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REVIEW

International guidelines for infectious diseases: a practical guide

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ABSTRACT

A growing number of organisations have become involved in the development of guidelines for infectious diseases (ID). The degree of acceptation of guidelines varies from one country to another. Some of these national differences are determining the practices of prescribing antibiotics, and infection control both in hospitals and in the community. This review provides updated information on ID guideline programmes, in particular on the topic of antimicrobial therapy. It is aimed at clinicians, both in their role as care providers and as designers of local antibiotic guidelines (antibiotic booklets). Definitions are given and the process of development is discussed. International and national ID guideline programmes in the English language are presented. Many URLs provide access to the different websites where most guidelines can be downloaded free of charge.

KEYWORDS

Antimicrobial therapy, clinical practice guidelines, guideline programme, review

INTRODUCTION

The phenomenon of guidelines in healthcare runs parallel with the evolution in medicine from experience-based medicine to evidence-based medicine (EBM).[1] The need for a guide for preventive, diagnostic, therapeutic and/or organisational procedures has been apparent since the last quarter of the past century. A growing number of organisations have become involved in the development of guidelines for infectious diseases (ID), in particular on the topic of antimicrobial therapy and infection control. A general review of evidence-based guideline development in ID was published by Peetermans and Ramaekers in this journal in 2002.[2] They concluded that ID guidelines must meet the international standards of guideline quality but, most importantly, they also require the integration of local epidemiology and resistance data.

The degree of acceptation of guidelines varies from one country to another. Italian physicians perceive practice guidelines as externally imposed and cost-containment tools rather than decision-supporting tools.[3] On the other hand, according to a survey carried out among Dutch physicians,[4] it appears that more than 75% of the responders do not or only sometimes dislike guidelines. The minor aversion appeared to depend on organisational and financial restrictions, legal aspects, and insufficient support from hospital management. National differences in acceptance of guidelines have an impact on the prescribing practices of antibiotics. Antibiotic use in the Netherlands is among the lowest in Europe.[5] In a survey on antibiotic control measures, local antibiotic guidelines were present in 95% of Dutch secondary care hospitals. However, in the process of development, antibiotic committees made use of international and national guidelines for local guidelines in only 36 and 19%, respectively.[6] There is a clear need for more information. The aim of the present paper is to provide an update on international and national guidelines on infectious diseases. In the section on guideline programmes, many links provide access to the websites where most guidelines can be downloaded free of charge.

AIM OF GUIDELINES ON INFECTIOUS DISEASES

The main motive for the development of clinical practice guidelines is to increase the quality of care. Guidelines aim to be a support for clinical decision-making, decrease the unwanted diversity of treatment procedures, and increase insight into clinical practice (for both the physician and the patient). Some bodies aim to achieve a broader goal than quality alone. Thus the Infectious Diseases Society of America (IDSA) maintains that guidelines must also promote cost-effectiveness. Guidelines can also serve as an educational tool and last but not least, for infectious diseases, the control of microbial resistance has become an important goal of guidelines.

DEFINITIONS

There is a large diversity in the terminology of guidelines, leading to confusion by users who are not familiar with the jargon. *Table 1* shows an actualised, referenced selection of authoritative definitions of terms related to guidelines on infectious diseases and antimicrobial therapy. Guidelines can be international, national or local. National guidelines can – and must – be translated into local/regional policies. National guidelines on antimicrobial therapy can constitute a framework for local hospital antibiotic policies.[7] According to current insights a guideline must include more than recommendations only; it must also include a description of the methodology used and supporting evidence. The older definition of clinical practice guidelines 'A systematically developed statement'[8] is now only applicable to that part of the guideline containing the recommendations. Protocols use national guidelines as a starting point, but formulate more specific recommendations that should be applied in certain local healthcare settings. In the development of a protocol, integrated care pathways are often used. Standards usually have a more specific goal than guidelines. The concept 'standards' as used in English literature refers to minimum norms which a professional is assumed to satisfy. As a rule, the preference for and the results of certain interventions are already known before a standard is created. Standards therefore leave little room for the physician who does not want to comply. They can thus also be called requirements. For example, the Dutch Inspectorate for Healthcare considers the guidelines of the Working Party on Infection Prevention (WIP) (see below) to be professional standards, on which hospital infection control protocols should be based. The IDSA initially published quality standards to be applied without controversy in most hospital settings to review the care of patients with certain infectious diseases problems.[9] Since 2001, however,

