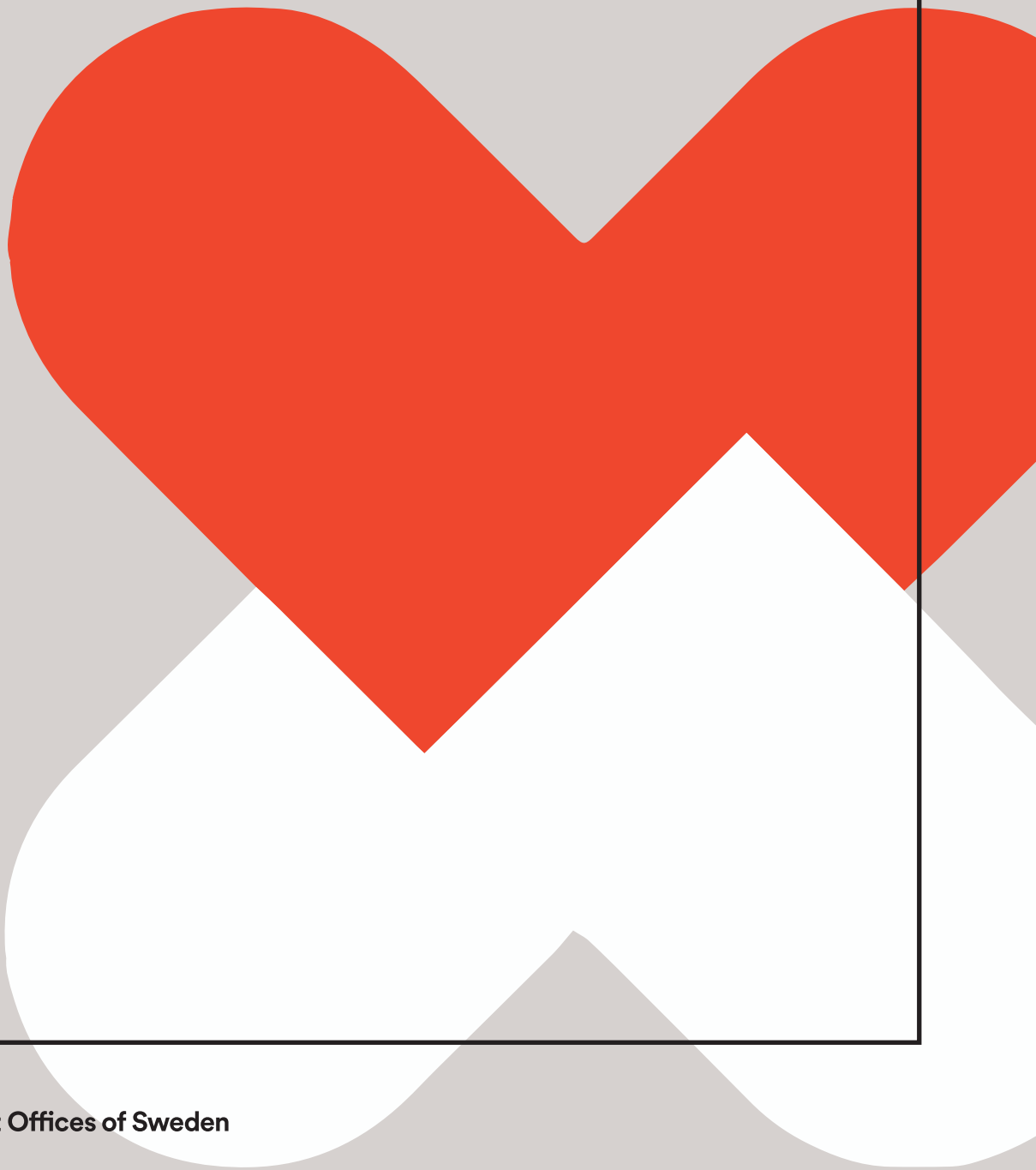
Sweden's Strategy to Curb Antimicrobial Resistance 2026–2035



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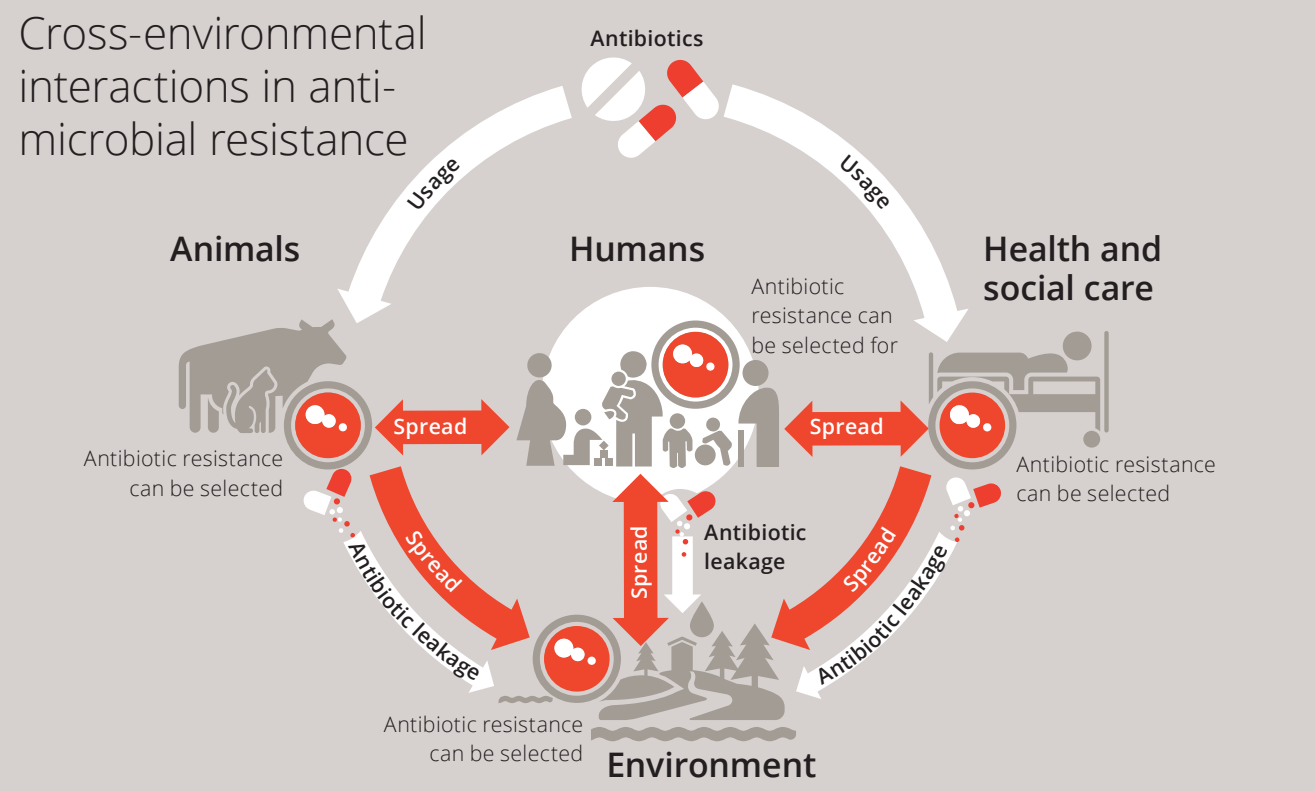
Content



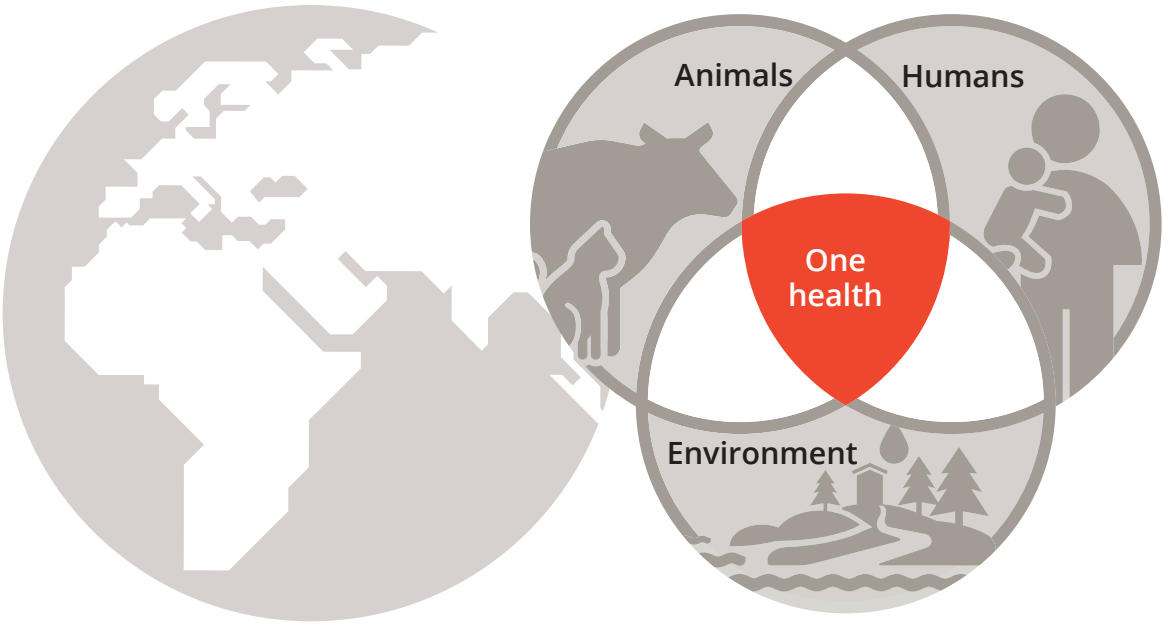
Introduction

Antimicrobial resistance (AMR), in particular antibiotic resistance, poses one of the biggest global threats to health and food production in our time. When bacteria and other microorganisms develop resistance to antimicrobials, the possibility of effectively treating infections in both humans and animals is reduced, leading to higher morbidity and mortality rates[1] with substantial consequences for the economy. Antibiotic resistance threatens to undermine all of modern healthcare, as it means that even routine operations, neonatal care, cancer treatments and advanced intensive care become associated with mortal danger if we do not have functioning antibiotics.

Discharges of antibiotics and other antimicrobials, and solid waste from their manufacturing as well as resistant bacteria into the environment can lead to an increased burden of resistant bacteria in humans, animals and plants. Infections and resistance can spread between animals, humans and the environment through direct contact, food or wastewater for example.

Working strategically to curb AMR is vital so that we can continue to have access to effective treatments, but also to equip Sweden for peacetime crisis situations, a heightened state of alert, and war. Effective work in this area therefore requires collective action, but also an understanding of the different starting points and conditions that prevail in each sector. Antimicrobial resistance is thus not just a public health issue, but also a security and supply issue, with implications for the whole of society.

1 Naghavi, Mohsen et al, 2024, Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050, The Lancet.



International commitments underscore Sweden's work in AMR

The UN recommends that all countries develop a National Action Plan on Antimicrobial Resistance.[2] Sweden has long followed this recommendation by working with a whole-of-society Strategy, decided by the Swedish Government, and a National Action Plan developed by Swedish government agencies.

International declarations, recommendations and guides are developed and updated regularly. The term One Health is often used in describing the interaction between animals, humans and the environment in this area. This Strategy is based on sector-specific as well as One Health-oriented objectives, and recommendations adopted by the United Nations (UN), the European Union (EU) and the Nordic Council of Ministers, all of which entail commitments for Sweden. They include the Political Declaration of the High-Level Meeting on Antimicrobial Resistance adopted at the 79th session of the UN General Assembly in 2024[3], the EU's Council recommendation on stepping up EU actions to curb antimicrobial resistance in a One Health approach,[4] and the Nordic Council of Ministers' declaration regarding work to curb AMR.[5] Other internationally accepted documents, guidelines and recommendations also underscore this work in Sweden.[6] This Strategy also contributes to the implementation of the 2030 Agenda.

2 Global action plan on antimicrobial resistance, WHA, 2015.

3 Political Declaration of the High-Level Meeting on Antimicrobial Resistance, UNGA, 2024.

4 Council recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach, 2023.

5 One Health – Strengthened Nordic Cooperation on Antimicrobial Resistance, Nordic Council of Ministers, 2024.

6 For example, the WHO AWaRe (Access, Watch, Reserve) antibiotic book published by the World Health Organization, the European Food Safety Authority (EFSA) indicators, the World Organisation for Animal Health (WOAH) standards, the WHO's Global Strategy on Infection Prevention and Control and its infection control and prevention initiatives, the UN Food and Agriculture Organisation (FAO) guidelines and resolutions, and the Codex Alimentarius standards on AMR, etc.

Focus and scope limitations of this Strategy

Resistance is an evolutionary, natural phenomenon in microorganisms and increases when the microorganisms are exposed to antimicrobials. Strategic management of the development of AMR in human and animal health, and food production and the environment is needed, and it needs to be sustainable over the long term. Effective prevention in relevant sectors are also essential. Long term means here delaying and inhibiting the development of AMR as far as possible while ensuring access to effective treatment options. Sweden has long been a pioneer in work to reduce AMR, but the new challenges that keep arising require ongoing, concerted and strategic work. This Strategy therefore deals with the work to curb antimicrobial resistance (AMR) in a broad sense, where although antibiotic resistance (ABR) is the main challenge, other forms of resistance must also be taken into account. For example, fungal infections that have become resistant to antimycotic drugs (antifungal agents) are a growing problem in Sweden. With this Strategy, the Government aims to bring together Sweden's work and commitments in relation to the terms and concepts used in the Nordic region, the EU, and globally. Since antibiotic resistance is the biggest threat, it remains the focus of this work, both in Sweden and abroad. This explains why some of the Strategy's objectives are limited to ABR and do not relate to the entire AMR area. By clarifying objectives and targets, how they are monitored and which actors are involved, in this new Strategy the Government's aim is to reinforce and strengthen the efforts already being made. Key areas of development in relation to the previous strategy[7] include:

- clear objectives and targets with clear timeframes;
- infection prevention and control efforts, including healthcare hygiene;
- a society that is well prepared to cope with peacetime crisis situations, a heightened state of alert and even war;
- a cross-sectoral approach involving many actors but also sector-specific target areas
- access to effective antibiotics and diagnostic tests.

