

Minimising the releases of pharmaceuticals to Swedish waters ¹

Many pharmaceuticals are persistent and therefore pass largely straight through the wastewater treatment plants. Research concerning which pharmaceuticals that needs to be removed and what additional technologies that could remove them from the wastewater is underway, but how much extra energy consumption is acceptable and how much are we willing to pay for the technology?

Monitoring pharmaceuticals in the environment ¹

The Environmental Protection Agency shall ensure that the environmental legislation is implemented in an appropriate and proper manner, for example by using the best technologies in wastewater treatment plants. They are also responsible for monitoring the state of the environment. Therefore, the presence and the concentrations of different pollutants, including pharmaceuticals, are measured in order to observe changes. Accurate and timely knowledge is essential for the work.

¹ Collaborating to reduce the environmental risks of pharmaceuticals
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All material can be found in the [English section](#).

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ENVIRONMENTAL RISKS OF PHARMACEUTICALS

What can be done? Sweden as an example

Introduction

Pharmaceuticals are a very important tool in health care. However, when entered into the environment, they might have adverse effects. Antibiotics in the environment might enable resistant microbes. Residuals of pharmaceuticals in the drinking water, mixed with other chemicals, might affect the foetus' development. The precautionary principle tells us that we should reduce the concentrations of pharmaceuticals in environment as much as possible.

Pharmaceuticals are tricky chemicals in the environment. They are designed to be *biologically active*. They are *non-degradable*, to manage the passage through our stomachs. Many are *toxic* – it is a question of dose. Finally, they are *released continually*.

Sweden started early

The work in Sweden on pharmaceuticals in the environment and health started in the late 1990s. Since then, it has accelerated. Today, Sweden is one of the leading countries when it comes to research as well as implementation of measures to reduce the risk of pharmaceuticals in the environment.

Therefore, Sweden can be considered as a model, showing possible routes to proceed. Following are some of the steps taken until now.

How it started

In 1997, the Swedish Doctors for the Environment (LfM) published a report “Medicines and the Environment. What Do We Know Today? A Brief State of the Art Analysis”. Apoteket AB and the County Council of Stockholm were two early actors. Later on, the Swedish Association of the Pharmaceutical Industry (LIF) and the Swedish Academy of Pharmaceutical Sciences became involved.

Research

Research was started in early 2000s by Stockholm University together with Stockholm Water Company. Other universities followed. In January 2008, the MistraPharma research programme started, in collaboration among six partners. Targets are identifying pharmaceuticals of environmental concern and developing environmental standards for procurement of pharmaceuticals.

Industry’s efforts toward “greener” pharmaceuticals ¹

The pharmaceutical industry can reduce the environmental effects of pharmaceuticals both by choosing to develop products from molecules that have minimal environmental impact and by improving the manufacturing process. The pharmaceutical industry in Sweden also has, in a unique effort, published environmental classifications of their pharmaceuticals on the webpage fass.se. But the lack of ecotoxicity data for pharmaceuticals is high and companies lack incentives to invest in the development of “greener” products.

Strategic work on pharmaceutical and the environment ¹

The Swedish Medical Products Agency is working both nationally and internationally to improve the regulatory framework and to set goals regarding pharmaceuticals and the environment. Environmental demands on pharmaceutical production, strategies to fight antibiotic resistance, the government’s national pharmaceutical strategy and EU collaboration for the Baltic Sea are just some examples.

Pharmaceuticals as part of the environmental quality objective “A Non-toxic Environment” ¹

Pharmaceuticals have specific properties, but they are also chemicals. The Swedish Chemicals Agency is responsible for the environmental quality objective “A Non-toxic Environment” and is now working to highlight the issues surrounding pharmaceuticals in the environment. In order to tackle pharmaceuticals in the environment more knowledge, as well as policy initiatives, are needed.

The pharmacies’ contribution to sustainable use of pharmaceuticals ¹

Pharmacies provide pharmaceuticals and can therefore affect the use pattern, and collect the customers’ leftover pharmaceuticals to prevent them from ending up in the environment. The former monopoly Apoteket AB was actively involved in the environmental field. The actors on the new Swedish pharmacy market would like to be able to offer their customers a more sustainable selection of pharmaceuticals, but such opportunities are currently limited.

Environmental considerations in procurement and prescription of pharmaceuticals ¹

The health services in Sweden can, through the county councils, influence which pharmaceuticals that are prescribed and thereby which pharmaceutical substances that reach the environment. The Swedish drug and therapeutic committees establish treatment recommendations for prescribers and can take the environment effect of a substance into account in their considerations. The county councils also have several networks to coordinate their environmental actions.