

# Strategy to prevent antibiotic resistance and healthcare-associated infections

## FACT SHEET

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In order to be able to continue to use antibiotics as effective medicines for treating bacterial infections in humans and animals, coordinated efforts are needed to prevent antibiotic resistance. On 1 December 2005, therefore, the Government approved the **Bill Strategy for coordinated efforts to prevent antibiotic resistance and healthcare-associated infections (Govt. Bill 2005/06:50)**.

The strategy emphasises that municipalities and county councils have particularly important roles in work to promote good standards of hygiene and a rational use of antibiotics. To support their efforts, the Government wishes to clarify the requirements for good hygienic standards in health, medical and dental care.

An important part of the strategy is international cooperation. In Sweden, antibiotic resistance is not as common as in many other countries. To continue to keep the prevalence of antibiotic resistance at a low level, international cooperation is needed to convince more countries to work towards safer use of antibiotics. The fact that people, animals and foodstuffs are now crossing national borders more than ever before also increases the risk of resistant bacteria spreading throughout the world. Because of this, antibiotic resistance is a global problem for public health.

## Use of antibiotics must be possible also in the future

The purpose of the Government's strategy to prevent antibiotic resistance and healthcare-associated infections is to maintain the possibility of using antibiotics effectively to treat bacterial infections in humans and animals. The strategy is part of the Government's efforts to achieve the overall Swedish objective of communicable disease control: to provide for the population's need of protection against the spread of communicable diseases. Good communicable disease control is extremely important for public health.

Antibiotic resistance development can be prevented by limiting the use of antimicrobial agents and by preventing the spread of micro-organisms resistant to antimicrobial agents. Limiting the use of antibiotics is best done by avoiding all unnecessary and ineffective use. Preventing the spread of resistant bacteria is best done by ensuring good hygienic practice where many people (hospitals, institutions, day-care centres etc) or animals (animal husbandry) gather. The risk of transmission is higher in the health and medical care services than in many other environments, since people are in close contact with each other there. Hospital environments are also places in which considerable amounts of antibiotics are used, which increases the risk of resistant bacteria developing and spreading. The risk of being infected by antibiotic-resistant bacteria is thus greater for people working and receiving treatment in such environments.

### About antibiotic resistance

*Antibiotics* are medicines against bacterial infections. They belong to the group of antimicrobial medicines.

*Antimicrobial medicines* can be produced naturally – from bacteria, fungi or plants – and artificially. These medicines kill or inhibit the growth of microorganisms such as bacteria, viruses, fungi and parasites.

*Antibiotic resistance* means that bacteria have developed mechanisms which prevent or reduce the effect of antibiotic substances. The prevalence of disease-inducing bacteria and other microorganisms that are resistant to antibiotic substances has steadily increased since antibiotics began to be used to treat bacterial infections at the end of the 1930s.

*How does resistance develop?* In every strain of bacteria, there are always individuals whose genetic makeup has mutated. Some mutations lead to such a change in genetic makeup that resistance against concentrations of antibiotics that would normally kill these bacteria is built up. In environments where a lot of antibiotics are used, only resistant bacteria survive, while bacteria that are sensitive die. The mechanisms acquired by the resistant bacteria are governed by resistance genes. These genes can spread between bacteria. These factors increase the prevalence of antibiotic resistance.

### What is meant by healthcare-associated infections?

*Healthcare-associated infections* are conditions that occur in connection with medical examinations, care or treatment in the health and medical services or dental services.

As in many other countries, health and medical care in Sweden is organised in such a manner that patients may have several contacts with different clinics and health care personnel. This increases the risk of micro-organisms being spread between patients and the staff caring for them. The spread of antibiotic resistant bacteria has very serious consequences and must therefore be prevented.



The strategy shows that to achieve its purpose, coordinated work is required in several areas. The measures proposed by the Government apply to the use of antibiotics as pharmaceuticals for humans and animals and the use of antibiotics in the foodstuffs and environmental sectors. To prevent the spread of healthcare-associated infections, a number of legislative amendments are proposed.