A long-term strategy for 2026–2035

The Strategy has a 10-year horizon for predictability and sustainability in this work moving forward. The Strategy will be supplemented with a National Action Plan that relevant government agencies have been commissioned to develop in collaboration with other actors. The National Action Plan will include activities for the implementation of the targets set out in this Strategy. In 2029, a new High-Level Meeting of the UN General Assembly will be held on the theme of AMR, and by 2030 the EU's Council Recommendation[8] will have been implemented in the Member States. Following this Meetings, it is reasonable that

7 Swedish Strategy to Curb Antibiotic Resistance, 2024–2025.

8 Council recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach, 2023.

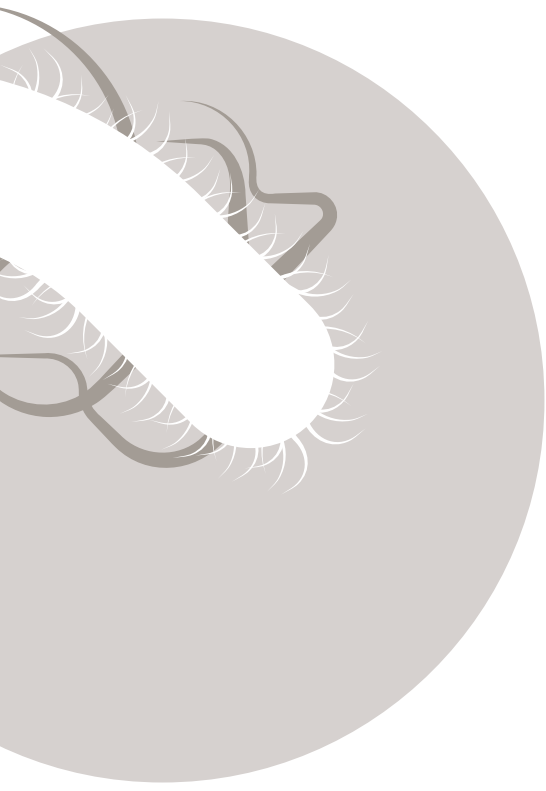
consideration should be given to whether or not Sweden's Strategy needs adjustment. Therefore, and based on data from relevant government agencies working together to curb AMR, the Government intends to continuously monitor the implementation of the Strategy and the National Action Plan and to make any adjustments as needed. Towards the end of the period covered by the Strategy, a more comprehensive follow-up and evaluation should be carried out to determine the design of the work to curb AMR in Sweden moving forward.

Gender equality and equity

The Strategy is based on the right to health, including the supply of and access to medicinal products, as expressed in Article 12 of the International Covenant on Economic, Social and Cultural Rights.[9] AMR often affects the most vulnerable and those with the greatest burden of disease, both in Sweden and globally. Furthermore, the World Health Organization (WHO) states that gender is associated with major differences in diagnosis and treatment. Overall, women are almost 30% more likely to receive antibiotics during their lifetime than men.[10] A Gender equality and equity dimension therefore needs to permeate the work to curb AMR and equity, where possible and appropriate, gender-disaggregated statistics should be reported. In work at the global level, low and middle-income countries are particularly vulnerable to AMR.

Target groups for the Strategy

Sweden's Strategy to Curb Antimicrobial Resistance has been developed and adopted by the Swedish Government, but is being implemented within the framework of a number of relevant government agencies' tasks and areas of activity. A number of other actors at different levels are also important for the successful implementation of the Strategy, such as healthcare staff, social services, and activities carried out pursuant to the Act Concerning Support and Service for Persons with Certain Functional Impairments (hereinafter 'LSS activities'), municipalities and regions, veterinary healthcare staff, actors in animal husbandry and the food chain, researchers, companies, civil society, organisations, the education sector, higher education institutions, and others. Indirectly, both government agencies and these actors also help to raise awareness and bring about behavioural changes among the general public, patients and animal owners. Collaboration between these actors is crucial to curb AMR. It is vital to establish the basis for long-term prioritisations and the conditions that are essential to the work to curb AMR.



Other relevant strategies

Sweden's Strategy to Curb Antimicrobial Resistance focuses on a sin-

9 International Covenant on Economic, Social and Cultural Rights (ICESCR) General Assembly, 1966.

10 Addressing gender inequalities in national action plans on antimicrobial resistance – Guidance to complement the people-centred approach, WHO 2024.

gle issue, but is entirely dependent on a cross-sectoral approach. In 2024 and 2025, the Government has decided on a number of assignments and strategic documents in which antibiotic use, antibiotic resistance or antimicrobial resistance are specifically mentioned as part of the assignment, such as:

- Development assistance for a new era – freedom, empowerment and sustainable growth
- Research and Innovation Bill 2024
- A concerted effort for long-term excellence, competitiveness and increased patient benefit – new objectives for Sweden's national life sciences strategy
- Food Strategy 2.0
- National Pharmaceutical Strategy 2024–2026
- National Security Strategy
- Strategy for Sweden's development cooperation for health and sexual and reproductive health and rights, 2025–2029
- Strategy for sustainable growth, the green transition and education 2025–2029.

Furthermore, the National Board of Health and Welfare has been assigned by the Government to develop a national action plan for patient safety in Sweden – a plan that applies for the period 2025–2030.[11]

11 Act for safer healthcare. National Action Plan for Increased Patient Safety 2025–2030, National Board of Health and Welfare.

Sweden – a pioneering country

Sweden boasts among the lowest levels of use of antibiotics in the EU for both humans and animals. This is largely a result of Sweden's early start in working in a structured and long-term way to curb antibiotic resistance, which has enjoyed both political and legislative support. Sweden was the first country in the world to ban antibiotic growth promoters for animals in 1986.

Another key factor in Sweden's work in this area has been local, regional and national collaboration, within and between sectors. Swedish actors in relevant sectors from politics, government agencies, industry and civil society have all banded together to work constructively towards a common objective, which has created a strong foundation for good results.

In the animal and food sector, prevention has been of key importance based on the slogan "Healthy animals don't need antibiotics".

Since 1995, the profession-driven Strama model (Strama is Sweden's strategic programme to curb antibiotic resistance) has been working locally, regionally and nationally and in various sectors to promote the responsible use of antibiotics and has been important for Sweden's good position today.

In Sweden, there is good access to data that can guide actions and their follow-up, which is essential for being able to determine whether we are in a good position and are managing new challenges.

10
target areas

- Safeguard structures for coordinating the work to curb AMR to enable long-term management of a cross-sectoral problem
- Communication and increased knowledge about antibiotic resistance and counter-measures that lead to behavioural changes throughout society
- Working actively and proactively to ensure that antimicrobial resistance is recognised and managed through global cooperation
- Continuous, effective surveillance of antimicrobial resistance
- Continued responsible use of antibiotics and good monitoring of their use
- Reduced development and spread of infections including healthcare-associated infections among humans
- Healthy animals and safe food through preventive measures
- Strengthened preventive measures to limit discharges into the environment
- Ensure reliable access to antibiotics and effective diagnostic tests
- Research and innovation that helps to curb antimicrobial resistance

Vision

A society in which access to treatment with antimicrobials is maintained through cross-sectoral and sector-specific initiatives to prevent infection and limit the development, spread and consequences of resistant microorganisms.

Overall objectives during the Strategy period

Overall objectives are defined in the introduction to the Strategy and aim to measure its effect over the long term. Following these, a number of targets divided into 10 target areas are described. There is no internal ranking among these.

With this Strategy, Sweden aims to contribute to achieving the objectives decided within the EU and the UN, including the global goal of reducing the global deaths caused by bacterial antimicrobial resistance by 10%.[12] Some of the Strategy's overall objectives have the end year 2030 if they are based on international commitments, while others end in 2035.

12 Political Declaration of the High-Level Meeting on Antimicrobial Resistance, UNGA 2024.

Sweden's objectives for the level of AMR

- The rate of increase in the incidence of bloodstream infections with methicillin-resistant Staphylococcus aureus (MRSA) for the period 2026–2030 does not exceed the rate of increase in the period 2009–2018.
- The rate of increase in the incidence of bloodstream infections with extended spectrum β-lactamase (ESBL) producing Escherichia coli for the period 2026–2030 does not exceed the rate of increase in the period 2009–2018.
- In 2030, the incidence of bloodstream infections with carbapenem-resistant Klebsiella pneumoniae does not exceed that of baseline year 2019.[13]
- The proportion of Escherichia coli in randomly sampled healthy pigs and chickens for slaughter sensitive to all tested substances in the EU protocol for harmonised monitoring of AMR is not less than 70% on two consecutive testing occasions for each species.
- Reliable data on AMR in animal pathogens are available to ensure good monitoring of AMR.

Sweden's objectives for antibiotic use

- The total use of antibiotics (outpatient and inpatient care) has decreased by 3% by 2030 compared to baseline year 2019, measured in Defined Daily Dose (DDD) per 1000 inhabitants per day.
- A maximum of 250 prescriptions per 1000 inhabitants per year (outpatient) in all regions up to and including 2035.
- Prescriptions for people from a specific category of antibiotics with a narrower spectrum (according to the international AWaRe standard) continues to exceed 75% in 2035.
- The consumption of antibiotics in Sweden's livestock production in relation to total consumption is to be on par with consumption during the period 2016–2025.
- The proportion of antibiotics for group treatment in food-producing livestock does not exceed the proportion during the period 2016–2025.
- The proportion of penicillin in the total consumption used for animals is not less than the proportion for the period 2016–2025.

13 Council recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach, 2023.

Sweden's objectives for prevention

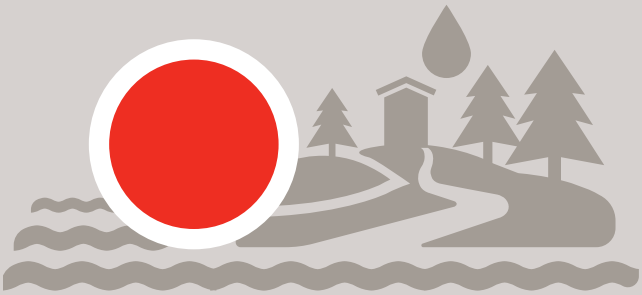
- Vaccination coverage rates for children should not fall below the current level of 95% and, in accordance with WHO recommendations, Sweden aims to have good vaccination coverage against influenza and COVID-19 in high-risk groups.
- The capacity to maintain a good animal health status has been maintained.
- The healthcare hygiene and infection prevention and control work in veterinary healthcare, and in human healthcare, social services and LSS activities in the human sector, has reduced the risk of cross-infection and healthcare-associated infections (also called nosocomial infections).

Sweden's objective for healthcare-associated infections:

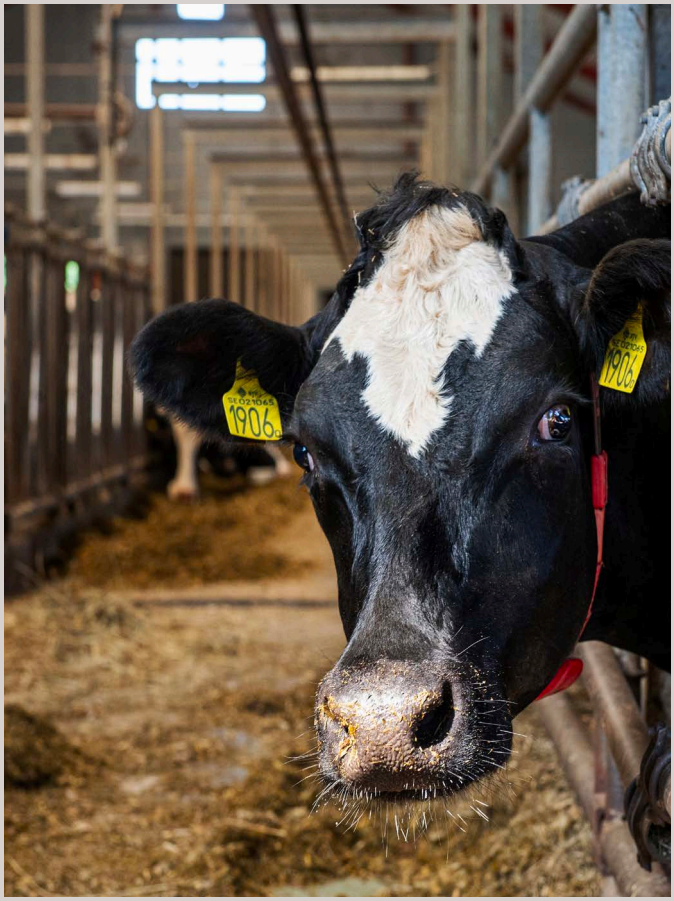
- The average proportion of healthcare-associated infections in humans (according to the European Centre for Disease Prevention and Control's definition) between 2026 and 2035 has decreased by one third compared to the data for baseline year 2023 from the ECDC's point prevalence survey conducted in Sweden.