Table 1 *Definitions of guidelines on infectious diseases*

Term	Definition	Reference
Guideline programme	A structured and coordinated programme designed with the specific aim of producing several clinical practice guidelines	11
Guideline, clinical guideline, clinical practice guideline	A document that includes a set of statements about appropriate healthcare to support daily practice, based on evidence and critical appraisal, aimed at the explicit statement of good medical practice	11
Recommendation	A systematically developed statement to assist the practitioner in making decisions about appropriate healthcare for specific clinical circumstances	11
Standard (quality, standard of care)	Authoritative statements of (1) minimum levels of acceptable performance or results, (2) excellent levels of performance or results, or (3) the range of acceptable performance or results	8, 12
Protocol	A programmed and detailed description of a practice policy, with clear, well-defined decisions. Usually description of the process of care taking into account the specific local regional/clinical situation. Protocols often contain algorithms	11
Integrated care pathways	Structured multidisciplinary care plans with detailed essential steps in the care of patients with a specific clinical problem	33
Antibiotic guide, booklet	A local application of (inter)national guidelines on antimicrobial prophylaxis and therapy	34
Formulary, drug list	A list of drugs. Can be part of a policy by limitation of the number of drugs listed. Does not contain advice on indications	12
Performance measures	Methods or instruments to estimate or monitor the extent to which the actions of a healthcare practitioner or provider conform to practice guidelines or standards of quality (compliance)	12
Quality indicator	A measurable element of practice performance for which there is evidence or consensus that it can be used to assess, and hence change, the quality of care provided	35
Review criteria	Systematically developed statements that can be used to assess the appropriateness of specific healthcare decisions, services, and outcome	36

the IDSA no longer produces standards of care; it is stated that other organisations can adopt or adapt the guidelines of the IDSA for this purpose.[10] The Dutch College of General Practitioners (NHG) has up to now produced guidelines which they call 'standards', so that this concept has acquired a different meaning in the Netherlands than in general literature.[11]

In the past, there has been an indiscriminate use of various terms such as formularies, policies, antimicrobial booklets and guides to describe local guideline documents. To avoid confusion among users and evaluators, a clear distinction between formularies and antibiotic booklets should be made. A formulary is only a list of drugs and does not provide a judgment of their application (i.e. the indications).[12] So the word 'formulary' should not be used for an antibiotic guide or booklet. A formulary can be part of a chapter, for instance, or a guideline document. Worldwide, old-fashioned terms, such as *vademecum*, blueprint and compendium are still used to describe national or local consensus guidelines on antimicrobial therapy, although it is unclear what the different terms add or stand for.

DEVELOPMENT

Appraisal of Guidelines Research and Evaluation (AGREE) is a valuable checklist that has been developed to evaluate the quality of a guideline,[13] but it can also be used for design. In this issue of the journal, the application of the AGREE instrument in the design of the SWAB guidelines is described in an editorial by the Dutch Working Party on Antibiotic Policy of the SWAB guideline committee.[14] The AGREE instrument was developed through the cooperation of an international consortium of designers of guidelines. The instrument comes with a handbook and can be downloaded from the AGREE website www.agreecollaboration.org. Information and communication technology (ICT) is facilitating the process of guideline development by the consultation of stakeholders through a closed part of a website. Target users can log in from anywhere at any desired moment and insert their comments. A less sophisticated strategy is to post the draft guidelines on the internet for a period of time and request (electronic) commentaries. Guidelines can be revised more regularly, but the frequency is to a certain extent limited by how often the professionals can incorporate new material. However, even with these new approaches, the design phase of an evidence-based guideline can last one to three years depending upon the complexity of the subject. For multidisciplinary guidelines, i.e. antimicrobial therapy, many parties have to be consulted and this causes extra delay. One consequence of this long development process can be that the guideline is already out-of-date at the time it is finished, due to new available knowledge.

Which topics to select?

