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Environmental and Sustainability Program 2012-2016

Version 2, updated march 2014

KAROLINSKA
University Hospital

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Our Vision

The Patient – Always First

We deliver care of excellent quality and safety.
We are accessible, efficient, and give our patients personalized attention.
We are a model in research, development, and education.

Our Values

Responsible
We take responsibility for our patients, our actions, and each other. If we see something wrong, we report it.

Compassionate
We interact with our patients and each other showing consideration and respect. We attend to the unique needs of each patient.

Holistic
We work together across borders to give the best possible care. We appreciate the input of others and ask for help when needed.

Introduction

Karolinska University Hospital (Karolinska) is one of Europe's largest hospitals, and together with Karolinska Institutet (KI) we are on the leading edge of medical advancements in Sweden. We believe that health care, research, and education play equally important roles in our efforts to extend and improve human life.

***The Patient – Always First** is our vision at Karolinska and an integral part of our environmental and sustainability work. We are pursuing our vision by creating a high-safety culture, by securing robustness, and aspiring to eliminate all medical errors. This is reflected in the implementation of our environmental initiatives and environmental goals described in the program below and in other elements of our organization.*

Our knowledge about how the environment affects human health and wellbeing is increasing, and this relationship is becoming increasingly apparent. Appropriate care, a healthy population, satisfied and competent co-workers, a balanced economy over the long-term, and a good environment are all interrelated. Sustainability is a concept that describes an organization's ambitions in this context. Corporate social responsibility (CSR) is another concept describing an organization's efforts to increase its social, economic, and environmental sustainability. Both concepts are an essential part of corporate communication with the community and are used to strengthen and maintain a corporation's brands.

Karolinska is a major employer and an important part of the community. Our work impacts on people's day-to-day lives, our employees' working environment and health, opportunities for development, and wellbeing. As a major provider of health services we aim to be a forerunner, act responsibly, and actively contribute toward improving the environment and sustainability. Our common values **– Responsible, Compassionate, Holistic –** shall infuse all of our work. Clearly, this includes environmental and sustainability matters.

Karolinska's environmental work, which has been successful to date, is widely recognized in Sweden and Europe. The expectation from within our own organization and by others in the community is that we will continue along this path, and even raise our ambitions.
We can accomplish this if we focus on our specific environmental issues. We can improve our resource utilization by considering several sustainability perspectives and selecting options where environmental improvements relate to high-level safety, good health, and a balanced economy.

Through continuous quality improvement processes we are steadily approaching a more efficient and sustainable organization. The move into new facilities in Solna will improve our results in several areas. Some, such as greater energy efficiency, are obvious.
Other issues facing us during the coming year will need to be addressed together.

Sustainability Initiatives at Karolinska

Our shared vision and values already target social, economic, and environmental sustainability in our day-to-day work. This might not always be apparent since we may view our work from multiple perspectives and express the aims and outcomes in different ways. Nevertheless, our vision and our values serve as the foundation. The most important sustainability initiatives being undertaken by Karolinska University Hospital are described below.

Patient Always First

Patient-focused care is essential for delivering appropriate care, and engaged patients have positive effects on the outcome of care. The program for quality and patient safety at Karolinska University Hospital is a systematic effort that, in addition to quality issues, addresses matters of security, health promotion, and equity in health care. The program involves following up many indicators and measures, some of which are addressed by our hospital's environmental goals. Purchasing pre-filled antibiotic syringes is one example where we have improved safety by eliminating the risk of mixing errors and have achieved synergic benefits of a safer working environment and less pharmaceutical waste.

Health Promotion

Karolinska, through the Stockholm County Council (SLL), is a member of HFS, a network of hospitals and healthcare entities focused on promoting health. The HFS vision is to achieve more efficient health services by setting specific goals to improve the health of patients, employees, and the population in general. Karolinska's action plan addresses lifestyles, tobacco, alcohol, physical activity, and diet. Karolinska has initiated a range of activities aimed at patients and the population in our area. For instance, the physiotherapy department uses physical exercise by prescription (FaR®) to promote physical activity for therapeutic and preventive purposes. Other examples include the lifestyle unit at the Department of Cardiology; the overweight unit; our preoperative smoking cessation policy; and the smoking cessation and alcohol programs in the Department of Community Medicine. Our employees have access to two gyms with employed staff, a program including 400 health inspirationalists, Weight Watchers, support for alcohol problems, and support for smoking cessation. These programs influence the health of many people, and substantial socioeconomic benefits can be achieved through successful implementation.