Sweden's objectives for access to antibiotics

- Shortages of antibiotics and other antimicrobials are to be reduced by 2035 compared to baseline year 2025 levels.
- The best conceivable treatment for the WHO's list of 'bacterial priority pathogens' should be supplied on the Swedish market and accessible.



The environment remains a key part of the work to curb AMR, with harmonised and binding legislation within the EU. By maintaining low levels of resistance and prescribing of antimicrobials, and minimising discharges to the environment, Sweden contributes to the overall objectives and to making the Strategy's vision a reality. Consequently, there is currently no need for measurable targets in the environmental area.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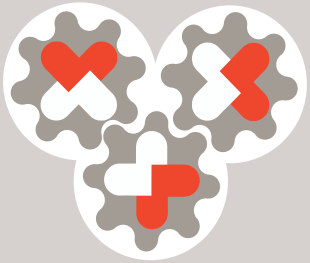
Target area 1

Safeguard structures for coordinating the work to curb AMR to enable long-term management of a cross-sectoral problem



This target area entails an increased focus on cross-sectoral interventions throughout the whole of society as wells as cross-sectoral collaboration to limit AMR through One Health approaches in the area. Supporting structures and systems are further developed and monitoring is improved.

Background

Efforts to prevent and manage AMR span multiple sectors and actors. The term One Health is being used more and more frequently to clarify the interaction between animals, humans and the environment. Through coordination between sectors, resources can be used more efficiently, duplication of work can be avoided, and common messaging can be communicated.

Between 2012 and 2025, there has been a government assignment in place for a national intersectoral coordinating mechanism (ICM) against antibiotic resistance, currently coordinated by the Public Health Agency of Sweden and the Swedish Board of Agriculture, in which government agencies and actors have worked together to develop a multi-year National Action Plan. Other actors, such as professional organisations, civil society actors and the Swedish Association of Local Authorities and Regions (SALAR), have also participated in this work. These actors have also been responsible for the sector-wide communication platform "Skydda antibiotikan" (Safeguard antibiotics).

To ensure that knowledge in this area has the best possible conditions for being well used and well supported, close contact and good collaboration is needed between the relevant actors such as government agencies, regions, and municipalities as well as actors operating in animal husbandry and the food chain. For this knowledge to be put

into practice, well-functioning structures and activities such as Strama groups, microbiology laboratories, healthcare hygiene units, infectious disease control units, and medicinal products committees are needed.

In Sweden, the regions and municipalities are responsible for structuring their own work to curb AMR in the human sectors. There are multiple groups that are relevant to this work within the regions' national systems for knowledge management in healthcare and dental care, such as national programme areas (NPO) and national working groups (NAG or NSG).[14] For the animal sector, there are groups with similar objectives such as Strama VL (Veterinary and Food) and the *Veterinär Vårdhygienförening* (Veterinary Infection Prevention and Control Association).

The long-term impact of the work to curb AMR can also be helped by broader efforts to involve actors at all levels of society, which is in line with current public health policy on good and equitable health in the population. It is also about creating the conditions for people to be able to live and work anywhere in the country and to assure competitive and sustainable food production.

Civil society, associations, representatives of the research community, companies, government agencies, municipalities, regions and other actors need forums where they can be afforded opportunities to contribute to the implementation of Sweden's Strategy to Curb Antimicrobial Resistance in a coordinated way.

14 For example, NAG Vårdhygien (Healthcare hygiene), NSG Patient Safety, NAG Strama, NPO Infectious diseases, and others.

Targets

- Sweden has a National Action Plan to curb AMR and it is regularly monitored, evaluated and updated.
- Sweden has well-functioning, cross-sectoral collaboration at the national level to curb AMR that brings together relevant government agencies and actors.
- Sweden has structures and working models for knowledge transfer between central government, the regions and the municipalities and to provide support for the implementation of the Strategy and National Action Plan.
- Through management systems and established procedures, the responsible authorities/entities and managements for healthcare and dental care, in both the public and private sectors, have created the foundations for work within infection prevention and control, healthcare hygiene, clinical microbiology and patient safety, as well as for the responsible use of antibiotics with the support of NAG Strama (the Strama national working group) and regional Strama groups.
- Through management systems and established procedures, the responsible authorities/entities and managements of social services and LSS activities have created the foundations for work with infection prevention measures and basic hygiene in their respective activities.
- The responsible authorities/entities and managements within veterinary healthcare have created the foundations for the responsible use of antibiotics, good infection prevention and control and good healthcare hygiene.
- Working models have been further developed to implement the work to curb antibiotic resistance in dental care, and to ensure regional representation in Tandvårdsstrama (the dental care Strama group).
- Forums have been established to inform and engage societal actors at all levels in the implementation of the Strategy.
- The business community and organisations recognise antimicrobial resistance, in particular antibiotic resistance, as a future threat to economic growth and health, and contribute within their spheres of activity to the implementation of the Strategy.

Target area 2

Communication and increased knowledge about antibiotic resistance and counter-measures that lead to behavioural changes throughout society

Background

In Sweden, where antibiotics are prescription-only drugs, prescribers have a great responsibility for the responsible use of antibiotics. However, the expectations of the general public and their level of knowledge may influence prescribers' decisions to prescribe antibiotics, or influence individuals' decisions to procure antibiotics without a prescription, for example via the Internet, from acquaintances, or through importing them from other countries. A high level of awareness about why it is important that antibiotics are only used when they are beneficial, in the right way, and when prescribed by an authorised prescriber is fundamental to establishing a sustainable attitude to antibiotics in the wider community.

Similarly, a high level of awareness of the importance of preventive measures is key to reducing the number of infections that require treatment and thus the need for antibiotics. The knowledge that vaccinations can help reduce antibiotic use, and thus the development of antibiotic resistance, may need to be enhanced at the wider community level.

It is important that this information is communicated in a coordinated way, within each sector and between sectors, so that the public receives targeted and analogous messaging from relevant actors in a way that is easy for them to comprehend.

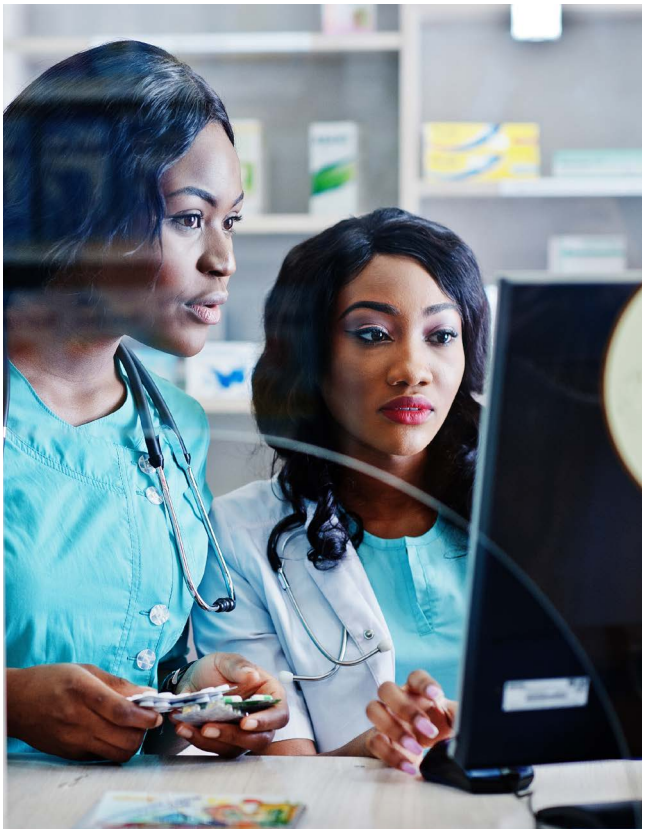
Municipalities and regions along with professionals in healthcare, pharmacy, social services, LSS activities, dental care, and actors in veterinary healthcare, animal husbandry and the food chain, all have a clear role to play in facilitating the implementation of the Strategy. It is decisive that practitioners in these professions have sufficient basic training and access to continuing professional development training, but also access to specialist training so that the Strategy can be implemented. The knowledge communicated should preferably be analogous, regardless of the higher education institution, region, municipality or activity in which the person works.

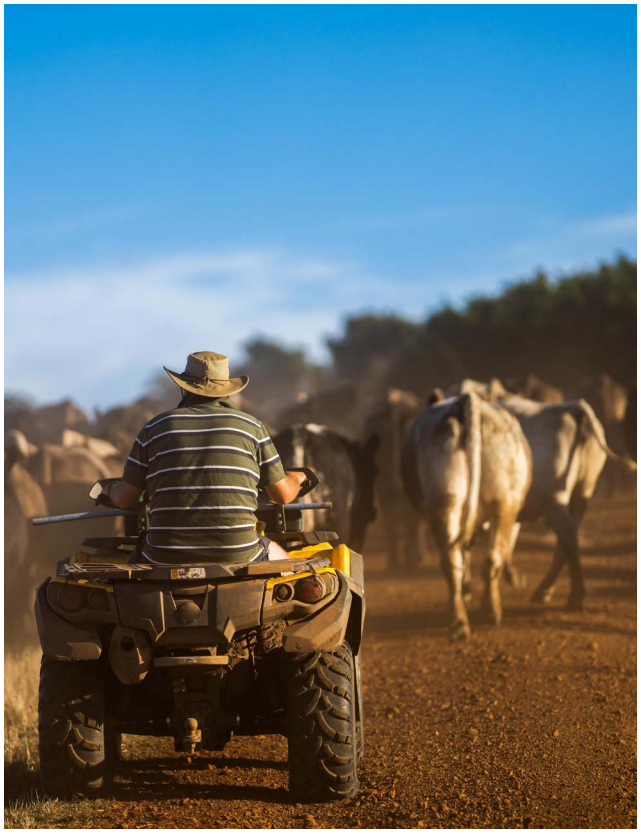
In order to achieve sustainable behavioural changes and for the implementation of interventions to be effective, it is important to make use of knowledge and methods derived from the social and behavioural sciences.

This target area means that good knowledge and awareness of measures to prevent the development and spread of infections in humans and animals should be available to all concerned, including the general public. Furthermore, knowledge of the risks associated with the development and spread of resistance when antibiotics are used should increase in the community. This knowledge is to translate into behaviours that lead to reducing the development and spread of infections and antibiotic resistance. The level of knowledge of staff working in healthcare, dental care, social services, LSS activities, and animal health, and staff working for other actors in animal husbandry and the food chain, must be sufficient to enable them to contribute positively to the work to curb antibiotic resistance.

Targets

- The general public is knowledgeable about how infections, and the spread of infections, can be prevented and controlled in humans and animals and how common infections can be managed. Members of the general public comply with the prescriptions of doctors and veterinarians, do not procure antibiotics without a prescription, and return leftover antibiotics to pharmacies.
- With the current governing documents for schools as the starting point, areas such as cross-infection and antibiotic resistance are taught in the classroom.
- Consumers continue to be well placed to make conscious choices for their food and other products from an AMR point of view, including placing a higher value on production that contributes to good animal health and responsible antibiotic use.
- Relevant professions have good, nationally equivalent, knowledge about antibiotic resistance, the spread of infectious diseases, immunisation, working methods to prevent infections, healthcare-associated infections, healthcare hygiene and the responsible prescribing of antibiotics. Knowledge that is put into practice and leads to behavioural changes.





Target area 3

Working actively and proactively to ensure that antimicrobial resistance is recognised and managed through global cooperation

Background

Antimicrobial resistance, in particular antibiotic resistance, is a global problem that requires global coordination. All nations need to contribute to the solutions. From an international perspective, Sweden has a favourable AMR situation, but this can quickly change given how resistance develops and spreads globally through travel and trade, among other things. Countries have differing conditions which affect their capacity to curb the problem of AMR. In low- and middle-income countries, lower-standard living conditions such as limited access to clean water and sanitation, healthcare and antibiotics, and the incidence of ineffective and substandard antibiotic treatment, often represent greater challenges than the actual problem of resistance itself.

In some parts of the world, poor public health and animal husbandry also create a greater need for antibiotics. Often, there is insufficient data in these countries to obtain an overview of the resistance situa-

This target area means that Sweden will continue to show clear and strong leadership in the work to curb AMR, with a particular focus on antibiotic resistance, at the global, European and Nordic levels and to contribute with Sweden's experiences in the area.

tion and thus decide on what measures are required. This is further complicated by insufficient laboratory infrastructure and inadequate systems for the collection, reporting and analysis of resistance data. In addition, demand for food of animal origin is rising, both per capita and in an increasing number of countries. As a result, many countries are making the switch from extensive small-scale animal husbandry to more intensive, large-scale production.

Antibiotic resistance risks undermining a great deal of progress made through the Sustainable Development Goals and the 2030 Agenda.

Work on updating the global cross-sectoral action plan[15] of 2015 began in 2025 under the leadership of the Quadripartite collaboration which involves WHO,[16] FAO,[17] WOAH,[18] and UNEP[19]. Two high-level meetings on antimicrobial resistance have taken place in the UN General Assembly, resulting in political declarations in 2016 and 2024, respectively.[20] A third follow-up high-level meeting has been decided by the General Assembly for 2029. In order to keep the issue high on the global agenda, raise awareness in all relevant sectors, and monitor the implementation of commitments made, biennial ministerial conferences on antimicrobial resistance are to be held in accordance with the 2024 Political Declaration. The Global Leaders Group on AMR is currently an important high-level group in the global infrastructure. Sweden is actively engaged in this group at the highest level.

