

HEALTH POLICIES ON ANTIBIOTIC RESISTANCE IN ALBANIA

PhD. Candidate, Qamil Dika

Health Expert; Tirana, Albania

PhD. Candidate, Marsida Duli

Health Advisor of Ministry of Health of Albania.Tirana-Albania

Prof. Dr. Isuf Kalo

Diabetologist Lecturer Tirana-Albania

Abstract

Policy-makers play a key role in tackling the emerging public health problem of antibiotic resistance. Antibiotic resistance is a result of the misuse, and especially the overuse, of antibiotics. Antibiotic resistance leads to excess morbidity and deaths. The problem is urgent. In the European Union more than 25 000 people die each year from common resistant bacterial infections. Owing to variable diagnostic capacity and a lack of data in countries, including Albania the number for the whole Region is not known. Antibiotic resistance increases health care costs. The estimated total cost to society of antibiotic resistance in the European Union alone is estimated to be € 1.5 billion resistant bacteria or genes that carry this information can spread easily. The use of antibiotics in animals sometimes outweighs their use in humans. Antibiotic resistance could take us back to the pre-antibiotic era. The complexity of the problem and the large number of sectors involved require strong national coordination, surveillance systems, national guidelines and sector-wide action plans. Based on good practices of national coordination of several European countries in many countries serve as reference in the conclusions to develop strategic action plan by the Albanian health institutions that aim to:

I. Strengthen national multi sectorial coordination for the containment of antibiotic resistance

II. Strengthen national surveillance of antibiotic resistance

III. Promote national strategies for the rational use of antibiotics and strengthen national surveillance of antibiotic consumption

IV. Strengthen infection control and surveillance of antibiotic resistance in health care settings

V. Prevent and control the development and spread of antibiotic resistance in the food chain

VII. Improve awareness, patient safety and partnership

The complex nature of antibiotic resistance and the use of antibiotics requires the involvement of a wide array of actors:

Keywords: Health policies, antibiotic resistance, interagency coordination, surveillance

Introduction

Antimicrobial resistance (AMR) is resistance of a microorganism to an antimicrobial medicine to which it was originally sensitive. Resistant organisms (they include bacteria, fungi, viruses and some parasites) are able to withstand attack by antimicrobial medicines, such as antibiotics, antifungals, antivirals, and antimalarials, so that standard treatments become ineffective and infections persist increasing risk of spread to others. The evolution of resistant strains is a natural phenomenon that happens when microorganisms are exposed to antimicrobial drugs, and resistant traits can be exchanged between certain types of bacteria. The misuse of antimicrobial medicines accelerates this natural phenomenon. Poor infection control practices encourages the spread of AMR.

Infections caused by resistant microorganisms often fail to respond to the standard treatment, resulting in prolonged illness and greater risk of death. The death rate for patients with serious infections treated in hospitals is about twice that in patients with infections caused by non-resistant bacteria. AMR reduces the effectiveness of treatment, thus patients remain infectious for a longer time, increasing the risk of spreading resistant microorganisms to others. Many infectious diseases risk becoming untreatable and uncontrollable, which could derail the progress made towards reaching the targets of the health-related United Nations Millennium Development Goals set for 2015.

When infections become resistant to first-line medicines, more expensive therapies must be used. The longer duration of illness and treatment, often in hospitals, increases health-care costs and the achievements of modern medicine are put at risk by AMR. Without effective antimicrobials for care and prevention of infections, the success of treatments such as organ transplantation, cancer chemotherapy and major surgery would be compromised. The growth of global trade and travel allows resistant microorganisms to be spread rapidly to distant countries and continents through humans and food.

Background

After drug companies began producing penicillin in 1943, microbes began appearing that could resist it; *Staphylococcus aureus* was the first bacterium to have found a successful adaptation to resist this groundbreaking antibiotic drug. This is caused by a combination of overuse, particularly to treat minor or non-bacterial infections or to extend prophylaxis beyond 24 hours; misuse due to faulty diagnosis or lack of information about alternative appropriate treatments; and underuse. The use of antibiotics in animals sometimes exceeds their use in humans. The development of resistance not only in viruses to antiviral drugs such as those used in antiretroviral therapy of HIV/AIDS or against influenza, but also in parasites to anti parasitic drugs such as artemisinin against malaria and in fungi to antifungal agents. Through selective pressure, a new strain of any micro-organism may emerge that resists antimicrobial drugs.