A Good Day at Work

From a perspective of health promotion, it is essential for us to have a good day at work, which we can achieve by having a good working environment, engaged leaders, enthused co-workers, and good health. It is profitable when people feel well, aim to achieve specific goals, are creative and involved, and share the organization's values. The goal of providing health care means not only reducing the rate of illness and increasing the presence of health, but also enabling people to use their passion, will, and potential to become the best they can and do their best to achieve the organization's goals.

A Good Day at Work, i.e. the plan for leadership, participation, good working environment, and good health, illustrates Karolinska's commitment to create the conditions that can enable management and staff to achieve our goals.

Ethics

Our fundamental view of a humanistic society is self-evident – that everyone has the same human value, regardless of gender, ethnicity, age, disease, or impairment. Issues such as diversity, non-discrimination, and equality fall within the framework of the hospital's work on ethics. An example of the association between ethics and environmental actions can be found in our routines for waste management, which are based on everyone managing their own waste so that no one down the line will be injured, or find it unpleasant to perform their work. Other examples can be found in the county council's code of conduct for suppliers.

Flow Processes

Karolinska University Hospital is engaged in a comprehensive quality improvement initiative to create more effective and efficient care processes. Our focus is on the patient, and the driving force is the staff in an effort to generate continual learning. Flow processes constitute one of three main strategies used to achieve the hospital's objectives. Both the employees and the patients win. The results also lead to better utilization of our – and society's – resources in the short and long term.

Economy

A key concept at Karolinska is to take economic responsibility in all situations. This includes our sustainability efforts, which are associated with long-term and sustainable economization of the organization's budget, natural resources, and our employees' resources.

Research, Development, and Education

Two of the tasks assigned to the hospital by the Stockholm County Council are to conduct research and provide education of the highest quality. Karolinska University Hospital is responsible for most of the clinical aspects of research and education at Karolinska Institutet. Approximately 2500 researchers are active in our hospital.

Karolinska is engaged in establishing a strong academic healthcare system throughout the Stockholm region. Innovation Place was recently launched as a new service to create conditions for collaboration between Karolinska University Hospital and researchers at Karolinska Institutet, the Royal Institute of Technology, the Stockholm School of Economics, and developers in the medical technology industry. The aim of collaboration is to meet the needs of healthcare for more effective and efficient medical devices and care processes.

Code of Conduct for Suppliers

Karolinska, as part of Stockholm County Council, has had a code of conduct for vendors since 2008. The code requires suppliers to adhere to fundamental human rights and working conditions when they produce goods and services procured by our organization. In 2011, the code of conduct applies to suppliers of surgical items, dressings, textiles, stainless steel items, examination gloves, syringes and cannulae, IT products, and pharmaceuticals.

Environment

Karolinska has engaged in continuous improvement in the environmental field for many years. Reducing our negative effects on the environment in those areas where we have the greatest environmental impact, while concurrently strengthening our positive contribution, are important aspects of our sustainability efforts. We are trying to environmentally adapt our use of pharmaceuticals, chemical products, and disposable items. We are also focusing on reducing our climate impact and on utilizing resources efficiently. This work is being systematically conducted with the help of environmental management systems and other organizational routines.

Karolinska's Ambitions for Sustainability

Sustainability has become an important tool for strengthening and maintaining our brand. A sustainability project is already underway at Karolinska, although we have expressed our ambitions in other terms. By supplementing our current message with one that focuses on sustainability we can meet the expectations of additional interest groups and strengthen our already favorable reputation. In the future, the need to demonstrate improvement will increase, e.g. by raising the level of ambition and presenting specific goals in an organized fashion based on a sustainability perspective. Hence, we will pursue the following during 2012 – 2016.

- Conduct a GAP analysis to identify our strengths and weakness in a sustainability context.
- Compile two sustainability reports based on the guidelines of the Global Reporting Initiative (GRI).
- Develop and apply routines for dialogues with interested parties for the purpose of targeting the most appropriate sustainability initiatives.