Global commitments within the UN system and the 2030 Agenda, as well as the Government's Reform agenda for development assistance[21], are central frameworks for Sweden's international work on AMR. It is positive and absolutely imperative that the threat of AMR is being given more attention internationally.

Sweden can also work to disseminate knowledge about the relationship between AMR and sepsis internationally, and draw attention to the need for preventive measures and how to treat sepsis.

Sweden's relatively good AMR situation is the result of long-term, systematic work in both the animal and human sectors. This has laid the foundations for Sweden being respected internationally for its work in the AMR area, where its expertise is highly appreciated internationally. Sweden is to contribute to other countries' efforts to reduce the development of AMR and prevent AMR spreading in both the animal and human sectors, as well as in the environmental and climate areas. Sweden should also continue to work towards ending the use of antibiotic growth promoters in animals globally, as well as the routine use

15 Global Action Plan on Antimicrobial Resistance, World Health Organization; 2015.

16 World Health Organization

17 Food and Agriculture Organization of the United Nations

18 World Organisation for Animal Health

19 United Nations Environment Programme

20 Political Declaration of the High-Level Meeting of the General Assembly on Antimicrobial Resistance, UNGA, 2016 and 2024.

21 Development assistance for a new era – freedom, empowerment and sustainable growth, Swedish Government, 2023.

of preventive antibiotics in herds of animals. Swedish actors also have a good understanding of the role of the environment in the development and spread of AMR, and what consequences this can have in the environment. This is knowledge that can be disseminated internationally.

Outside the EU, antibiotics are sometimes used for plants and crops. Within the EU, such use is prohibited, but it is possible to apply for an exemption in special cases. As rising temperatures may increase the need for antibiotic use in the EU as well, it is important to ensure that such use does not contribute to the development and spread of AMR.

Formal cooperation, such as the Quadripartite collaboration, is a platform for global work with this issue. Through coordination between relevant UN bodies, great progress has been made in this work internationally.

In June 2023, during Sweden's Presidency of the EU, the Council of the European Union adopted a recommendation on stepping up EU actions to curb the development and spread of antimicrobial resistance.[22] The Council recommendation complements the 2017 EU One Health Action Plan against AMR and, in addition to objectives for the EU's own work, it includes an objective to increase cooperation to improve global actions.

Furthermore, Sweden has actively contributed to strengthening collaboration on AMR through the adoption of a One Health declaration concerning AMR within the Nordic Council of Ministers.[23]

In situations of peacetime crisis and war, the risk of AMR spreading and shortages of antibiotics is often especially manifest. In Ukraine, for example, resistant bacteria and healthcare-associated infections have increased exponentially among military personnel and the civilian population since the start of the full-scale invasion. Identifying an effective treatment for infections thus becomes a serious challenge.

It is beneficial to the economy to work with curbing anti-microbial resistance.[24] By allocating resources to the relevant UN agencies and other multilateral international organisations, the EU, and the Nordic countries' cooperation, our resources can be utilised more effectively. Sweden's international work is to be proactive in multilateral processes as well as within the EU and Nordic co-operation, as well as in bilateral contacts and partnerships, including those at regional level and with civil society actors and higher education institutions.

22 Council recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach, 2023.

23 One Health – Strengthened Nordic Cooperation on Antimicrobial Resistance, Nordic Council of Ministers, 2024.

24 Embracing a One Health Framework to Fight Antimicrobial Resistance, OECD, 2023.

Targets

- Sweden has contributed to the international work in this area under the Political Declaration of the High-Level Meeting on Antimicrobial Resistance[25] adopted at the 79th session of the UN General Assembly, and participated in the work of international high-level groups (such as the Global Leaders Group and the Alliance of Champions on AMR). It has also pushed for more binding commitments globally regarding work to curb antimicrobial resistance.
- Sweden has supported and participated in the work of the Quadripartite collaboration.[26]
- Sweden has worked to ensure that the EU is pursuing issues relevant to the work to curb AMR, including work on joint stockpiling and medical safeguards in preparedness for crisis within the EU and at global level, based on the EU's Council recommendation on stepping up EU actions to curb antimicrobial resistance, the EU's One Health Action Plan against Antimicrobial Resistance, and the EU Global Health Strategy.
- Within the framework of the EU's free trade agreements, Sweden has effective cooperation on the responsible use of antimicrobials in veterinary medicine and food production to curb antimicrobial resistance.
- Swedish actors have been actively involved in the implementation of the Nordic Declaration in this area.[27]
- Sweden works to strengthen countries' capacity-building based on their needs and circumstances, and has created international networks at the professional level to further develop work to curb antimicrobial resistance at the national and international levels.
- Sweden works to strengthen and support countries that are experiencing crisis and conflict in their work to limit antimicrobial resistance, for example in Ukraine.
- Sweden is working to facilitate a global shift towards sustainable animal husbandry and food production by lobbying for the use of all antibiotic growth promoters to cease in accordance with the guidelines from Codex Alimentarius and WOAH, and for preventive antibiotics not to be used routinely. This work also includes promoting preventive measures for good animal health and welfare.
- Sweden works to ensure that the recommendations and guidelines within Codex Alimentarius and from WOAH that concern antimicrobial resistance are applied by more countries, including those parts that concern plants and crops.
- Sweden has worked to ensure that the WHO's guidance on the management of wastewater and solid waste in the manufacture of antibiotics[28] is followed.

25 Political Declaration of the High-Level Meeting on Antimicrobial Resistance, UNGA, 2024.

26 UNEP, WOAH, WHO, FAO.

27 One Health – Strengthened Nordic Cooperation on Antimicrobial Resistance, Nordic Council of Ministers, 2024.

28 Guidance on wastewater and solid waste management for manufacturing of antibiotics, WHO, 2024.

Target area 4

Continuous, effective surveillance of antimicrobial resistance

This target area means that data on the presence of resistant microorganisms will continue to be collected and analysed in order to detect AMR at an early stage, limit cross-infection, or take necessary countermeasures. Sweden needs to continue to ensure sufficient capacity, structures and technology for surveillance in this area within different sectors, contribute to international reporting, and communicate results to relevant target groups.

Background

In Sweden, there is a long tradition and a high level of knowledge and skills in the area of surveillance, but the systems used need to be continuously improved and developed further towards greater integration and utilising fewer resources. They also need to be adaptable to new challenges and expectations with regard to international reporting that is required pursuant to recommendations and declarations that Sweden has publicly supported.[29] Work to ensure access to quality-assured data on AMR in the community – in humans and in animals and in the environment, including wastewater – needs to continue and to continue to develop. The purpose of surveillance is to be able to take action quickly.

For surveillance of AMR to be effective, a good structure and knowledge and skills in diagnostics are needed, along with reference laboratories for humans and animals. Fundamentally, Sweden has a serviceable structure in the area with good access to microbiology services at activity level, as well as national, Nordic and international cooperation on antimicrobial susceptibility testing and surveillance methodology.

Resistance data for the surveillance of AMR in humans are collected from specimens provided by patients for testing in the healthcare system. Ensuring good follow-up and sustainable access to relevant and representative data requires digital infrastructure that functions well along with greater interoperability. This work needs to relate to and take advantage of the digitalisation processes occurring in the healthcare system.

29 For example, through Regulation (EU) 2022/2371 of the European Parliament and of the Council of 23 November 2022 on serious cross-border threats to health; Political Declaration of the High-level Meeting on Antimicrobial Resistance, UNGA 2024; Council recommendation on stepping up EU actions to curb antimicrobial resistance in a One Health approach, 2023; Codex guidelines on integrated monitoring and surveillance of food-borne antimicrobial resistance, 2021; WOAH Terrestrial Animal Health Code, Chapter 6.8, Harmonisation of National Antimicrobial Resistance Surveillance and Monitoring Programmes.

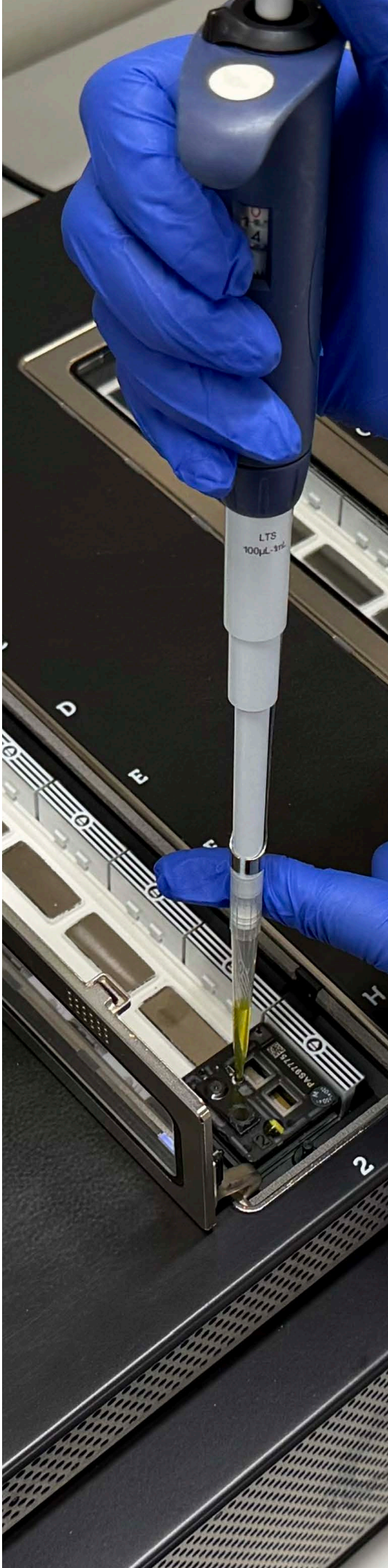
Sweden has developed several national systems for AMR surveillance, including the Swedish national database for AMR surveillance (SVEBAR), and SmiNet, a system for communicable diseases surveillance, which is used for reporting notifiable antibiotic resistance. This surveillance also includes monitoring for antibiotic residues in foodstuffs.

In the case of animals and foodstuffs, part of the surveillance is mandatory under EU Regulations.[30] It includes regular testing for bacteria from animals and in food, as well as targeted baseline studies that focus on bacteria and resistance types relevant to human health. This is supplemented by monitoring of resistance in animal pathogens, where the results are currently based on diagnostics from the Swedish Veterinary Agency. In the environmental area, surveillance is carried out to implement the EU directive on urban wastewater treatment[31].

Sweden contributes with data on the AMR resistance situation in the country to various international organisations[32] whose publications and reports clarify Sweden's AMR situation in relation to other countries. Sweden's surveillance system needs to be continuously adapted to meet new EU requirements and international standards in order to contribute to global efforts and ensure good quality reporting.

Sweden's relatively good AMR situation is the result of systematic surveillance with a long-term focus. This contributes to Sweden's very high standing in terms of credibility internationally, where Sweden's expertise is in high demand. This has resulted in two WHO collaborating centres for the surveillance of AMR in humans being located in Sweden: one in Region Kronoberg and another at the Public Health Agency of Sweden.

The results of the surveillance sometimes need to be shared with, and used by, different types of target groups, from the general public to professionals and decision-makers. Comparisons with others can make it easier for various actors to develop their own action plans and take necessary measures.



30 Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, and Commission Implementing Decision (EU) 2020/1729 of 17 November 2020 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria and repealing Implementing Decision 2013/652/EU.

31 Directive 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment.

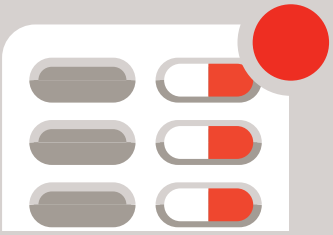
32 For example, to the ECDC's surveillance network and to the WHO's surveillance system, the European Medicines Agency (EMA), the European Food Safety Authority (EFSA). Sweden also contributes to global surveillance by submitting reports to the World Organisation for Animal Health's (WOAH) digital database ANIMUSE. Via the Swedish Environmental Protection Agency, Sweden will also report to the European Commission on the incidence of AMR in wastewater.

Targets

- There are well-functioning systems with sufficient capacity for the early detection, compilation, analysis and reporting of AMR, for example through the cooperation via SVEBAR between Sweden's clinical microbiology laboratories and the Public Health Agency of Sweden.
- There is well-functioning surveillance in humans where data on the incidence of AMR in different types of infections have been produced, for example the incidence of AMR in blood-stream healthcare-associated infections.
- There is quality-assured data available on AMR in animals, humans and foodstuffs.
- Relevant actors prioritise the continuous development of methods, for example through the use of full genome sequencing for diagnostics and surveillance.
- Suitable AMR surveillance data is collected and used for continuous improvement at the local, regional and national levels.
- Sweden participates in European and international surveillance programmes.
- The sharing of information within and between sectors is functioning well, which includes endeavouring to use standardised and consistent terminology.
- Surveillance results and comparisons between different regions or countries can be communicated in a simple, clear way to relevant target groups at different levels.
- Sweden is using needs-based surveillance in the environment in accordance with relevant EU legislation, including the Wastewater Directive and the Water Framework Directive.

Target area 5

Continued responsible use of antibiotics and good monitoring of their use



This target area means that antibiotics are to be used responsibly. Healthcare professionals must have good knowledge of what responsible use and prescribing mean, and that prescribing is based on the latest treatment recommendations. Antibiotics should only be used as prescribed by a doctor, dentist or veterinarian. Quality-assured sales data and data on the use of antibiotics in animals and humans (including, where applicable, other antimicrobials), is to be compiled and communicated in a comprehensible manner to relevant target groups so that trends can be monitored over time and contribute to international comparisons.