In general, clinical practice guidelines are considered useful when physicians are uncertain about the appropriate treatment for which scientific evidence is available.[15] In infectious diseases there is usually a need for guidelines for empirical therapy and prophylaxis, and for diagnostics. In the field of empirical therapy, maximal efficacy of a blindly chosen broad-spectrum drug has to be balanced against the danger of selection of antimicrobial resistance. A topic can be chosen from the most common infectious diseases, such as respiratory tract or urinary tract infections, or the most threatening (high morbidity and mortality), such as bacteraemia. Topics can also be selected about which there are controversies, such as selective decontamination. A major reason to develop national guidelines for empirical therapy is the divergence of national antimicrobial resistance rates from those that support the choice of drugs in an authoritative international guideline. In connection with the support needed for implementation, the choice of a topic is best made in consultation with as large a group as possible.

Who should author guidelines on antimicrobial therapy?

There is a certain paradox in the fact that international guidelines usually have experts as their authors – therefore these guidelines have considerable authority. In contrast, because the users of local guidelines are themselves often involved at an early stage in the development process, these guidelines usually enjoy greater support because the providers have committed themselves at this early stage. An investigation by Grol *et al*. among Dutch medical specialists revealed that 80 to 90% appreciated and used the guidelines that were produced by their own scientific society in contrast to 50% for the same guidelines but produced by the Dutch Institute for Healthcare Improvement.[16]

DISTRIBUTION AND AVAILABILITY

Guidelines used to be distributed as printed matter, either as articles, a supplement to a medical journal or a book. Nowadays they are also placed on the internet, allowing more frequent actualisation. Almost all clinical practice guidelines can be downloaded free of charge from the websites of the organisations or the publisher. Many guidelines are distributed via multiple channels, to reach a maximum of healthcare workers.[9] IDSA guidelines are published in up to three journals: *Clinical Infectious Diseases* and two infection control journals. Since 2003, the SWAB guidelines are published both in Dutch and in English. In addition, the complete guideline containing the literature search and the recommendations can be downloaded from the SWAB website. Distribution of the guideline is the first step in its implementation, but this

is insufficient in practice. Discussions at (consensus) conferences or approval of the guideline at the general meeting of the relevant scientific society increases support. Adherence to the guideline can be increased by decision aids, summary cards and patient education and information leaflets. The Dutch College of General Practitioners provides CME packages for each practice guideline, complete with assessment and feedback procedures.

IMPLEMENTATION

Quality is only partially responsible for the successful application of a guideline. Whether and to what extent a guideline is followed therefore depends partially on the evidence presented in support of the recommendations, but also on the complexity of the requested action, the skills of, or the changes required in the organisation, and the clarity of the design.[16] A number of steps have been identified which lead to optimum use of the guidelines.[11] No single intervention works in all situations. Most of the methods of implementation are more or less effective, depending on the local situation and the presence of barriers. Education must be followed by interactive education, in which the participants can apply the proposed changes. Feedback alone is not effective, but it is often crucial at the beginning of the intervention. Face-to-face instruction (technique of the pharmaceutical industry) is especially effective when the 'detailer' is well-trained and a relationship based on trust has been established with the professionals. Interventions which are directed toward better organisation of care processes and changes in the culture of institutions, as well as interventions which attempt to improve care via the patient, have not been studied often.[16] Measures for limitation of the financial reimbursement for antibiotics have had a significant effect on the prescription conduct of general practitioners in Denmark[17] and surgeons in Belgian hospitals.[18] Recently, the importance of wording the guideline in precise behavioural terms has been stressed.[19]

CONFLICTS OF INTEREST AND DISCLAIMERS

Solid clinical practice guidelines should state possible conflicts of interest.[20] The highest level of evidence for a guideline is obtained by the most expensive form of research, the randomised controlled trial. The costs of such research on antimicrobial drugs can only be met by means of financial support from major drug companies. As a result, research scientists acquire bonds not only with large independent subsidising governmental institutions, but also with the industry. Recently it was reported that research that is paid for by the pharmaceutical industry more often results in a positive report for the drug under investigation than independent research.[21] In addition, a positive investigation is also published more often (publication bias). The conflicts of interest of designers of guidelines on therapy seem to be inevitable. The experts who are requested to formulate best practice are the same individuals who conduct sponsored research in the field in which they excel. There is certainly no reason to reject guidelines simply because of interests on the part of the designers. The users of the guideline, however, should be informed. A formal process built in to guideline development that forces authors to declare their financial interests and written declarations of competing interests was proposed in 2002.[22] At present, there are still many divergent practices. The Dutch Association of Respiratory Care Physicians (NVALT) gives complete transparency regarding its sponsors from the (pharmaceutical) industry on its website. The National Coordinator Infectious Disease Control (LCI) lists the details of an industry-sponsored project of the handheld version of the guidelines on their website. On the website of the Dutch College of General Practitioners, the NHG, it is difficult to find information about (governmental) grants for the clinical practice guidelines. The IDSA guidelines present lists of authors and their connections with diverse pharmaceutical companies in the paragraph 'Disclosure of Financial Interests'. The Cochrane collaboration www.cochrane.org/ has recently posted an extensive consensus document on its website which describes its structure, funding and the conditions for corporate sponsorship of all co-workers and sponsoring of reviews. Reassurance was sought that the conclusions of Cochrane reviews are not biased through the influence of funding by commercial entities that stand to benefit financially from the results of reviews. The SWAB policies regarding conflicts of interests and governmental sponsorship are clarified on the website.

