

Situation regarding antimicrobial resistance and rational use of antimicrobial agents

1. Introduction

All available evidence points to a marked increase in drug resistance among microorganisms that has paralleled an increase in the use of antimicrobial drugs. Particularly difficult clinical management problems are now posed by certain bacterial species which have shown the ability to acquire resistance to the majority of antimicrobial agents currently available.

New and re-emerging infections are expected to pose a growing global health threat over the next 20 years. As many as a third of the estimated 54 million global deaths which occurred in 1998 were related to infectious disease, and this number is increasing. Researchers predict that the burden of morbidity and mortality due to communicable disease will increase over the next 10 years, with only limited improvement in the situation thereafter.

The subject of resistance to antimicrobial agents is considered a top priority in WHO in light of the growing problem of emerging and re-emerging diseases caused by drug-resistant pathogens. Although most countries of the Eastern Mediterranean Region have focal points for surveillance of resistance against antimicrobial agents, many countries still have unreliable treatment protocols that do not conform to WHO treatment guidelines, and irrational prescribing of antibiotics is still practised. In many countries antibiotics continue to be available from pharmacies without prescription.

This lack of awareness and standardization in the use of antibiotics has led not only to emergence and re-emergence of drug-resistant disease, but also to higher treatment costs as a result of failing primary and sometimes secondary lines of treatment. These factors, along with the lag in development of new antibiotics, the rise of megacities with associated severe health care deficiencies and environmental degradation, and the growing ease and frequency of movements of people, livestock and produce across borders, have greatly facilitated the spread of infectious disease.

In 2002, the Forty-ninth Session of the Regional Committee for the Eastern Mediterranean discussed this pressing problem and adopted a resolution (EM/RC49/R.10) on antimicrobial resistance and rational use of antimicrobial agents, aimed at reducing the overall use of antimicrobials in a balanced way in both human and veterinary medicine. Necessary actions should involve improved disease preventive measures, elimination of unnecessary and improper use of antimicrobials and improving the effective use of antimicrobials currently available, based on more precise diagnosis of infectious agents and on monitoring of antimicrobial resistance and control of antimicrobial usage. Although WHO can provide Member States with drugs at low cost through bulk procurement, countries should also be actively involved in price negotiations based on various trade agreements such as the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement and the General Agreement on Trade in Services (GATS), in order to ensure affordable prices for antibiotics on the essential drug list.

2. Progress since 2002

A consultation on antimicrobial resistance surveillance was held in Geneva in November 2002 to enhance collaboration between essential drugs, communicable disease surveillance, laboratory and maternal and child health programmes in the area of antimicrobial resistance surveillance. The Eastern Mediterranean Region was selected as a pilot region for antimicrobial resistance surveillance and containment.

A survey was sent to all countries of the Region to evaluate their technical and financial capacity to conduct antimicrobial resistance surveillance, and a regional publication on antimicrobial resistance surveillance and containment in developing countries is currently in process.

A training course on WHONET laboratory database software was held in the Regional Office in 2002 to develop expertise on data entry and analysis for antimicrobial resistance monitoring. The results of

monitoring will enable identification of first-line, second-line and third-line antimicrobials, which will eventually result in considerable financial savings at national level.

The Regional Office provided technical and financial support to the Third Arab Symposium on Antimicrobial Agents, held in Cairo in March 2004, which was organized by the Alliance for the Prudent Use of Antimicrobials. Copies of the WHO Global Strategy for Containment of Antimicrobial Resistance were distributed to participants. The consultation produced a plan of action for implementation of an antimicrobial resistance surveillance and containment programme for Arab countries.

A regional consultation on antimicrobial resistance surveillance was held in May 2004 in which focal points for three areas, laboratory, drug regulatory authority and communicable disease surveillance, were invited from each country of the Region for discussions and deliberations. Technical staff from WHO and other international institutions supported the consultation. Several microorganisms were discussed, including *Staphylococcus aureus*, streptococci and *Escherichia coli*, as well as more aggressive pathogens such as those causing HIV, hepatitis B and C, tuberculosis and malaria. Hospital infections were given special attention.

3. Future directions

A number of areas for action have been identified based on the WHO Global Strategy for Containment of Antimicrobial Resistance and the discussions of the Biennial Intercountry Meeting for Directors of Public Health Laboratories in the Eastern Mediterranean Region in May 2004.

By the end of 2005, all countries should have in place a national intersectoral committee on containment of antimicrobial resistance. Membership should include health care professionals, veterinarians, agriculturalists, pharmaceutical manufacturers, government, media representatives, consumers and other concerned parties from different sectors. The committee should be supported by the national legislative and regulatory authorities to ensure appropriate use of antimicrobials.

National strategy documents and master plans on containment of antimicrobial resistance need to be formulated and should include laboratory surveillance and data analysis, regular national updates based on available information and an emphasis on research in this area. The Regional Office could provide support by including antimicrobial resistance research in the Small Grants Scheme and by publication encouraging submission of relevant research findings to the *Eastern Mediterranean health journal*.

Advocacy needs to be strengthened and should be directed not only to decision makers, political leaders and professionals but also to patients and the general public. The subject of antimicrobial resistance should be included in school health education programmes and in the curriculum of medical and paramedical education.

Of particular importance is the establishment of hospital therapeutic committees and infection control programmes. Standard treatment guidelines should be implemented and national lists of essential antimicrobial drugs should be classified according to level of use, e.g. general practitioner, consultant and hospital use. Training courses for physicians, nurses and paramedics should be implemented if necessary. National monitoring and auditing systems should be introduced and feedback provided to both users and prescribers.

At the regional level, regional reference laboratories and epidemiology programmes should report to the Regional Office through entry and analysis of data on the WHONET program. Regional reference laboratories should also support quality assurance and external quality assurance (EQA) schemes in the Region. Such schemes should include antimicrobial use in the veterinary, agricultural and aquacultural sectors and should include monitoring the use of antimicrobials as growth promoters. The Regional Office should consider reviving the taskforce established by the Regional Director in 2000 and posting antimicrobial resistance surveillance data from the Region on the EMRO website. The currently available data, produced from questionnaires sent to Member States, are being analysed and will pave the way for future planning of further activities. Countries of the Region will continue to be updated regularly with progress in this area.