Background

Effective regulation of the sale of antibiotics for both animals and humans supports responsible antibiotic use. Antibiotics that are used correctly give Sweden good preparedness, reduce suffering, save people's and animals' lives, and safeguard food production. If antibiotics are used incorrectly, the development of resistance is accelerated unnecessarily.

Information and advice to patients both prior to prescribing and when these medicines are dispensed creates an understanding of how and why antibiotics can be used. Here, the healthcare system, dental care, and animal health, but also pharmacy staff, have a great responsibility. Pharmacists already assist through reinforcing and explaining treatment information leaflets to patients and animal owners in connection with dispensing antibiotics at the pharmacy.

Treatment recommendations, which are developed in dialogue with multiple key actors, therefore need to be regularly updated, communicated and used. This applies in healthcare, dental care and veterinary care. There are still large regional differences in prescribing antibiotics and adherence to treatment guidelines in the healthcare system. The number of prescriptions for antibiotics in the healthcare system in 2024 was approximately 270 per 1000 inhabitants.[33]

Today, the rate of antibiotic prescription in Sweden's healthcare and dental care systems is one of the lowest in the world, but there are large geographical differences, differences between private and public actors, and different levels of use of broad-spectrum antibiotics, which tends to accelerate resistance. Differences need to be reported in a suitable way, and analysed and communicated to different target groups. This can then provide support to actors in how to ensure responsible prescribing of antibiotics.

33 www.folkhälsomyndigheten.se, 30 June 2025.

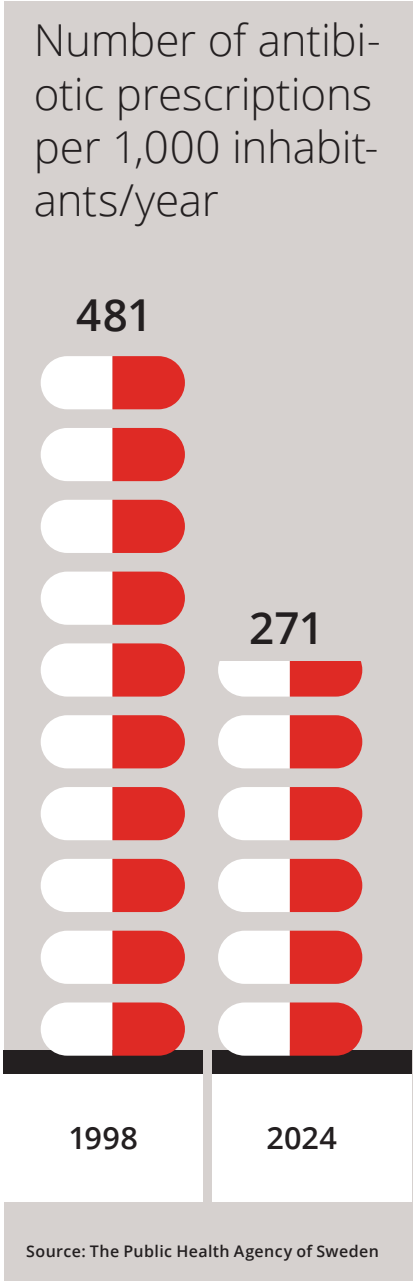
Information in the form of prescribing statistics on doctors', dentists' and veterinarians' compliance with treatment recommendations should be systematically fed back into these activities in order to facilitate ongoing, responsible prescribing of antibiotics. Here, for example, the regional Strama groups, NAG Strama, Tandvårdsstrama (dental Strama group) and Strama VL (veterinary and food) can provide assistance. It is also important to be able to monitor antibiotic prescribing to ensure that it does not decrease to the extent that complications increase as a result of untreated or incorrectly treated infections.

There is a need for increased knowledge about how the efficacy of older antibiotics, for example through clinical studies, can be optimised and preserved. The connection to the Government's Life Science strategy is particularly important here.

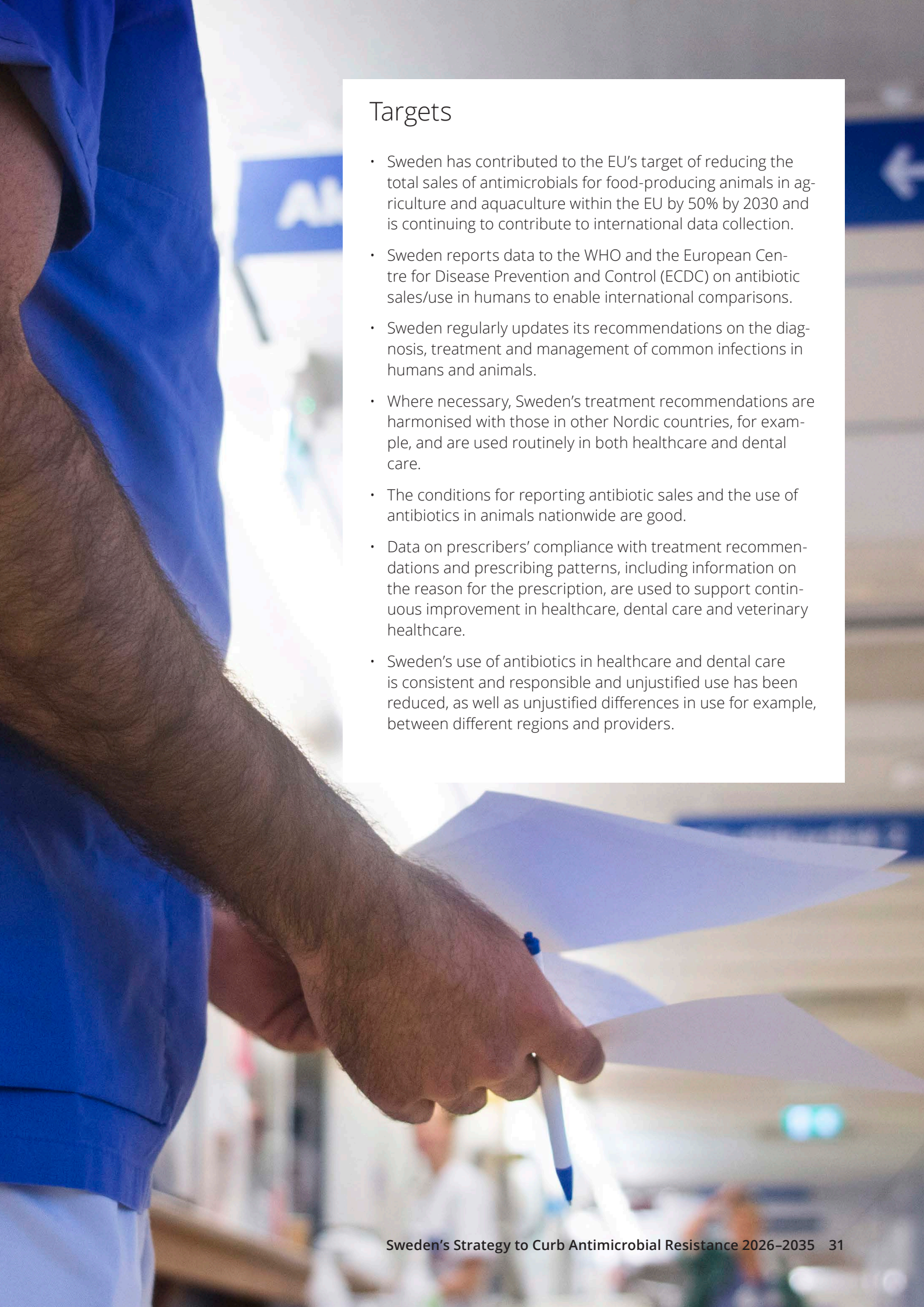
In 2023, the European Council adopted a recommendation which means that EU Member States should reduce the use of antibiotics in humans and that a high proportion of prescriptions should come from a certain category of antibiotics with a narrower spectrum. On the veterinary side, EU legislation and the Swedish Board of Agriculture's regulations govern the use of antibiotics in animals.

Multiple different data sources, individually or in combination, currently provide information on the use, prescribing and sales of antibiotics for humans. A national development project is under way to augment the collection of data on medicinal products used in healthcare for storage in national health data registers with the aim of being able to monitor the use of medicinal products in inpatient care. This should also create opportunities to compare treatments linked to diagnoses given in outpatient care.[34] Since 2024, Sweden has been unable to report certain antibiotic sales statistics to the ECDC through the European Surveillance of Antimicrobial Consumption Network (SAC-Net) system, as there is currently no legal basis for this reporting.

The Council recommendation also confirms the EU target of reducing overall sales of antimicrobials for use in animals in agriculture and aquaculture by 50% between 2018 and 2030. The objective is set at EU level and will be followed up by the Commission with a report to the Council in 2027. For Sweden, which already has the lowest rate of use in the EU, it is not a question of halving this use further, but of maintaining our low level while safeguarding animal health and welfare, in order to support the achievement of the objective at EU level.



34 Fortsatt utveckling av en nation ell läkemedelslista– en del i en ny nationell infrastruktur för datadelning (SOU 2025:71) (Ongoing development of a national list of medicinal products – part of a new national infrastructure for data sharing), and Ett nytt regelverk för hälsodataregister (SOU 2024:57) (New regulatory framework for health data registers - summary available in English).



Targets

- Sweden has contributed to the EU's target of reducing the total sales of antimicrobials for food-producing animals in agriculture and aquaculture within the EU by 50% by 2030 and is continuing to contribute to international data collection.
- Sweden reports data to the WHO and the European Centre for Disease Prevention and Control (ECDC) on antibiotic sales/use in humans to enable international comparisons.
- Sweden regularly updates its recommendations on the diagnosis, treatment and management of common infections in humans and animals.
- Where necessary, Sweden's treatment recommendations are harmonised with those in other Nordic countries, for example, and are used routinely in both healthcare and dental care.
- The conditions for reporting antibiotic sales and the use of antibiotics in animals nationwide are good.
- Data on prescribers' compliance with treatment recommendations and prescribing patterns, including information on the reason for the prescription, are used to support continuous improvement in healthcare, dental care and veterinary healthcare.
- Sweden's use of antibiotics in healthcare and dental care is consistent and responsible and unjustified use has been reduced, as well as unjustified differences in use for example, between different regions and providers.

Target area 6

Reduced development and spread of infections including healthcare-associated infections among humans

This target area means that preventive work in different sectors contributes to good and equitable health in the entire population and to fewer infections, including through national vaccination programmes and vaccinations offered by the regions. In healthcare, social services, LSS activities and dental care, prevention is used to limit the development and spread of healthcare-associated infections, and to contribute to safe healthcare and good quality interventions for patients, including through good healthcare hygiene procedures. Incidence, interventions, actions and outcomes are continuously monitored. Development work is needed to be able to utilise and further develop automated and standardised digital tools for measuring and preventing healthcare-associated infections.

Background

The most common harm arising from healthcare in Sweden is a healthcare-associated infection. With proper management, avoidable healthcare-associated infections can be reduced. A number of these infections are caused by resistant bacteria. The number of healthcare-associated infections in Swedish hospitals is too high according to the latest available national data.[35] The cost of prolonged hospital stays linked to avoidable healthcare-associated infections is estimated at over SEK 1 billion per year.[36]

Healthcare environments, including those where interventions are carried out in the form of home care services, healthcare in the home, and especially residential care for older people and LSS activities, pose particular risks for the development and spread of antimicrobial resistance: in part due to high rates of antibiotic use; in part because of the spread of infections to patients and users of these services with a heightened susceptibility to infection; and in part due to the concentration of vulnerable individuals and infections in the one place. The trend indicates that people being cared for in inpatient care in the future will be older and have multiple and more complex pathological conditions, while more people will need care and support in their homes, which requires efforts on the part of the responsible authorities, healthcare providers and providers of social services and LSS activities to prevent healthcare-associated infections and cross-infection in such environments. Healthcare-associated infections can be prevented by applying systematic healthcare hygiene procedures and skills at all levels, sufficient access to beds in inpatient care, increased adherence to medical standards, good patient safety procedures, collaboration between regional and municipal healthcare, and reflective learning across boundaries between regions and between activities when

35 Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute care hospitals – 2022–2023, ECDC, 2024.

36 Uppdrag om nationell uppföljning inom området vårdhygien och vårdrelaterade infektioner- förslag som ger förutsättningar till data av hög kvalitet (Remit concerning national monitoring in the area of healthcare hygiene and healthcare-associated infections – proposals providing the basis for high-quality data) National Board of Health and Welfare and Public Health Agency of Sweden, 2025.

outbreaks of bacterial resistance have occurred in healthcare environments. International and national guidelines and support have been developed to facilitate implementation.

Many regions have systems for monitoring healthcare-associated infections and risk factors for such infections, and carry out measurements of basic hygiene practices, but there are no national systems, and the systems are usually not automated either.[37] The work of the municipalities is also monitored through regular measurements in HALT (healthcare-associated infections and antimicrobial use in long-term care facilities).

By strengthening people's health while working to prevent infections, for example through good healthcare hygiene knowledge and skills among managers and staff in healthcare, social services, LSS activities and dental care, testing for the presence of microbes, contact tracing when an infection is detected, vaccination programmes and the prevention of communicable diseases, the use of antimicrobial drugs and the consequences of AMR development can be reduced.