Environmental Goals 2012-2016

Our environmental and sustainability program has been designed for a 5-year period and is based on implementing improvements in those areas where we have the greatest environmental impact. The program is designed to interface with Karolinska's vision, values, strategies, and mission in accordance with directives from the governing body. Even if conditions change during the program period, the main goals are expected to remain relevant. The Department of Environment at Karolinska has the responsibility to coordinate the environmental program. Responsibilities to implement the various objectives and activities rest with different parts of the organization, depending on subject area.

During the program period Karolinska will address environmental issues affected by the move into new facilities in Solna as well as other, less extensive, facility-related changes, to ensure that we continue to operate at a high level and achieve further success. We will participate in the implementation of Stockholm County Council's environmental policy initiative.

A. Target Area – Environmental Initiatives to Promote Health

A good environment and good health are related. Hence, it is natural for Karolinska to pursue environmental goals associated with human health, both directly within our organization and indirectly by contributing toward health promotion in society generally. Being unaware of product content or environmental properties of pharmaceuticals and the uncontrolled distribution of hazardous substances leads to risks of unnecessarily subjecting ourselves to dangerous substances. Knowledge, changes in content, and control of residues are therefore elements in the solution to achieve a safer and healthier environment.

Prescribing and managing pharmaceuticals are important aspects of health care. In addition to their positive properties of healing and relief, pharmaceuticals also impact the natural environment during their lifecycle. Although this issue is receiving increasing attention, we know too little about the environmental impact of pharmaceuticals, and even less about the indirect effects on our health. Utilization of pharmaceuticals with environmentally hazardous properties is the area judged by Karolinska to have the greatest environmental impact. In 2010, the overall use of pharmaceuticals totaled 2 billion Swedish kronor (SEK) for prescriptions and just under SEK 900 million for requisition.

Antibiotic resistance is *one* type of health and environmental problem associated with our use of pharmaceuticals. The spread of multiresistant bacteria is a major international problem, and a problem that also affects our hospital. Internationally, decision makers are beginning to consider antibiotic resistance as a health threat equal to that of climate change. Hormones, cytostatics, and some pain relievers are other types of drugs with a high environmental impact that are prescribed for our patients. To achieve long-term, sustainable development we need to reduce the amount of discarded drugs and avoid unnecessary prescriptions.

Karolinska is conducting an active substitution program for hazardous chemicals in accordance with Stockholm County Council's chemical strategy. This work has been successful. Procurement of substances on the county council's phase-out list has declined by 88% since 2006. Some substances have been completely phased out. Although the results have been successful thus far, the work has not stopped. New risks are being identified. Technology and product development are resulting in new opportunities for substitution.

We use large volumes of consumable products and technical equipment. Many of the products we purchase contain substances that enter the environment and accumulate in living organisms, or degrade into toxic substances. As part of the procurement process we always place requirements on the content of hazardous substances in goods. Some of the goods we need contain hazardous substances and cannot be substituted. PVC and the use of phthalates and other plasticizers (softeners) in PVC have been identified as the most important areas to address in improving our assortment goods and reducing risks for negative health effects.

Pharmaceuticals

A.1.1 Reduced Environmental Impact of Pharmaceuticals

Our work to reduce the environmental impact of pharmaceuticals focuses on reducing the use of the most hazardous substances. Agents containing estrogen, fluoroquinolones[1], diclophenac, and ibuprofen have been identified as most relevant in this context. Pharmaceuticals with an environmental classification of *PBT 7-9*[2] and *pharmaceuticals with non-negligible risks* according to a rating scale by LIF (a trade association for the research-based pharmaceutical industry) have the greatest negative impact on the environment. The reduction target is set at a level that is achievable and yields the best effect.

Goal: We will reduce the utilization of selected, environmentally hazardous pharmaceuticals[3] by 2016.

Objective: Quantify target values for setting reduction targets that are achievable and yield the best results.

Measurement of selected substances and therapeutic areas: Prescriptions of diclophenac and phelodipin measured in DDD[4]/admission.

Baseline year: 2011

A.1.2 Optimum Antibiotic Utilization

Goal: We will reduce the risk of introducing and spreading antibiotic resistance in the environment by optimizing the use of antibiotics by 2016.[5]

Objective: Define the extent to which the hospital can contribute to national goals for rational use of antibiotics.

Measurement: The ratio of prescribed and requisitioned cephalosporins and fluoroquinolones of the total volume of antibiotics, measured in DDD/admission.