The problem of antimicrobial resistance was clearly identified in the early 1970s, and the first World Health Assembly resolution to call attention to the prudent use of drugs, including antibiotics, was adopted in 1984(1). Several other Health Assembly resolutions have drawn attention to antimicrobial resistance, and the WHO global strategy for containment of antimicrobial resistance, published in 2001(2), outlines the major directions for surveillance, prevention and control. It was followed in 2005 by resolution (3)WHA 58.27 calling on countries to improve their response to the increasing problem of antimicrobial resistance. EU countries, in the WHO European Region have developed national action plans in response to the 2001 Council Recommendation (4) on the prudent use of antimicrobial agents in human medicine.

Health care systems in many countries in the European Region are still in different phases

of reform and transition where, with a few exceptions. Not enough has yet been done to regulate for the prudent use of antibiotics, or to propose overall guidance on the use of antibiotics in the community and hospital settings. A number of countries still do not have systems for surveillance of antibiotic resistance, antibiotic use and hospital-acquired infections, and there is still very little access to sensitivity testing to guide the use of antibiotics, even in life-threatening bloodstream or respiratory infections. Health care-associated infections are an additional driving force behind the emergence and spread of antibiotic resistance. There is little education about the prudent use of antibiotics in medical, veterinary and other health related professions, leading to overprescribing and misuse. The lack of new drugs against bacterial infections is further a challenge to combating and preventing bacterial infections.

The antibiotic resistance is not properly documented through systematic surveillance systems.

Literate review

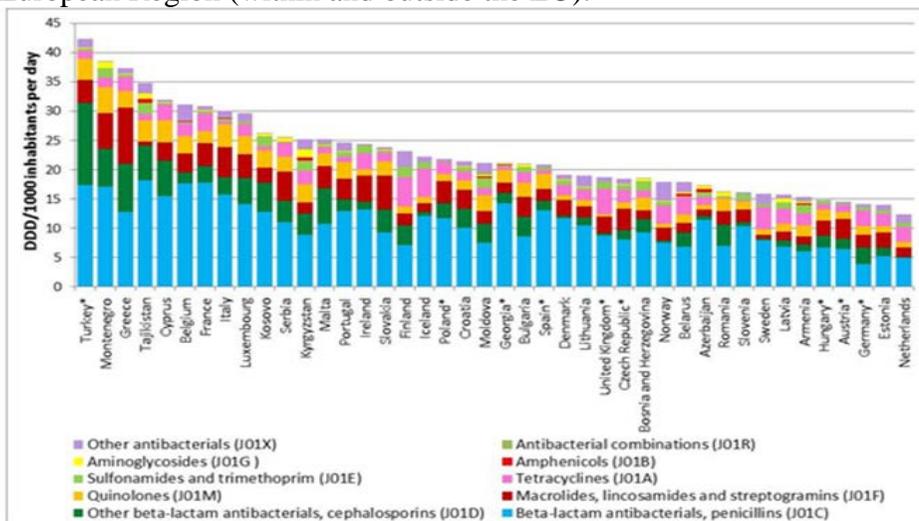
The situation in Europe.

Every year in the European Union alone, an estimated 25 000 patients die because of a serious resistant bacterial infection acquired in hospitals.

Antibiotic use in Europe, expressed in defined daily dose (DDD) per 1000 inhabitants, ranges from 10.0 in the Russian Federation, 14.6 in Sweden to 45.2 in Greece, according to 2008 data from the European Surveillance of Antimicrobial Consumption (ESAC) project. The statistics depend on the strength of monitoring systems. In the European Union (EU), Norway and Iceland, 5–12% of hospital patients acquire an infection during their stay. Each year, an estimated 400 000 present with a resistant strain, of whom 25 000 die, on average. AMR has huge economic implications. Multidrug-resistant bacteria in the EU are estimated to cause an economic loss of more than €1.5 billion each year.

New WHO report

The new report of WHO published in *The Lancet Infectious Diseases* (5) on 20 March 2014, is the first to release data on total antibiotic consumption for countries outside the European Union (EU). The data (from 2011) indicate an almost fourfold difference between the lowest and the highest antibiotic users among 42 countries and regions in the WHO European Region (within and outside the EU).



Total antibiotic use in 2011, expressed in number of DDD per 1000 inhabitants per day in 12 European countries and Kosovo as compared to 29 ESAC-Net countries.