In recent times, opportunities to vaccinate against or otherwise prevent certain diseases that may eventually lead to an infection risk, and the need for antibiotic treatment, have also improved.[38] Both national and regional vaccination programmes are greatly important in preventing infections in the population and in particular in high-risk groups, thereby reducing the need for the use of antibiotics.[39]

37 Uppdrag om nationell uppföljning inom området vårdhygien och vårdrelaterade infektioner – förslag som ger förutsättningar till data av hög kvalitet (Remit concerning national monitoring in the area of healthcare hygiene and healthcare-associated infections – Proposals providing the basis for high-quality data) National Board of Health and Welfare, 2025.

38 These include vaccination against HPV and cervical cancer, tuberculosis, and vaccines that are being developed that can prevent non-communicable diseases.

39 Ansvaret för hälso- och sjukvården (Responsibility for healthcare) (SOU 2025:62) and Ett samordnat Vaccinationsarbete (Coordination of vaccination efforts) (SOU 2024:2).

Targets

- Vaccine acceptance is generally good among Sweden's population. Sweden also has a high and equitable vaccination coverage through its combined public vaccination efforts and high adherence to national vaccination programmes, which can be monitored via national registers.
- In Sweden, work with healthcare hygiene as well as infection prevention and control is developed in line with recommendations in the area from WHO.[40]
- The responsible authorities and activities within the healthcare system work in accordance with the current national guidelines for work with healthcare hygiene developed as part of knowledge management for healthcare. These guidelines clarify the current regulations, and can also be used in social services, LSS activities and dental care.
- Government agencies, municipalities and regions have jointly identified and developed an effective and preferably automated/digitalised way of monitoring compliance with basic hygiene practices, the presence of risk factors, and the incidence of healthcare-associated infections in order to identify areas for improvement in the activity and to contribute to monitoring at the national level.
- Sweden participates in European comparisons and reports relevant data.
- Managers and staff work in compliance with the current regulations concerning risks in the work environment[41], basic hygiene[42] and infection prevention and control measures[43] in order to strengthen work with infection prevention and control and hygiene in healthcare, dental care, social services and LSS activities.
- Healthcare hygiene and the work to curb healthcare-associated infections and AMR are part of systematic patient safety work and included in all regions' and municipalities' action plans for improving patient safety or included in some other suitable way.
- The authorities responsible for the supervision of healthcare, social services, LSS activities and dental care take healthcare hygiene, healthcare-associated infections and AMR into account when carrying out their supervision tasks.

40 Global strategy on infection prevention and control, WHO, 2023.

41 Swedish Work Environment Authority's regulations and general advice on risks in the work environment (AFS 2023:10).

42 National Board of Health and Welfare's regulations on basic hygiene in healthcare and social care (SOSFS 2015:10).

43 National Board of Health and Welfare's regulations and general advice on infection prevention and control in certain activities pursuant to the Social Services Act (SoL) and the Act Concerning Support and Service for Persons with Certain Functional Impairments (LSS) (HSLF-FS 2022:44).

Target area 7

Healthy animals and safe food through preventive measures

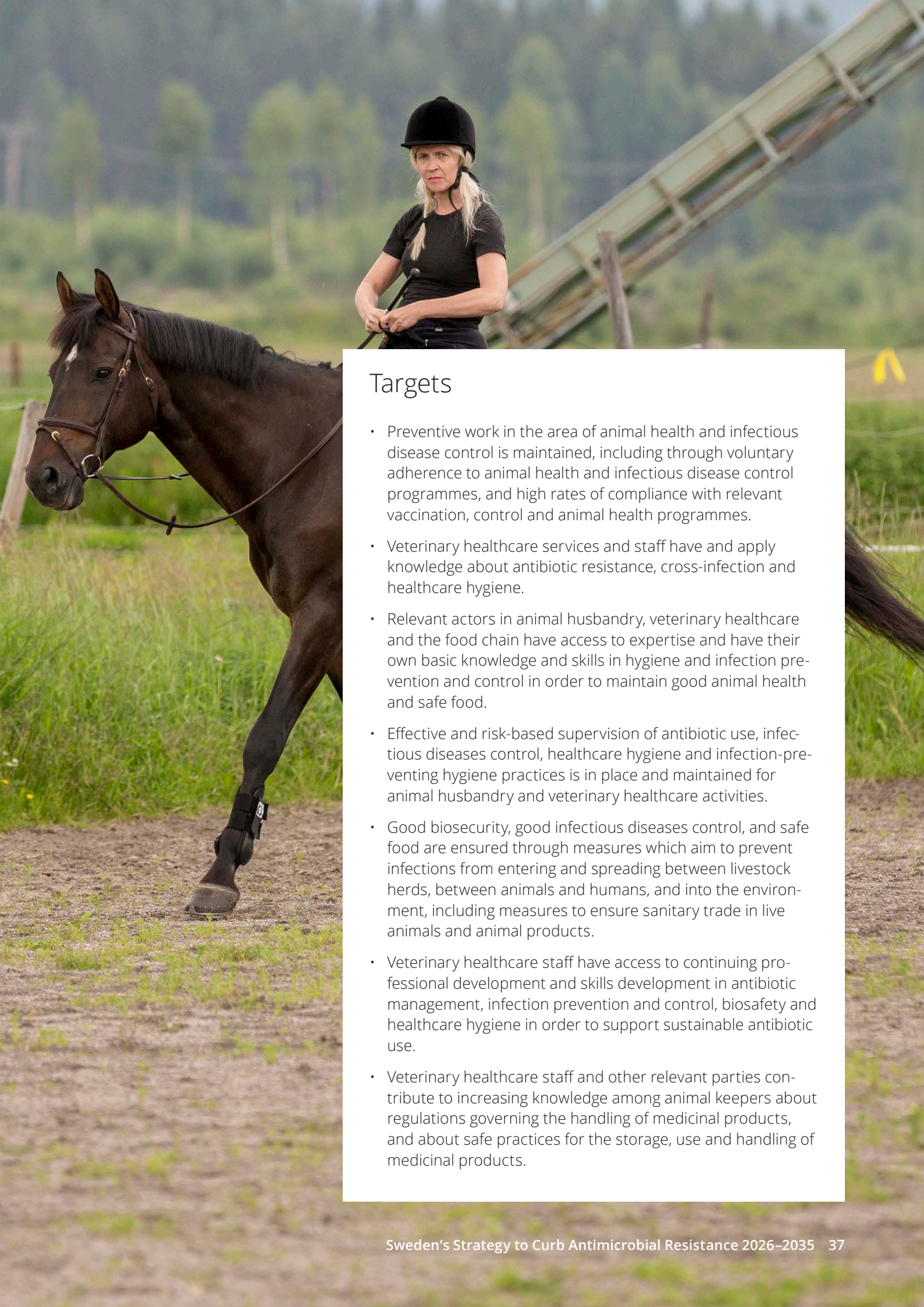
Background

In Sweden, antibiotics are used in animals to treat infections. The resistance situation among Swedish production animals is currently relatively good, internationally. Vaccination, infection prevention and control programmes, along with good animal welfare, are fundamental to preventing the spread of diseases. The need for antibiotics for animals is reduced with good infection prevention and control, a good animal husbandry environment, and good livestock care. Sanitary trade in both live animals and animal products is particularly important. This reduces the risk of spreading resistant bacteria between animals, as well as to food, the environment and humans.

In order to ensure that animal health in Sweden continues to be good, preventive measures must be maintained and safeguarded. The need for this is clearly apparent in light of the growing challenges arising from new diseases, the increased movement of animals, people, food and other products, climactical stress, and other external factors.

In addition to the risks associated with the introduction of new infectious diseases, there is also a challenge in remaining free from previously eradicated diseases and endemic diseases that lead to poor animal health and secondary infections. Another aspect is that Sweden's work with infection prevention and control and animal health is based on close cooperation between central government and the agricultural sector, and for initiatives to be fully effective, agricultural enterprises must also have the resources to invest in development.

This target area means that preventive work will continue to remain in focus for reducing the burden of infection and the need for antibiotics in animal husbandry. Strengthening biosecurity, infection prevention and control, and healthcare hygiene create the conditions for good animal health, a high level of animal welfare and safe food production. This is based on good practices, high levels of knowledge and skills, and access to expert support. In sustainable production systems, the need for antibiotic treatment is minimised without compromising on appropriate care for sick animals, including treatment with antibiotics if necessary.



Targets

- Preventive work in the area of animal health and infectious disease control is maintained, including through voluntary adherence to animal health and infectious disease control programmes, and high rates of compliance with relevant vaccination, control and animal health programmes.
- Veterinary healthcare services and staff have and apply knowledge about antibiotic resistance, cross-infection and healthcare hygiene.
- Relevant actors in animal husbandry, veterinary healthcare and the food chain have access to expertise and have their own basic knowledge and skills in hygiene and infection prevention and control in order to maintain good animal health and safe food.
- Effective and risk-based supervision of antibiotic use, infectious diseases control, healthcare hygiene and infection-preventing hygiene practices is in place and maintained for animal husbandry and veterinary healthcare activities.
- Good biosecurity, good infectious diseases control, and safe food are ensured through measures which aim to prevent infections from entering and spreading between livestock herds, between animals and humans, and into the environment, including measures to ensure sanitary trade in live animals and animal products.
- Veterinary healthcare staff have access to continuing professional development and skills development in antibiotic management, infection prevention and control, biosafety and healthcare hygiene in order to support sustainable antibiotic use.
- Veterinary healthcare staff and other relevant parties contribute to increasing knowledge among animal keepers about regulations governing the handling of medicinal products, and about safe practices for the storage, use and handling of medicinal products.

Target area 8

Strengthened preventive measures to limit discharges into the environment

Background

This target area means that discharges of antimicrobials and pharmaceutical residues into the environment and their spread in the environment are minimised, and that antibiotics and other antimicrobials are used and handled in a responsible and environment-friendly way.

The discharge of antibiotics and other antimicrobials into the environment can result in increased resistance among microorganisms that inhabit animals and plants. Although knowledge about the incidence and spread of antibiotic resistance in the environment is incomplete, there is currently sufficient knowledge to take action. Cooperation on actions is needed nationally, within the Nordic region and the EU, as well as globally.

Actors that handle antibiotics (e.g. hospitals and veterinary clinics) as well as consumers and animal keepers must handle unused or leftover antibiotics in accordance with Sweden's waste legislation. Pharmacies are obliged to accept leftover medicinal products for human use from private households provided that they do not constitute hazardous waste.

Advanced wastewater treatment is one way to reduce the spread of medicinal products, pharmaceutical residues, antibiotics or other antimicrobials and resistant bacteria into the environment. Between 2018 and 2024, the Swedish Government provided investment grants for the purposes of installing advanced wastewater treatment facilities to remove pharmaceutical residues. The EU's Wastewater Directive of 2025 requires the gradual expansion (from 2033–2045) of such treatment in all major wastewater treatment plants and in small and medium-sized plants following a risk assessment.

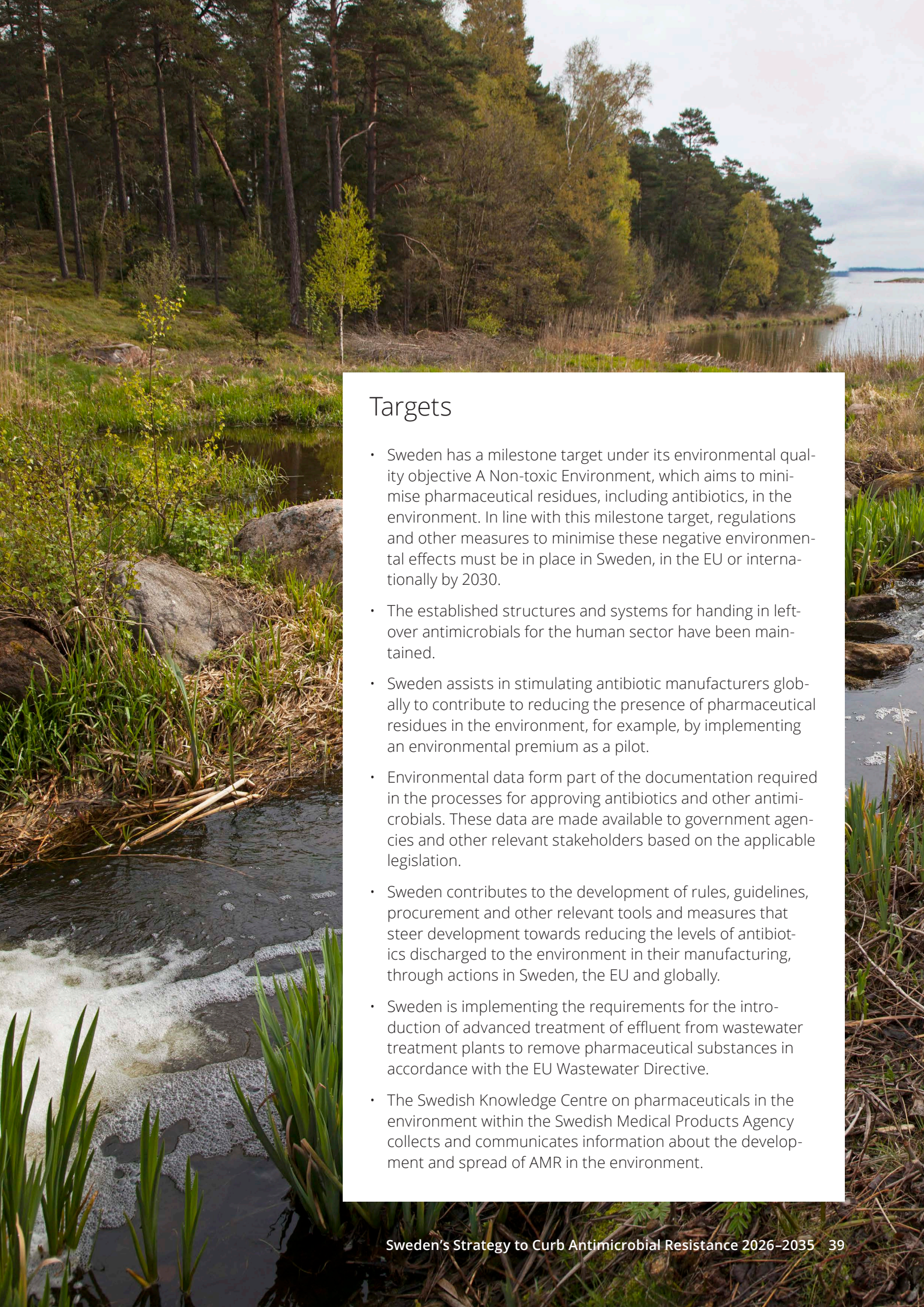
Minimising discharges from the production of antibiotics and other antimicrobials can also help to reduce their spread to the environment. Most of the antibiotics used in Sweden are now produced in other countries. It is important when approving medicinal products, in the procurement of medicinal products, and in the purchase of medicinal products, that requirements are imposed regarding good and ethical production that provide a good level of protection for the environment and health. There are guidelines developed by the WHO on how to limit the discharge of antibiotics from their manufacturing.[44]

Antibiotic resistance is a priority area for the Swedish Knowledge Centre on pharmaceuticals in the environment which is part of the Swedish Medical Products Agency.