Baseline year: 2011

A.1.3 Safe and cost-effective management of drugs reduces the amount of pharmaceutical waste

During the program period, Karolinska will work toward safer and more cost-effective management of pharmaceuticals to promote safety for patients and staff. Areas of activity include addressing in-patient dosage, prepackaged antibiotics, and automated medication dispensers. The purchase of pre-filled antibiotic syringes is one example where we improve safety by eliminating the risk for mixing errors and achieve synergy benefits by a more secure working environment and reducing the amount of pharmaceutical waste.

Activity: Enhance the compliance to the “Guide for handling pharmaceutical waste”, in order to create a safer and more cost-effective managing of pharmaceutical waste.

Chemical substances

A.2.1 We will reduce the use of substances hazardous to health and the environment

Goal: We will reduce the use of toxic[6] substances and CMR[7] substances by 70 percent by 2016.

Measurement: Kg or liters of purchased toxic substances and CRM substances.

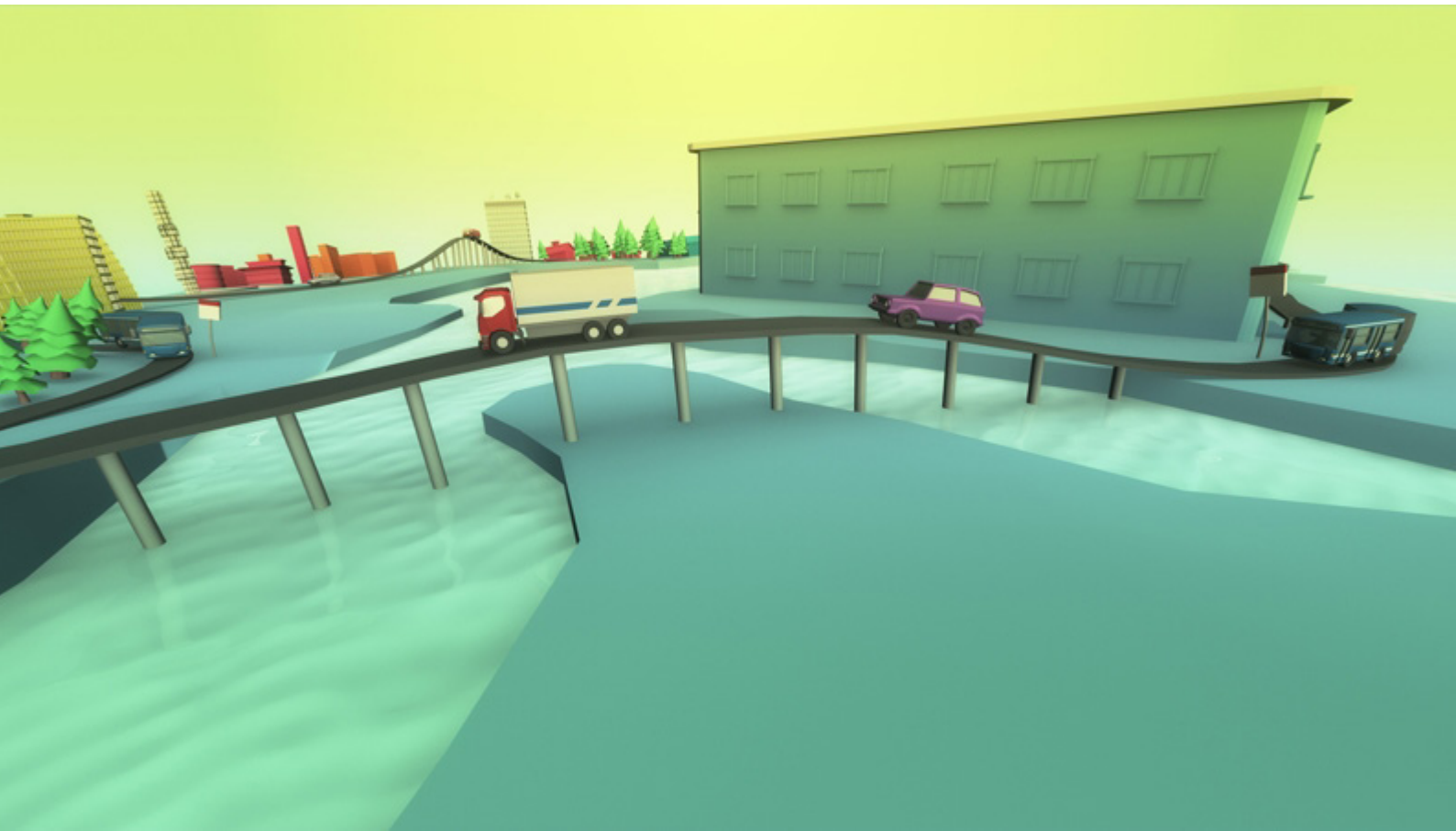
Baseline year: 2007

A.2.2 We will reduce the use of consumable goods containing PVC and phthalates

Goal: We will decrease in the amount of PVC and phthalates in purchased goods by 25 percent by 2016.