Most websites of ID guideline providers present some form of disclaimer. The Scottish Intercollegiate Guidelines Network (SIGN) has a document entitled 'Notes for users' in which they explain that their guidelines should not be considered as standards. The WIP guidelines can only be downloaded after the user has declared that he agrees with the WIP declining the responsibility for the application of the guidelines to specific cases.

EVALUATION OF A GUIDELINE AND ITS USE

After the guideline has been developed and implemented, the degree to which the guideline is used in practice must be determined, i.e. what are the barriers to adherence.

Barriers effecting physician's knowledge, attitude and behaviour have been discussed by Peetermans and Ramaekers.[2] Evaluation of support by (potential) users can be achieved by means of questionnaires or interviews. In 2000 and 2002 the SWAB sent a written (anonymous) questionnaire to antibiotic committees to assess awareness and support of its guidelines.[6,23] In subsequent interviews, it appeared that systematic use of SWAB guidelines for the establishment of local antibiotic guidelines (booklets) is difficult due to the nonstandardised approach and the rather individualistic operating procedures of the antibiotic committees. The target group acknowledges the need for sound national guidelines on infectious diseases; however, the position of the SWAB guidelines is not always crystal clear (J. Bos, unpublished data). In reaction, the SWAB organised a workshop for members of hospital antibiotic committees in 2004 and is preparing an ICT programme to make the SWAB guidelines more accessible.

In order to measure whether a guideline has the desired result in practice, quality indicators must be developed (*table 1*). Quality indicators are measurable variables of care which give a signal about quality based on the guideline. One can differentiate between process indicators, which assess the outcome of medical-specialist care according to the guideline, and result indicators, which assess the results of medical-specialist care according to the guidelines. Process indicators such as the adherence of physicians to international guidelines have been investigated frequently. Less is known about the adherence of specialists to their own guidelines. Audits provide this type of information.[24] In the field of infectious diseases, the result indicators are given by patient results or microbiological results, such as resistance. The Surgical Prophylaxis and Surveillance project (CHIPS), which predominantly used audit and feedback, led to the successful implementation of the recommendations from the national SWAB guideline 'Perioperative Prophylaxis'. The fact that the patient result indicator, postoperative wound infections, remained stable suggests that a restrictive antibiotic policy, combined with correct timing, is just as effective as former practices.[25]

INFECTIOUS DISEASES GUIDELINES IN THE ENGLISH LANGUAGE

There are diverse guideline programmes for the field of infectious diseases in the English language, which make use of different methods (*table 2*).

Infection control

The American Centers for Disease Control (CDC) produces prevention guidelines. Sources for the CDC guidelines are variable. Two-thirds of the documents were originally published as CDC's Morbidity and Mortality Weekly Report (MMWR). A steering committee for the CDC selects documents to be included in the prevention guidelines database. The Society for Healthcare Epidemiology of America (SHEA) develops guidelines for hospital hygiene, termed position papers. The public part of the website provides little information on methodology. The Australian independent advisory body for healthcare, the National Health and Medical Research Council (NHMRC), has recently produced an elaborate infection control guideline for health professionals (*table 2*).

Management of infectious diseases

The IDSA started its programme for guidelines in 1994 with four quality standards. Since 1997, the society has developed guidelines only according to the method described in the Guide to the Development of Practice Guidelines.[10] The American Thoracic Society (ATS) publishes guidelines in the *American Journal of Respiratory* and *Critical Care Medicine*. These documents are also available free of charge in PDF format on their website. The Canadian Medical Association (CMA) has produced evidence-based guidelines on the topic of infectious diseases, of which many have been revised recently. Guidelines published by the Public Health Agency of Canada and the Canadian Task Force on Preventive Healthcare are downloadable via CMA infobase.