## **A system for monitoring antibiotic resistance**

Antibiotic resistance development in bacteria and spread of such strains between individuals must be monitored both in the human and animal sector. Systems to monitor the prescriptions and sales of antibiotics in humans and animals must also be developed. Several central government agencies already do this in a variety of ways. However, a comprehensive, long-term picture of developments is necessary. The Swedish Institute for Infectious Disease Control (SMI) should therefore be instructed, together with the agencies concerned, to review the existing national monitoring systems and to propose how monitoring in Sweden should be organised in the future.

The National Veterinary Institute (SVA) monitors antibiotic resistance in animals. The Government proposes that this institute also monitor antibiotic resistance in bacteria occurring in foodstuffs.

## **Measures to prevent infections in humans**

The Government considers that regulations on hygienic standards in health and medical care and dental care must be clarified so that all health services staff prevent and counteract healthcare-associated infections as far as possible. The Government proposes therefore that good hygienic standard requirements are explicitly expressed in the Health and Medical Services Act (1982:763) and the Dental Care Act (1985:125).

To prevent infections from being spread among patients, between patients and health care staff or among health care staff, the county communicable disease control consultant is required to monitor that health care providers take the necessary preventive measures, and to quickly notify the provider of observations that are significant in the sphere of activities for which the provider is responsible.

More healthcare-associated infections should be covered by the obligation of doctors to report certain communicable diseases to the county communicable disease control consultant and the Swedish Institute for Infectious Disease Control. The Government plans to instruct the National Board of Health and

Welfare to review which healthcare-associated infections should be included in this obligation to report.

In order to further prevent the spread of infection it is important that the vaccination programmes recommended for children and other groups by the National Board of Health and Welfare are followed. The Government also considers that it is important to prevent frequent infections in preschool children. More initiatives may be needed to develop skills in healthcare-associated infections in elderly care.

## **Measures to prevent infections in animal husbandry**

Infectious agents spread easily in environments where many animals are kept together in small spaces. Animals should be kept in environments and looked after so as to reduce the risk of spread. This is why the Government proposes that general instructions to veterinary surgeons should state that, where relevant, veterinary services should include preventive animal health efforts.

## **Initiatives to prevent antibiotics being used as plant protection agents**

In Sweden there are no approved plant protection products containing antibiotics, which is not the case in other EU countries. However, there are products containing microorganisms that can naturally produce antibiotic substances.

The Government is of the opinion that microorganisms that can lead to the spread of antibiotic resistance should not be used as plant protection agents in the EU. Since resistance can be transferred between foodstuffs and humans, the Swedish Chemicals Inspectorate should continue to monitor and prevent these agents from being approved.

## **Genes for antibiotic resistance are to be replaced by other safe technologies**

Genes that give bacteria or plant cells resistance against antibiotics are sometimes used in genetic engineering. Some of them can negatively affect health or the environment since the spread of genetic material can occur between closely related organisms. This can lead to greater antibiotic resistance, primarily in microorganisms.

The Government proposes that by 2008 at the latest there should be other solutions for producing genetically modified plants to be placed in an outdoor environment. Genetically modified microorganisms



with acquired antibiotic resistance that are harmful to health and the environment should only be kept in what is termed 'contained use'.

Both within the EU and international bodies, the Government will work towards a prohibition on the use of genes that negatively affect health or the environment in genetically modified plants, and towards the gradual removal from the market of those plants that contain them.

## More knowledge necessary

For the strategy to be successful, staff working in health and medical care, veterinary care, animal husbandry and foodstuffs production need good knowledge on how they can prevent infections and on how and when they should use antibiotics. The general public also needs to be aware of this, and understand both the benefits and the risks associated with the use of antibiotics.