Measurement: The ratio of purchased products containing PVC or PVC and phthalates of the total volume of purchased products included in a number of specifically selected product groups.

Baseline year: 2011



B. Target Area – Resource and Climate Efficiency

Long-term resource efficiency is the foundation of all sustainability work. It is based on economizing with the resources we have, regardless of whether they are financial, material goods, energy, or employee time and expertise.

Resource-efficient care is characterized, for instance, by short lengths of stay and not having to readmit patients because of complications. A positive side effect that can be expected from of shorter lengths of stay is a reduction in the environmental impact per unit of care produced. This association will be studied in greater detail during the program period.

Biomedical engineering and laboratory units deal with a high flow of care-related materials. By identifying smarter work processes or functional goods we can create long-term resource efficiency in our organization. The waste we generate is largely a consequence of our choice of products. Hence, efficient waste management begins with our procurement routines. Food waste is a resource that can be viewed in the context of a material resource, an energy resource, and a contributor to reduced carbon dioxide emission.

Second to pharmaceuticals, climate impact is one of Karolinska's greatest environmental concerns. Transportation accounts for the largest share of our emission of climate-affecting gases. Travel by patients and staff to and from the hospital accounts for approximately 60% of Karolinska's climate impact. Other major contributors include the transport of goods and job-related travel. The substances we use for anesthesia have a major climate impact per unit used. However, the amount released is small.

Heating of facilities accounts for 14% of Karolinska's emissions of climate-affecting gases. The effects of establishing targets in terms of energy or climate impact are expected to yield the same final result. The need for energy to cool facilities is expected to increase. Electricity is generated almost exclusively from renewable sources. Although electricity has a minor direct impact on climate, the contribution to our total energy use is substantial. Alone, Karolinska cannot implement improvements associated with the use of facilities. We need to work together with the property owners and operational entrepreneurs.

In total, the hospital utilizes approximately 100 GWh per year each for heating and power. The move into the new facilities in Solna toward the end of the program period will yield direct improvements through more efficient energy use and the long-term potential for more accessible public transportation.

Material resources

B.1.1 We will use consumable goods more efficiently

Goal: We will reduce the use of selected disposable (single-use) products by 20 percent by 2016.

Objective: Define which disposable products should be reduced.

Measurement: The total of purchased disposable products within selected product groups/admission.

Baseline year: 2011

B.1.2 We will manage our residues so that they provide benefit

Goal: We will increase the level of sorted waste to 30 percent.

Objective: Food waste will be collected and used to produce biogas.

Measurement: Level of sorted waste.

Baseline year: 2011

Emission of climate-affecting gases

B.2.1 We will reduce our climate impact

Goal: We will decrease the emissions of climate-affecting gases by 30 percent by 2016.[8]

Objective: Create methods and conditions to monitor the goal.

Measurement: Carbon dioxide equivalents/admission.[9]

Baseline year: 2011

Energy

B.3.1 We will reduce our energy utilization

Goal: We will reduce our energy utilization for heating, cooling, and electricity by 10 percent by 2016.

Measurement: kWh/m2 Atemp/year. Percent renewable energy.

Baseline year: 2011

Management Tools for Environmental and Sustainability Activities

Environmental Management System

Karolinska has been environmentally certified since 2005. Our environmental management system forms the foundation for systematically addressing environmental and sustainability issues. This leads to continuous improvement through goal management and documentation of results for future decisions and strategies. The environmental management system includes the routines, instructions, formats, and checklists needed for environmental activities. All documents are accessible via internal networks. For an environmental management system to be useful to the organization it must be easy to understand and well integrated with other processes at Karolinska.

Organization and Responsibility

The divisions, departments, and central staff are each responsible for implementing the environmental program in their own units. The Department of Environment at the hospital coordinates and directs the environmental work of Karolinska as a whole. Environmental coordinators coordinate information and follow-up locally. Directors in the line organization have the responsibility to ensure that the program is followed.