Table 1 (12)

When compared to EU countries, some study participants ranked as top consumers (Montenegro, Tajikistan and Turkey) and others as low consumers (Armenia, Azerbaijan, Belarus and Bosnia and Herzegovina). Low antibiotic use may reflect underuse due to limited access to medicines for significant parts of the population. In Belarus, for example, this might be the consequence of a policy for universal access to health services. Penicillin's were the most frequently used by all participants, with a generally high use of broad-spectrum penicillin (amoxicillin and ampicillin), especially in the newly independent states (NIS). Participants in south-eastern Europe consumed high volumes of first-generation cephalosporins, comparable to use in northern EU countries. Montenegro and Serbia in particular used the long-acting macrolide azithromycin. Remarkably high use of parenteral antibiotic treatment was observed in all the NIS.

Situation in Albania.

Prescriptions and consumption (6)

- Total antibiotic consumption is too high. This indicates that antibiotics are overprescribed and that the population has easy access to antibiotics in pharmacies through over-the-counter sales.
- Wide-spectrum antibiotics are overused. This suggests that they are overprescribed, diagnostic tools are inappropriate and both prescribers and population have limited knowledge of antimicrobial resistance;
- The seasonal fluctuations in consumption indicate that antibiotics are improperly used to treat seasonal viral infections.
- Particular brands of antibiotics are overused and misused. This may result from marketing by the pharmaceutical industry, as well as insufficient knowledge in prescribers and the general public.

Factors that accelerate the emergence and spread of AMR include:

- lack of a comprehensive and coordinated response;
- weak or absent antimicrobial resistance surveillance and monitoring systems;
- inadequate systems to ensure quality and uninterrupted supply of medicines;
- inappropriate use of antimicrobial medicines;
- poor infection prevention and control practices;
- insufficient diagnostic, prevention and therapeutic tools.

Good practice

Georgia 8

Georgia is developing a cross-cutting strategy for antimicrobial resistance (AMR) that has the potential to not only alter the pattern of resistance in the country, but also to enhance the quality of health care overall.

A team of international experts visited Georgia on 10-14 February 2014 to prepare recommendations for the Georgian Strategic Action plan Against AMR and to support establishment of the National Center for Disease Control (NCDC) Lugar Center as an AMR Public Health Reference Center for Georgia.

The mission ended with a debriefing at the Ministry of Labor, Health and Social Affairs, during which the following steps were proposed:

- formation of a National Coordination Committee on AMR;
- organization of a technical workshop to aid the formation of a network of high-quality laboratories in Georgia;
- planning of a high-level stakeholder meeting later in the year to present the Georgian AMR Strategic Action Plan.

Turkey 9

On 4–5 December 2013, the first national antimicrobial resistance (AMR) laboratory surveillance network (NAMRS) meeting was organized in Ankara, Turkey by the WHO Country Office and the Ministry of Health within the scope of the European Union funded Surveillance and Control of Communicable Diseases project. Technical support was provided by WHO/Europe. Representatives from 77 participating laboratories, members of the AMR scientific advisory board and WHO experts attended the meeting, which focused on 4 main themes:

- the importance of standardization, standard operating procedures and quality assurance to improve laboratory practice to support patient treatment and antibiotic stewardship;
- the need for standardization of data collection, by using uniform laboratory codes;
- how to organize transition to the European Committee of Antimicrobial Susceptibility Testing (EUCAST) guidelines and the need for EUCAST laboratory training in this respect;
- participation of Turkey in the Central Asian and Eastern European Surveillance on Antimicrobial Resistance (CAESAR) network.

Netherlands

Resistance is a relatively small problem in the Netherlands thus far, but is regarded as a threat as it is a much greater problem in most other

countries. This is shown year after year by the surveillance data reported annually by EARS-NET (European Antimicrobial Resistance Surveillance System of ECDC) (10). This is because the only way to get antibiotics in the Netherlands is if a doctor prescribes them for you. Doctors only prescribe antibiotics when it is necessary, so not in case of viral infections such as flu or a cold. Furthermore, healthcare institutions are aware of this problem. If someone in a hospital or nursing home is infected with resistant bacteria, this patient is cared for in isolation and the nursing staff involved take strict hygiene measures. The latest report on monitoring of antimicrobial resistance and antibiotic usage in animals in the Netherlands (11) shows that total sales of antibiotics for veterinary use have dropped by approximately 50% between 2007 and 2012. Veterinarians also prescribe antibiotics, mainly for livestock farms, the use of antibiotics in animals has been greatly reduced.