Sweden has investigated the possibility of adding an environmental premium to the pharmaceutical benefits system.[45]

44 Guidance on wastewater and solid waste management for manufacturing of antibiotics, WHO, 2024.

45 Uppdrag att fortsätta utveckla försöksverksamhet för en miljöpremie i läkemedelsförmånssystemet (Remit to continue to develop a pilot project for an environmental premium in the pharmaceuticals benefits system), TLV, 2023.



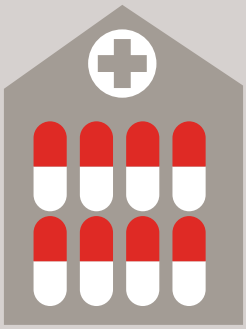
Targets

- Sweden has a milestone target under its environmental quality objective A Non-toxic Environment, which aims to minimise pharmaceutical residues, including antibiotics, in the environment. In line with this milestone target, regulations and other measures to minimise these negative environmental effects must be in place in Sweden, in the EU or internationally by 2030.
- The established structures and systems for handing in leftover antimicrobials for the human sector have been maintained.
- Sweden assists in stimulating antibiotic manufacturers globally to contribute to reducing the presence of pharmaceutical residues in the environment, for example, by implementing an environmental premium as a pilot.
- Environmental data form part of the documentation required in the processes for approving antibiotics and other antimicrobials. These data are made available to government agencies and other relevant stakeholders based on the applicable legislation.
- Sweden contributes to the development of rules, guidelines, procurement and other relevant tools and measures that steer development towards reducing the levels of antibiotics discharged to the environment in their manufacturing, through actions in Sweden, the EU and globally.
- Sweden is implementing the requirements for the introduction of advanced treatment of effluent from wastewater treatment plants to remove pharmaceutical substances in accordance with the EU Wastewater Directive.
- The Swedish Knowledge Centre on pharmaceuticals in the environment within the Swedish Medical Products Agency collects and communicates information about the development and spread of AMR in the environment.


Clarityn

Target area 9

Ensure reliable access to antibiotics and effective diagnostic tests



This target area means that access to diagnostics as well as old, new and novel antibiotics is to be ensured in routine work, as well as in preparedness for and during peacetime crisis situations, a heightened state of alert and war. This requires an up-to-date logistics and information system that functions well, and the capability to identify the cause of the infection (to diagnose). Cross-sectoral collaboration is needed to enable the development of and access to new and older antibiotics throughout the country, and to contribute to innovation in the field. It is also important to have access to relevant first-line antibiotics for treating animals so that antibiotics with as narrow a spectrum as possible can be used.

Background

Access to rapid tests and diagnostics to establish a diagnosis and possible cause of an infection is fundamental to being able to treat an infection with the right type of antibiotic when needed and avoid unnecessary antibiotic treatment. This may range from simple rapid tests at a healthcare clinic, veterinary clinic or in a stable, to more advanced equipment for identifying the bacterium and susceptibility testing.

Access to effective antibiotics is fundamental to providing modern human healthcare that saves lives, and veterinary healthcare that enables sustainable livestock production and animal husbandry. It is also crucial for protecting the health of Sweden's population and maintaining critical societal functions, which is an objective set out in Sweden's National Security Strategy. It is not only about treating relatively common infections such as urinary tract infections and pneumonia, but also less common and life-threatening infections such as sepsis and meningitis. Antibiotics are also used as a complement to and to prevent infections in, for example, surgery, cancer treatment, organ transplantation, and neonatal care.

Strengthened and reliable access to antibiotics is part of the work carried out within Sweden's National Pharmaceutical Strategy 2024–2026, and in the implementation of Sweden's Life Science Strategy, in which innovation and collaboration are key components for meeting future health challenges.

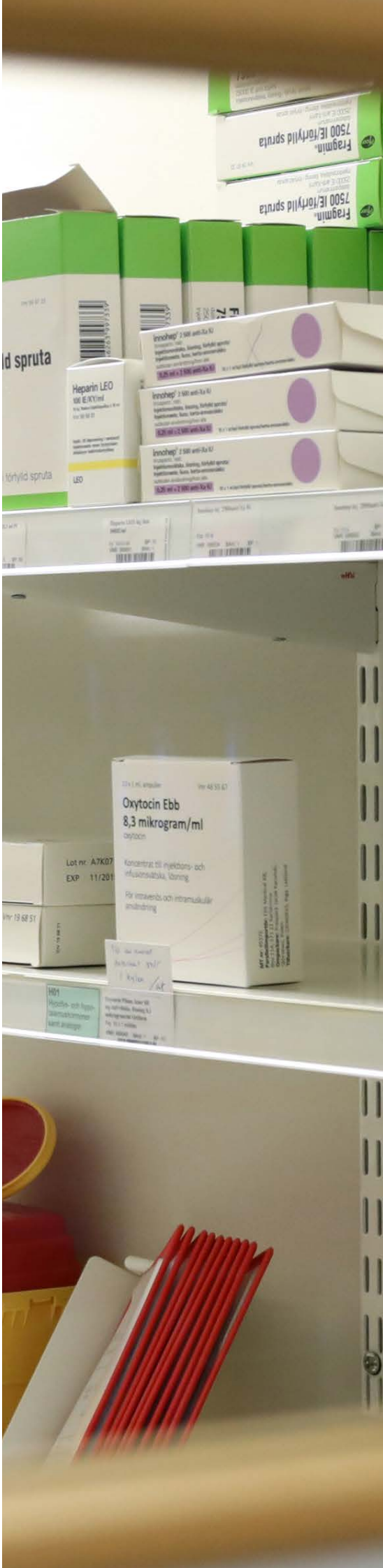
A circumstance that makes this more difficult is that Sweden is a relatively small market and its rate of antibiotic use is low compared to other countries, which means that market forces are often not enough to ensure access. This is especially true for narrow-spectrum antibiotics and older antibiotics. Shortage notifications and shortage situations are common for antibiotics, there are insufficient incentives for the development of new and novel antibiotics, and global production is often concentrated to a few places.

Sweden has been working for a long time to investigate the needs, gaps and challenges that must be addressed in order to ensure access to antibiotics. The Government has taken a number of actions to ensure access to both new and older antibiotics in Sweden, for example by enabling the state-owned enterprise Apotek Produktion & Laboratorier (APL) to buy a factory with the capacity to manufacture antibiotics. Other initiatives include a model for guaranteed compensation decoupled from profit to companies that supply certain antibiotics to the Swedish market, a model currently managed by the Public Health Agency of Sweden.

Knowledge in the area has increased, especially as a result of coordinated efforts between multiple actors and analyses in the medicinal products area, but since the antibiotic market is highly dynamic, innovation is also needed in terms of actions and implementation.

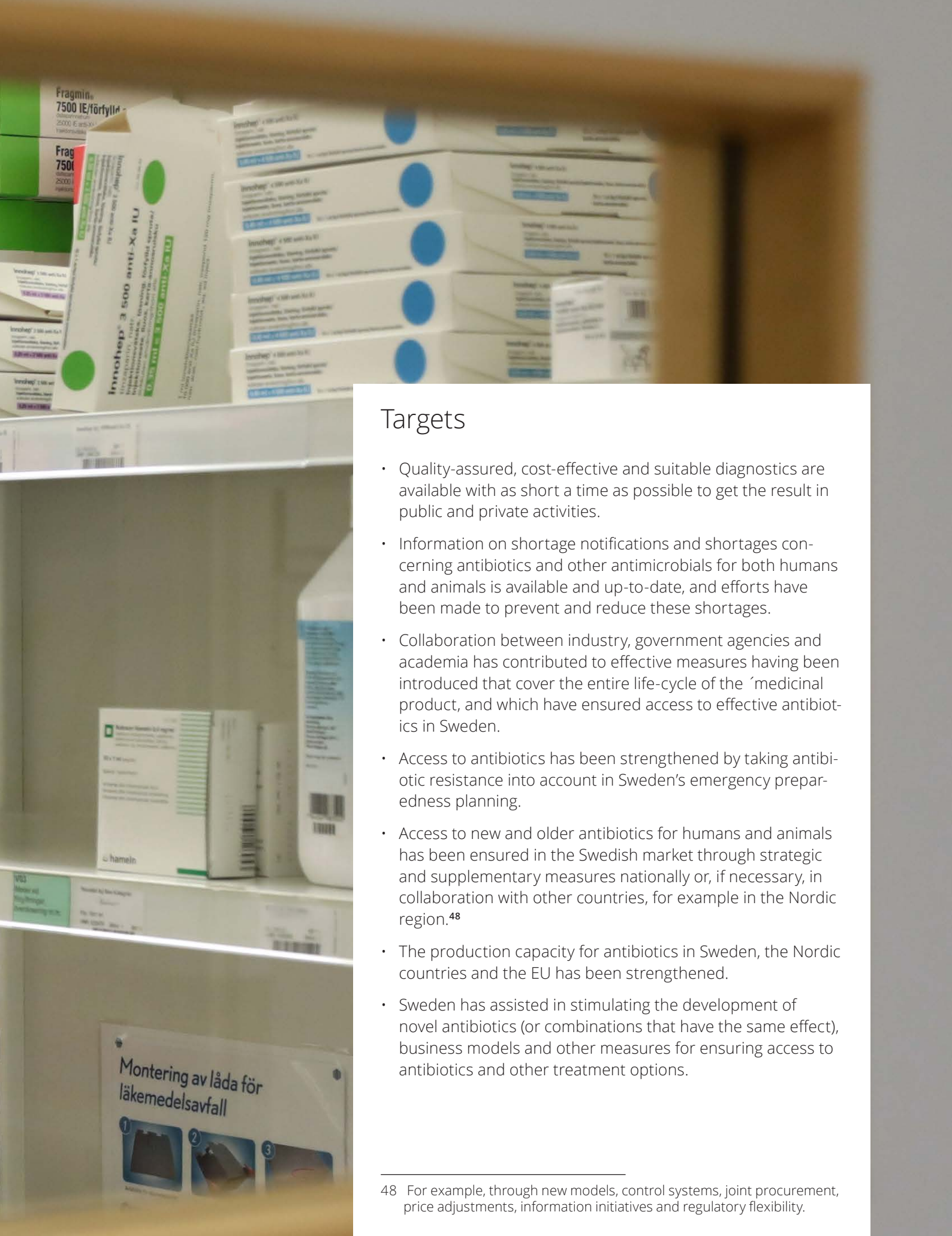
Novel and innovative antibiotics are medicines based on new principles and entirely new mechanisms of action. The WHO classifies the development of such drugs as a critical priority.[46] The incentives for conducting research to produce novel antibiotics (or novel combinations that have the same effect) need to be strengthened. The same applies to the development of more rapid diagnostic methods, including susceptibility testing.

Different types of business models have been developed in Sweden to stimulate development and access to antibiotics. This is work that needs to continue. During its Presidency of the Council of the European Union in 2023, and during its Presidency of the Nordic Council of Ministers in 2024, Sweden focused on development needs and models to ensure access to antibiotics and incentives for the development of novel antibiotics – from early research right up to the product being available in pharmacies or hospitals.[47] At EU level, this work is ongoing through regulatory processes as well as other initiatives.



46 List of Medically Important Antimicrobials, WHO, 2024.

47 Often referred to as push and pull factors and an end-to-end perspective.



Targets

- Quality-assured, cost-effective and suitable diagnostics are available with as short a time as possible to get the result in public and private activities.
- Information on shortage notifications and shortages concerning antibiotics and other antimicrobials for both humans and animals is available and up-to-date, and efforts have been made to prevent and reduce these shortages.
- Collaboration between industry, government agencies and academia has contributed to effective measures having been introduced that cover the entire life-cycle of the ´medicinal product, and which have ensured access to effective antibiotics in Sweden.
- Access to antibiotics has been strengthened by taking antibiotic resistance into account in Sweden's emergency preparedness planning.
- Access to new and older antibiotics for humans and animals has been ensured in the Swedish market through strategic and supplementary measures nationally or, if necessary, in collaboration with other countries, for example in the Nordic region.[48]
- The production capacity for antibiotics in Sweden, the Nordic countries and the EU has been strengthened.
- Sweden has assisted in stimulating the development of novel antibiotics (or combinations that have the same effect), business models and other measures for ensuring access to antibiotics and other treatment options.