The SIGN designs guidelines which are methodologically very strong. Together with the National Institute for Clinical Excellence (NICE) www.nice.org.uk, SIGN has developed guidelines for the National Health Services (NHS) of Scotland and England/Wales, respectively. The British Thoracic Society (BTS) of respiratory medicine physicians has issued guidelines on pneumonia. The guidelines of The British Society for Antimicrobial Chemotherapy (BSAC) have been published in the *Journal of Antimicrobial Chemotherapy*. Draft guidelines are being issued for open consultation on the BSAC website. The New Zealand Guidelines Group (NZGG), a prominent organisation that develops guidelines according to evidence-based medicine, has only one topic in infectious diseases, a national tuberculosis control guideline (*table 2*).

The Cochrane Collaboration www.wileyeurope.com/go/cochrane provides important building blocks for the development of guidelines. This is an international nonprofit and independent organisation that involves more than 10,000 people worldwide. The formal structure of the Collaboration comprises Collaborative Review Groups (which produce systematic reviews) and Centres (with responsibilities that include support for the review groups within their area of geographical responsibility).

Table 2 *Organisations with evidence-based guideline programmes in the field of infectious diseases in the English language*

Name of organisation	Product, scope	Recent subjects (within the last two years)
Centers for Disease Control (CDC) www.cdc.gov	Guidelines on infection prevention and immunisations	Compendium of animal rabies prevention and control; medical examiners, coroners and biological terrorism; prevention and control of influenza; diagnosis and management of food-borne illnesses; prevention of healthcare associated pneumonia (2004)
Society for Healthcare Epidemiology of America (SHEA) www.shea-online.org	Guidelines, position papers on infection control	Infection control recommendations for patients with cystic fibrosis (2003) Preventing nosocomial transmission of multidrug-resistant strains of *Staphylococcus aureus* and *Enterococcus* (2003)
Public Health Agency of Canada www.phac-aspc.gc.ca/	Guidelines on infection prevention and immunisations	Statement on travel, influenza and prevention; update on meningococcal C conjugate vaccines (2005) Statement on bacille Calmette Guérin (BCG) vaccine (2004)
National Health and Medical Research Council of Australia (NHMRC), www.health.gov.au	Guidelines	Infection control guidelines for the prevention of transmission of infectious diseases in the healthcare setting (2004)
Infectious Diseases Society of America (IDSA) www.idsociety.org	Guidelines on clinical management of infectious diseases	Management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia; diagnosis and treatment of asymptomatic bacteriuria in adults (2005) Treating opportunistic infections among HIV-infected adults and adolescents; outpatient parenteral antimicrobial therapy; antimicrobial prophylaxis for surgery; treatment of candidiasis; diagnosis and treatment of diabetic foot infections; management of bacterial meningitis (2004) Treatment of tuberculosis (2003)
American Thoracic Society (ATS) www.thoracic.org	Guidelines on management of chest infections Handheld computer (PDA) programme	Management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia (2005) Tuberculosis treatment (2003) ATS-CDC-IDSA tuberculosis treatment (2004)
Canadian Medical Association (CMA) Infobase, all Canadian clinical guideline developers www.cma.ca	Guidelines on infectious diseases Physician summaries Patient guides	Acute otitis media (*revised* 2004) Clinical management of chronic hepatitis B and C (*revised* 2004)
Scottish Intercollegiate Guidelines Network (SIGN) www.sign.ac.uk/guidelines	Guidelines on prophylaxis and therapy containing: patient information leaflets, section on implementation and audit, quick reference guide	Diagnosis and management of childhood otitis media in primary care (2003)
British Thoracic Society (BTS) www.brit-thoracic.org.uk	Guidelines on management of chest infections	Management of pleural infections in children (2005) Community-acquired pneumonia (update 2004) Severe acute respiratory syndrome (2003)
British Society for Antimicrobial Chemotherapy (BSAC) www.bsac.org.uk	Guidelines	Guidelines for the prophylaxis and treatment of meticillin (methicillin)-resistant *Staphylococcus aureus* (MRSA) infections in the United Kingdom (2005) Antibiotic treatment of endocarditis in adults (2004)
New Zealand Guidelines Group (NZGG), www.nzgg.org.nz	Guideline	Guidelines for tuberculosis control in New Zealand (2003)

