROCAR	Translational Research On Combating Antimicrobial Resistance

UU	University of Utrecht
VDC	Food, Animals and Consumers Directorate
VGP	Food, Health Protection and Prevention Directorate
VHIG	Association for Hygiene & Infection Prevention in Health Care
WHO	World Health Organization
WIP	Dutch Working Party on Infection Prevention
Wpg	Public Health Act
WUR	Wageningen University & Research Centre
ZonMW	Netherlands Organisation for Health Research and Development

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