Italia

Resistance to antibiotics is higher in countries of southern and eastern Europe, including Italy. In Italy it is monitored by project AR - ISS, a sentinel surveillance coordinated by the "Istituto Superiore di Sanita", which throws surveillance data to EARS - Net. 7 Italy is in the group of countries with the highest levels of resistance in pathogenic species most watched. Multi- sectorial interventions involving the use of antibiotics and infection control strategies in all areas of health care, are necessary to prevent a further increase in resistance to antibiotics and maintained at least in part, the effectiveness of these drugs.

Recommendation

- Policy-makers play a key role in tackling the emerging public health problem of antibiotic resistance.
- The complexity of the problem and the large number of sectors involved require strong national coordination, surveillance systems, national guidelines and sector-wide action plans.
- There are also good examples of national coordination: in some north European countries, all-inclusive national coordinating committees give advice on all matters regarding the prudent use of antibiotics and surveillance and prevention of antibiotic resistance. They provide guidelines on the use of antibiotics, steer awareness campaigns, advise on health professionals' curriculum development and draw up national regulations.
- As guidance for national policy-makers, the WHO Regional Office for Europe has developed a seven point strategic action plan that have to be launched in Albania also.

- The following seven strategic objectives are developed as guidance to national governments to address the complex factors that relate to bacterial resistance and its driver, antibiotic usage (especially overuse and misuse). They take into account the technical, financial, regulatory, educational and behavioral aspects that need to be addressed in comprehensive national plans of action. The regional strategic action plan should be used by policy-makers and other national stakeholders as an initial framework on which national action plans, guidance, regulations and organizational arrangements can be based.
 - I. Strengthen national multi sectorial coordination for the containment of antibiotic resistance
 - II. Strengthen national surveillance of antibiotic resistance
 - III. Promote national strategies for the rational use of antibiotics and strengthen national surveillance of antibiotic consumption
 - IV. Strengthen infection control and surveillance of antibiotic resistance in health care settings
 - V. Prevent and control the development and spread of antibiotic resistance in the food chain
 - VI. Promote innovation and research on new drugs and technology
 - VII. Improve awareness, patient safety and partnership

These objectives further emphasize the need to better understand the underlying causes of antibiotic resistance and to develop laboratory capacity in order to monitor national trends in antibiotic resistance, especially in life-threatening infections but also with regard to emerging mechanisms of resistance that can further affect the treatment and prevention of bacterial infections in outpatient settings. These monitoring and surveillance systems should also be linked to mechanisms for international reporting of antibiotic resistance and consumption, since the globalization of travel and trade facilitates their international spread.

References:

- World Health Assembly resolution WHA37.33 on the rational use of drugs. Geneva, World Health Organization, 1984 (http://whqlibdoc.who.int/wha_eb_handbooks/9241652063_Vol2.pdf).
- World Health Assembly resolution WHA54.11 on WHO medicines strategy. Geneva, World Health Organization, 2001 (http://apps.who.int/gb/archive/pdf_files/WHA54/ea54r11.pdf).
- World Health Assembly resolution WHA58.27 on improving the containment of antimicrobial resistance. Geneva, World Health Organization, 2005

(http://www.who.int/gb/ebwha/pdf_files/WHA58/WHA58_27-en.pdf).

Council Recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine (2002/77/EC). Official Journal of the European Communities, L 34/13

(<http://eur>

[lex.europa.eu/pri/en/oj/dat/2002/l_034/l_03420020205en00130016.pdf](http://eurlex.europa.eu/pri/en/oj/dat/2002/l_034/l_03420020205en00130016.pdf)).

Four –fold difference in antibiotic consumption across the European Region – new WHO report

ISHP

<http://www.iss.it/pres/?lang=1&id=1383&tipo=6>

<http://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-resistance/news/news/2014/03/georgia-preparing-a-response-to-antibiotic-resistance>

<http://www.euro.who.int/en/countries/turkey/news/news/2014/01/initiating-a-response-to-antibiotic-resistance-in-turkey>

Available from: <http://www.ecdc.europa.eu/en/activities/surveillance/EARS-Net/Pages/index.aspx>

MARAN Monitoring of Antimicrobial Resistance and Antibiotic Usage in Animals in The Netherlands in 2012. (2013). Available at: http://www.wageningenur.nl/upload_mm/7/8/9/52388c6c-858c-483c-b57d-227029fe778a_005738_Nethmap_2013%20def_web.pdf

The ECDC website offers information on antimicrobial resistance (http://www.ecdc.europa.eu/en/healthtopics/antimicrobial_resistance/Pages/index.aspx).