To build up a greater knowledge bank, the Government proposals include instructing

- the National Board of Health and Welfare to inventory antibiotic use in health and medical care
- the Swedish Institute for Infectious Disease Control to inventory the use of microbiological diagnostics. Access to quality-assured microbiological diagnostics makes it easier for physicians to obtain an answer on whether an infection is caused by a bacteria or virus and ensure that antibiotics are not used unnecessarily
- the Swedish Board of Agriculture to review veterinary autopsy services in this country so as to improve the diagnosis of infections in animals
- the Medical Products Agency to identify the routes and final destinations of supplies of different types of antibiotics to the environment, how extensive these supplies are and how different types of antibiotics are broken down in different environments
- the National Food Administration to study whether the use of certain antibiotic substances such as preservatives in foodstuffs entails a risk to human or animal health.

## Cooperation in the EU and internationally

Sweden's efforts to reduce antibiotic resistance are highly dependent on international conditions since resistant bacteria are spread over national borders. Cooperation in the EU and internationally is vital for the work to reduce antibiotic resistance and for being able to develop new antibiotics.

In the EU, Sweden will continue to work towards ensuring that the Council of Ministers' recommendation on the prudent use of antimicrobial medicine has a broad impact. Sweden will also continue to actively contribute to the development of the World Health Organization's work on preventing antibiotic resistance in Europe and globally.

## Implementation

Under the Communicable Diseases Act (2004:168), the National Board of Health and Welfare is responsible for coordinating communicable disease control in Sweden and is to take the necessary measures for establishing effective communicable disease control. As part of efforts to achieve the communicable disease control goal, the Government considers that the National Board of Health and Welfare should coordinate the follow-up of the strategy.

### The eleven target areas of public health policy

The overall objective of the Government's public health policy is to create social conditions to ensure good health, on equal terms, for the entire population. To achieve this, measures must be taken in a large number of policy areas by government agencies, county councils, municipalities and others. As a guideline for these efforts, public health policy is divided into eleven target areas:

1. Involvement in and influence on society
2. Economic and social security
3. Secure and healthy conditions for growing up
4. Better health in working life
5. Healthy, safe environments and products
6. Health and medical care that more actively promotes good health
7. Effective prevention of the spread of infections
8. Secure and safe sexuality and good reproductive health
9. Increased physical activity
10. Good eating habits and safe foodstuffs
11. Reduced use of tobacco and alcohol, a drug- and doping-free society and a reduction in the harmful effects of excessive gambling

The work of preventing the spread of resistant bacteria primarily concerns target areas 7, Effective prevention of the spread of infections, and 6, Health and medical care that more actively promotes good health.

As the expert agency, the Swedish Institute for Infectious Disease Control is responsible for monitoring and analysing the epidemiological situation at national and international levels and for proposing measures to ensure that Sweden's communicable disease control functions efficiently. In the role as expert agency, the Swedish Institute for Infectious Disease Control should particularly support work on healthcare-associated infections and antibiotic resistance.

The Swedish Strategic Programme for the Rational Use of Antimicrobial Agents and Surveillance of Resistance (STRAMA) is a voluntary network of different actors including organizations, government agencies and private companies working with antibiotic resistance issues. STRAMA is working to maintain the possibility of effectively using antibiotics in human bacterial infections. For STRAMA to be able to plan its activities in the long term, the Government considers that it should be financed via funds allocated for public health policy measures and that its appropriation should now be SEK 10 million a year.

The Government considers that a network similar to STRAMA is needed for the veterinary and food-stuffs sectors. The Government therefore proposes the creation of a strategy group – STRAMA VL – for the rational use of antibiotics and reduced antibiotic resistance in the veterinary medicine and foodstuff sectors. The National Veterinary Institute should be instructed to formalise such cooperation, which should include central government agencies, organisations and the Swedish University of Agricultural Sciences. In strategic issues, STRAMA VL should work in close consultation with STRAMA.



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