It systematically publishes and distributes literature surveys of interventions in healthcare. The Cochrane Library contains more than 50 Cochrane Database Systemic Reviews on antibiotic prophylaxis or therapy with recent updates. Many of these reviews highlight the lack of evidence for antibiotics already introduced in clinical practice and call for larger, well-designed randomised trials. Since 2003, the Cochrane Collaboration has commercially marketed the reviews. Residents in a number of countries get access for free through a 'national provision'. There are also several programmes that provide free access in Latin America and low-income countries. Abstracts can be accessed free of charge at www.cochrane.org/reviews. Examples of commercial applications of guidelines on antibiotic therapy are the Sanford Guide and the Johns Hopkins Guide. Both are written by excellent authors and contain many up-to-date literature references. However, neither booklet can be considered as an 'antibiotic guide

for a local hospital' as defined in *table 1*, since they do not take into account the local epidemiology of the causative agent, the pattern of sensitivity and the formulary and policy of the local hospital. The Sanford guide, www.sanfordguide.com, is a pocket-sized reference book. National editions attempt to compensate for the differences between the American and the European culture, and take into account some national differences in resistance rates.[26,27] Like the Sanford guide, the Johns Hopkins Guide www.hopkins-abxguide.org can be accessed after registration or be downloaded in a handheld version. Views on antibiotic policy can not usually be found in these booklets. The Sanford and Johns Hopkins guides list their sponsors on the website.

NATIONAL GUIDELINE PROGRAMMES: EXAMPLE OF THE NETHERLANDS

It is important to ensure that in a given country the guidelines for one subject for a specific professional group are attuned to one another. The simultaneous existence of several national guidelines for one subject in a particular country can cause the care provider overwork, confusion and discouragement. Fine tuning is very important. Ideally all designers of guideline programmes for a particular disease should cooperate to obtain one set of recommendations in that country.[28] In the Netherlands, there is a long tradition of guideline development, but it is only recently that there have been attempts towards systematic collaboration between guideline makers.

Infection control

The WIP issues guidelines for hospitals, nursing homes and other institutions. These guidelines are written by experts who are actively involved in the provision of healthcare. The draft guidelines are submitted to all members; they are also posted on the website for comment. If relevant, the comments are incorporated into the last draft which is presented to the National Health Council for review. The Dutch Inspectorate of Healthcare (IGZ) considers the guidelines of the WIP to be professional

Table 3 *Guidelines and programmes in the field of infectious diseases in the Netherlands*

Name of organisation	Product, scope	Recent subjects (and updates within the last two years)
Working Party on Infection Prevention (WIP), www.wip.nl	Guidelines on infection control for hospitals, policies	Policies on MRSA (2003)
National Coordinator Infectious Disease Control (LCI) www.infectieziekten.nl	Protocols, practice strategies, guidelines on technical care Handheld computer (PDA) programme	Hepatitis A, influenza, meningococcal disease, smallpox (2003) Adenovirus, aviary influenza, condyloma acuminata, EBV, genital warts, genital herpes, giardiasis, impetigo, leptospirosis, lice, malaria, *Mycoplasma pneumoniae*, plague, pneumococcal disease, rabies, SARS, scarlet fever, syphilis, tetanus, West Nile virus, yellow fever (2004) Botulism, Creutzfeldt Jakob, haemorrhagic fever, listeriosis, *S. aureus*, group A streptococci (2005)
Dutch College of General Practitioners (NHG) www.nhg.artsennet.nl	Practice guidelines, summary cards, education leaflets for patients	Acute cough (2004) Most ID guidelines are from the 1990s, no recent updates
Working Party on Antibiotic Policy (SWAB) www.swab.nl	Guidelines as a framework for antibiotic policy committees	Therapy of infective endocarditis (2003) Therapy of community-acquired pneumonia (2005) Treatment of acute diarrhoea (draft 2005)
The Quality Institute for Healthcare CBO/Consensus Multidisciplinary committee, 6-9 professional societies www.cbo.nl	Guidelines, summary cards	Varicella (2003) Lyme borreliosis (2004)
The Quality Institute for Healthcare CBO/Dutch Society of AIDS Physicians (NVAB) www.cbo.nl	Draft guideline	Guideline on antiretroviral therapy (update 2005)
The Quality Institute for Healthcare CBO/Organisations of Dutch Medical Specialists Dutch Society of Pulmonologists (NVALT) www.cbo.nl	Guideline	Guideline on diagnostics and treatment of community-acquired pneumonia (2003)
Dutch Society for Dermatology and Venereology (NVDV), www.soa.nl	Guideline, patient brochures	Guidelines on sexually transmitted diseases diagnosis and therapy (updated 2003 and 2004)