Organizational Planning and Budgeting

The actions and interventions required to achieve the environmental goals are part of the hospital's organizational planning and budgeting process. The respective divisions and central staff are responsible to ensure that sufficient resources are allocated for environmental work and for including relevant environmental goals in organizational planning and control mechanisms.

Follow-up and Performance Auditing

The Department of Environment is responsible for following up on the environmental goals through monitoring and measurement. The divisions and central staff are responsible for contributing toward follow-up through measuring and delivering requested information concerning their activities.

Environmental Consequence Analysis in Decision Making

The Karolinska University Hospital will conduct an environmental consequence analysis as part of the basis for all major decisions. Environmental consequences should be considered in making decisions, with the aim to minimize the negative environmental impact on the community.

Procurement

Items with the highest environmental priority are purchased through the Stockholm County Council's procurement division, which sets environmental and social standards on central procurement of goods and services. The standards constitute part of the information used in appraising a tender. Concurrently, Karolinska University Hospital places specific and relevant environmental requirements on all goods and services it procures at the local level. Karolinska purchases products that have been procured centrally and adheres to contracts that have been negotiated centrally. Products awarded the county council's environmental stamp of approval *(The Stockholm county council's Environmental Flower)* are the products of first choice.

Expertise

Educational and informational activities are conducted regularly to enhance the expertise and motivation of staff. All employees should be aware of the hospital's environmental program and how it affects their work. Educational plans to enhance the expertise of staff assigned to perform specific tasks are developed regularly within the framework of the environmental management system. Clinicians who prescribe pharmaceuticals constitute a key group in the implementation of this environmental and sustainability program.

Communication

Karolinska University Hospital's internal and external communications about the environment and sustainability must be fact-based, clear, motivating, and transparent. The hospital involves its stakeholders, giving them the opportunity to influence environmental and sustainability activities.

REFERENCES

[1] Goal A.1.2 addresses antibiotics.

[2] Environmentally hazardous indicates the inherent, environmentally harmful properties of the substance in terms of persistence, bioaccumulation, and toxicity for aquatic organisms. Each of these properties is given a numeric value (0-3). The sum of the values comprises the PBT index for the substance. The higher the value, the greater the environmental hazard. The Stockholm County Council and Apoteket AB have developed the hazard model. Information on persistence, bioaccumulation, and toxicity since 2006 was obtained from www.fass.se

[3] A sample will be taken during the program period for pharmaceuticals that have been environmentally classified as PBT 7-9 and "pharmaceuticals with non-negligible risks" according to the LIF rating scale.

[4] Defined daily dose (DDD) is the assumed average maintenance dose per day for a drug used for its main indication in adults. DDD is a technical measure established by the WHO Collaborating Center for Drug Statistics Methodology in Oslo.
For more information see www.janusinfo.se

[5] The goal will contribute to the Stockholm County Council's goal that by 2016 the number of antibiotic prescriptions dispensed in Stockholm County Council will not exceed 250/1000 inhabitants and year. The target level will be adapted to the goal for rational antibiotic utilization set by the government and Strama (Collaboration Against Antibiotic Resistance), but with consideration to the particular needs of a teaching hospital. An initial analysis of Karolinska's prescriptions will determine the hospital's target level.

[6] Refers to substances with risk designations R26, R27, R28, R45, R46, R49, R50/53, R51/53, R60, R61 according to 67/548/EEC and H300, H310, H330, H340, H350, H360, H370, H410, H411 according to 1272/2008/EC or these risks in combination with other less hazardous ones.

[7] CMR substances are carcinogenic, mutagenic, or reprotoxic substances that have such harmful properties that humans should not be exposed to them.

[8] Although travel by staff and patients is the greatest contributor to our climate impact, we should direct most of the actions in another direction to effectively achieve the goal.
Most activities will be managed at the executive level in the hospital to establish agreements with property owners and contracts with transport firms. This includes better accessibility to public transportation and fuels that have a lower environmental impact. New equipment to collect anesthetic gases contributes modestly toward reducing emissions.

[9] The scope of the measures used is defined at the beginning of the program period.
As regards direct emissions of gases that affect climate, all types of activities involve, e.g. electricity and heat in facilities, goods transportation, human transportation, and anesthesia.