48 For example, through new models, control systems, joint procurement, price adjustments, information initiatives and regulatory flexibility.

Target area 10

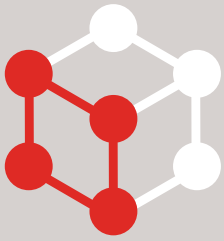
Research and innovation that helps to curb antimicrobial resistance

Background

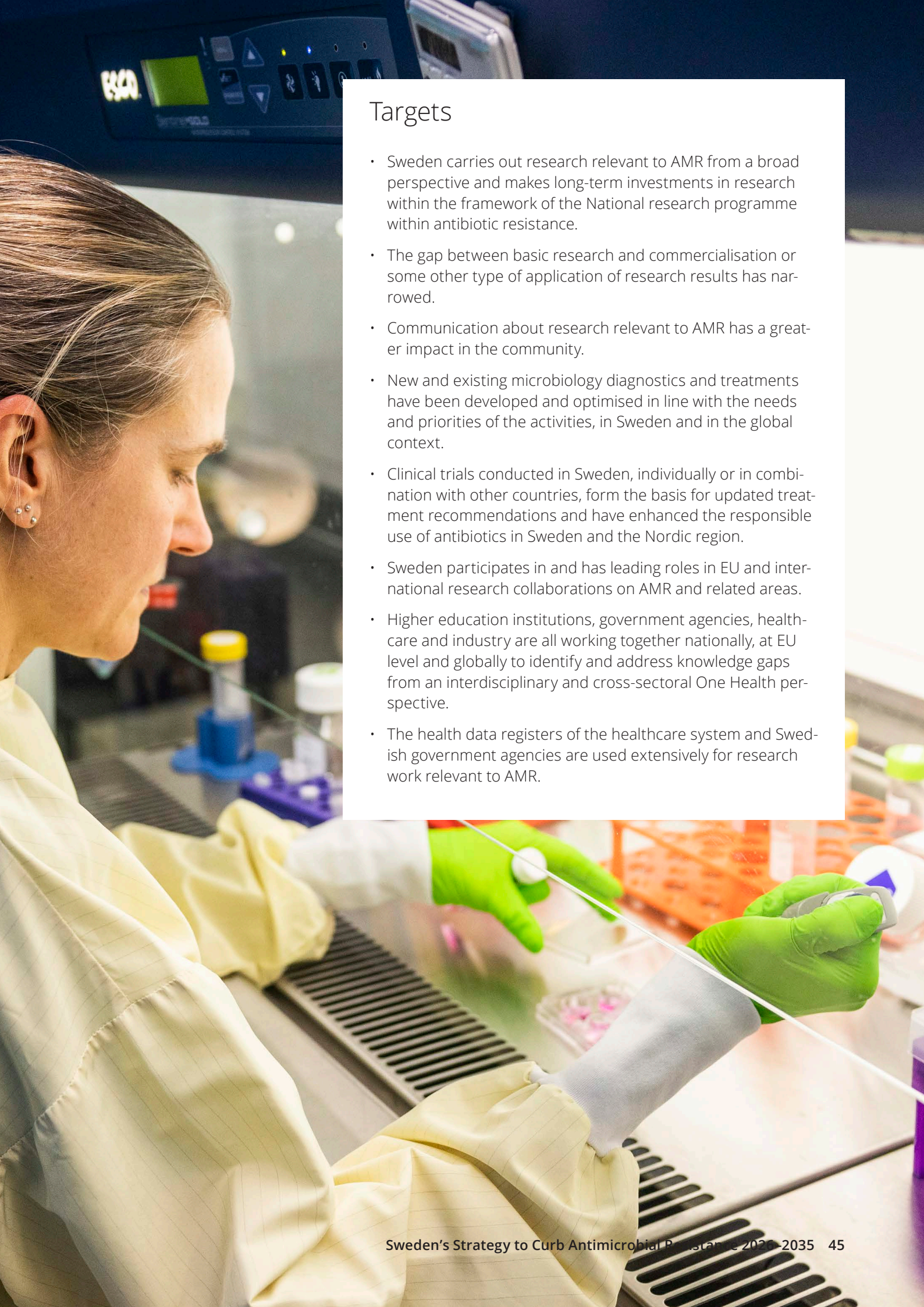
Today, very few new antibiotics are being developed, and new treatment options are not becoming available in pace with bacteria exhibiting resistance to the antimicrobials that we have. This is due to multiple factors, including the difficulty of making a profit, but also because it is scientifically difficult to find new angles of attack. Bacteria that are resistant to antibiotics are rapidly increasing worldwide and pose a particular threat to health and food production. To enable the development of new treatment strategies and preventive measures, research that is both interdisciplinary and multidisciplinary is required. Research and development that supports identified needs should be prioritised, and focus on continuing to be able to treat infectious diseases successfully. Broad, cross-sectoral research is needed, for example, in the development and spread of AMR in the external environment, prevention, diagnostics, management of infectious diseases, healthcare hygiene, the use of antibiotics, and access to effective antibiotics. Research is also needed into how attitudes and behaviours can be modified to promote responsible antibiotic use, as well as how bacteria give rise to infections, their epidemiology and disease course. In order to continue to have access to effective antibiotics, active work to curb AMR utilising a cross-sectoral One Health approach is of paramount importance. Close collaboration between many different actors is needed.

The challenges of AMR cannot be solved by a single country, but require coordinated international cooperation across many sectors and must also include low-income countries and their specific circumstances. For Sweden, the EU is an important platform in international research cooperation. Through the Swedish Research Council's coordination of the European Partnership on One Health AMR (EUP OHAMR), Sweden is leading and contributing to research, innovation, capacity-building in the research system, and the utilisation of research results for better products, practices and policy.

A prerequisite for ensuring good results is that the research can be pursued long-term, has sufficient resources at its disposal, and that both basic research and more practice-oriented research continue.



This target area means that research and innovation is to contribute to the development or optimisation of antimicrobials and other treatment options, diagnostic methods and vaccines to curb antimicrobial resistance. Furthermore, research and innovation is to help ensure that knowledge about implementation, behaviours and communication optimises preventive measures such as infection prevention and control, healthcare hygiene and continuous improvement cross-sectorally.



Targets

- Sweden carries out research relevant to AMR from a broad perspective and makes long-term investments in research within the framework of the National research programme within antibiotic resistance.
- The gap between basic research and commercialisation or some other type of application of research results has narrowed.
- Communication about research relevant to AMR has a greater impact in the community.
- New and existing microbiology diagnostics and treatments have been developed and optimised in line with the needs and priorities of the activities, in Sweden and in the global context.
- Clinical trials conducted in Sweden, individually or in combination with other countries, form the basis for updated treatment recommendations and have enhanced the responsible use of antibiotics in Sweden and the Nordic region.
- Sweden participates in and has leading roles in EU and international research collaborations on AMR and related areas.
- Higher education institutions, government agencies, healthcare and industry are all working together nationally, at EU level and globally to identify and address knowledge gaps from an interdisciplinary and cross-sectoral One Health perspective.
- The health data registers of the healthcare system and Swedish government agencies are used extensively for research work relevant to AMR.

Background information

A description of how this strategy was developed

Sweden has had several strategies to curb and limit antibiotic resistance over the years. The most recent one was in force from 2020–2023 and was then extended without updates until 2025.[49] In connection with that extension, the Government decided to initiate a process to conduct a wider review of the strategy by gathering views and suggestions from a range of different actors.

The Government invited the European Centre for Disease Prevention and Control (ECDC) and the European Commission's Directorate-General for Health and Food Safety to a country visit in 2024. The visit included study visits, dialogues and presentations from a One Health AMR perspective and resulted in a report with observations and proposals for development work.[50] In 2024, a country visit was also carried out under the aegis of the EU Regulation on serious cross-border threats to health. Recommendations in the area of antibiotic resistance were also included in the Commission's conclusions from the visit.[51]

In May 2024, the Government commissioned the Public Health Agency of Sweden and the Swedish Board of Agriculture to produce a report comprising an evaluation of the national intersectoral coordinating mechanism (ICM) against antibiotic resistance in terms of its composition, working methods and results; and describing development needs and improvement proposals.[52]

In June 2024, the Government commissioned the Swedish Agency for Public Management to analyse and develop proposals on how national work to curb antibiotic resistance in Sweden could be developed after 2025. The analysis was to include proposals for improvements in national work in the AMR area in terms of initiatives, structures and areas, and an international perspective with experiences from a selection of comparable countries. In February 2025, the Swedish Agency for Public Management submitted its final report on the commission.[53]

All of the above documents and reports have been taken into account in the work on this new Strategy. Furthermore, in 2024 and 2025 the Government conducted dialogues with organisations and representatives of industry, civil society, the research community, government agencies, professions, municipalities and regions through the stakeholder collaboration forum (*Aktörssamverkan*) and through the healthcare directors network for the regions. This, too, has been useful for the Government in its work to develop the Strategy and to secure broad-based support for the work to curb AMR in Sweden moving forward.

The overall objectives of the Strategy were developed in dialogue with the relevant government agencies and are based on international objectives adapted to Swedish conditions.

49 Swedish Strategy to Curb Antibiotic Resistance, 2024–2025.

50 European Centre for Disease Prevention and Control. Country report: Country visit Sweden AMR. Final Joint Report in respect of a One Health country visit on Antimicrobial Resistance carried out in Sweden from 16 to 20 September 2024.

51 European Centre for Disease Prevention and Control. Country report: ECDC Public Health Emergency Preparedness Assessment for Sweden, 2024 – Under Article 8 of the Regulation (EU) 2022/2371. Stockholm: ECDC; 2025.

52 Report on government assignment. Changes to the ICM and action plan for the work to curb antibiotic resistance, Public Health Agency of Sweden, 2025.

53 Sveriges modell för arbetet mot antibiotikaresistens – Analys och förslag (Sweden's model for the work against antibiotic resistance – analysis and proposals), Swedish Agency for Public Management, 2025.

List of terms and abbreviations

AMR is the abbreviation for antimicrobial resistance, which is a collective term for resistance in bacteria, viruses, fungi and single-cell parasites to substances contained in medicinal products intended for treatment of infection with these microbes. The term AMR is widely used in international contexts. Resistance spreads when resistant microorganisms are transferred between humans, animals, foodstuffs and the environment, or when resistance genes are spread between microorganisms.

ABR is the abbreviation for antibiotic resistance, which means specifically the resistance of bacteria to substances intended to kill them or inhibit their growth. ABR is part of AMR. **Antibiotic resistance** is the biggest threat to human and animal health.

Biosecurity means management and physical measures designed to reduce the risk of the introduction, development and spread of diseases to, from and within: (a) an animal population, or (b) an establishment, zone, compartment, means of transport or any other facilities, premises or location.

Broad-spectrum antibiotics work against many different types of bacteria, and thus have a higher risk of developing resistance to them than narrow-spectrum antibiotics. They are often used in the initial treatment of serious bacterial infections before it is clear which bacterium is causing the infection. They have a major impact on the body's normal bacterial flora.

Narrow-spectrum antibiotics target a few specific bacteria. The advantage is a lower risk of resistance developing than with broad-spectrum antibiotics and less impact on the body's normal bacterial flora.

Quadripartite collaboration is the name given to a collaboration between the World Health Organization (WHO), the UN Food and Agriculture Organisation (FAO), United Nations Environmental Programme (UNEP) and World Organisation for Animal Health (WOAH).

NAP, National Action Plan on Antimicrobial Resistance, refers to countries' national strategies and action plans to help reduce antimicrobial resistance. They contribute to the WHO's **Global Action Plan on AMR (GAP)** which has been adopted by the UN.

One Health is used to describe the importance of taking a holistic approach to the health of humans, domestic animals and wild animals, plants and the surrounding environment, including its ecosystems, as these are interconnected and interdependent.

Strama is a multi-profession association that promotes responsible antibiotic use by providing treatment guidelines and training, as well as feedback to prescribers on how their prescribing relates to established recommendations and objectives, for example. The Strama model has strong local support and is a cornerstone of Sweden's work to curb antimicrobial resistance, especially antibiotic resistance. The National Working Group (NAG) Strama directs and coordinates the work of the 21 local Strama groups in all of Sweden's healthcare regions. There is also an independent network (the Strama Network) of the chairs of the regional Strama groups. There is a Strama group for dental care and another for veterinary and food, which work with antibiotic issues in their respective areas, but are not organisationally linked to NAG Strama.

Healthcare-associated infection means an infection that is contracted by a person during inpatient care or as a result of measures in the form of diagnostics, treatment or nursing in other forms of care, or that staff working in healthcare and social care suffer as a consequence of practising their occupations.[54] The equivalent applies in veterinary healthcare.

Healthcare hygiene aims to prevent the development and spread of healthcare-associated infections in healthcare and veterinary healthcare. Healthcare hygiene units work with monitoring and support as well as providing training and advice to healthcare and social care activities for a good standard of hygiene.

54 Termbank of the National Board of Health and Welfare, 30 June 2025.

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