standards, to which healthcare workers are urged to comply. All guidelines of the WIP are available on the internet and can be downloaded free of charge. The guidelines on paper can be requested for a fee. Since 1995, the National Coordinator of LCI has been responsible for the 39 municipal health services and the national service in the Netherlands. LCI develops protocols that are endorsed by the Health Council, i.e. ID guidelines for the community and coordinates outbreak management. The programme includes protocols on infectious diseases and practice strategies.

Management of infectious diseases

The Dutch Institute for Healthcare Improvement (CBO) has developed consensus guidelines in the Netherlands. In the past few years the programme has become more closely related to the guideline programmes of the scientific societies. The Order of Medical Specialists involved the CBO closely in the elaboration of the long-term agreements project 'Development and implementation of guidelines for medical specialists'. In this document, it is established that the development of guidelines is based on available evidence that is obtained by systematic searching and is evaluated according to the principles of evidence-based medicine (EBRO). EBRO guidelines are developed according to this specific methodology. An EBRO Platform was established by the CBO and the Centre of Quality of Care Research www.wokresearch.nl; in 2003 many Dutch designers of guideline programmes joined. Together with a number of organisations from around the world, the EBRO recently founded a new international organisation for designers of guidelines, the Guidelines International Network G-I-N www.guidelines-international.net. The purpose is to promote cooperation between guideline organisations that use the AGREE method. The Working Party on Antibiotic Policy (SWAB) has been part of the EBRO network since 2003. The SWAB guidelines contain recommendations for therapy and prophylaxis with antimicrobial drugs. The principles of diagnostics are included insofar as they are essential for policy. The SWAB guidelines programme has been established for in-hospital use. The target group is the multidisciplinary antibiotic committee of a hospital which can use the SWAB guidelines to draw up their local antibiotic booklets and protocols. The SWAB guidelines differ in this respect from the CBO guidelines and those of the specialist societies which are directed toward the individual care provider, and include other aspects of the treatment of infection. The SWAB guidelines apply to the Dutch situation and the (low) resistance patterns in the country. They are based on published national resistance data and data from the national surveillance system NethMap www.swab.nl. Therefore, in many infectious diseases, choices of antibiotics in guidelines from other countries may not always be applicable to the Dutch situation. Besides differences in resistance rates, there are clear differences in recommendations compared with American guidelines,[29] for example not to treat mild cases of community-acquired pneumonia empirically due to the possibility of atypical pathogen infection.[30] The Practice Guidelines of the NHG are guidelines for general practitioners written by general practitioners. Three practice guidelines on infectious diseases have been translated into English.

The Blueprint for Paediatric Antimicrobial Therapy[31] is a collection of national guidelines of the Division of Paediatric Infectious Diseases of the Dutch Society for Infectious Diseases and is actually under revision.

There are two independent sources of information for guidelines for antimicrobial drugs: the Netherlands Drug Bulletin (NDB) (Geneesmiddelenbulletin) www.geneesmiddelenbulletin.nl and the Farmacotherapeutisch Kompas (national formulary) www.fk.cvz.nl. Both strive – for a fraction of the amount used by commercial sources – to provide impartial information about drugs in the Netherlands. The system of peer review of the NDB was described in a former issue of this journal. NDB feels very strongly about its independence.[32] Although NDB has a distribution of 50,000, to medical professionals and even to students, the impact of its recommendations has not been studied.

CONCLUSION

Guidelines enhance the quality of medical treatment in general. Care processes become more transparent and more easily managed. Infectious diseases guidelines are useful in clinical practice, for student training and post-graduate training. Guidelines are also important for development of quality indicators. Moreover, the process of the development of guidelines points out the direction for future scientific research because the gaps in knowledge and evidence become visible. Guidelines for antimicrobial therapy can be an important way to limit microbial resistance and to combat the spread of resistance.

NOTE

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