Strategic plan 2010-2013

Division of Environmental Medicine

Norwegian Institute of Public Health

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Why is environmental medicine important?

We are exposed to a large number of environmental factors, i.e. substances in air, water, food and consumer products as well as noise and radiation. Some of these factors have an impact on good health, while others may play a triggering or contributing role in health damage, illness and reduced quality of life. In order to maintain a high level of protection against health damage, there is a need for monitoring, advice and increased knowledge about the effects of environmental factors on our health.

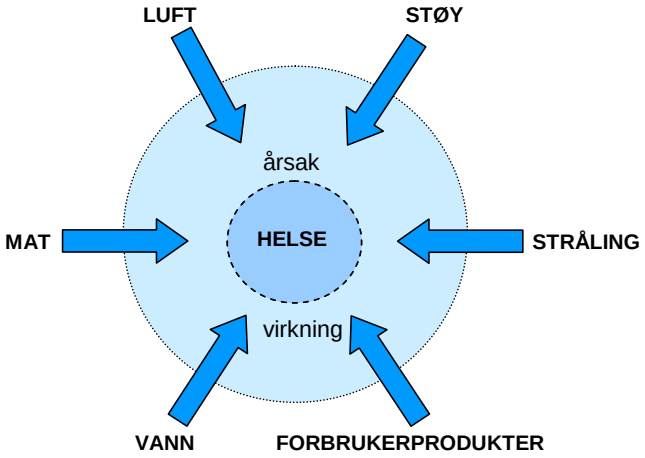
Division of Environmental Medicine – core areas and social mission

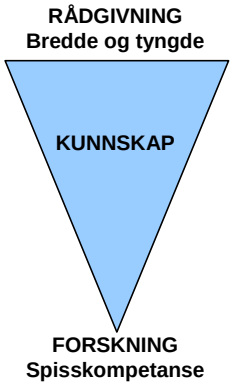
The Division of Environmental Medicine is a national competence centre for environmental health risks.

We have knowledge of how noise, radiation and substances in air, water, food and consumer products affect health and quality of life.

Our advice, assessments and risk-benefit assessments are used by the authorities to safeguard the population's health.

Active research and critical knowledge assessment are the basis for us being able to fulfil our social mission in a good way.





Our special expertise:
The relationship between physical and chemical environmental factors and health

Our motto:
Broad advice – specialiced research

Our vision:

No harm to health caused by physical and chemical environmental factors

Main objectives and instruments

Our main goal is to reduce and prevent health damage caused by our physical and chemical environment. Our instruments:

Preparedness

- Assess health risks in the event of environmental accidents and acts of terrorism
- Contribute to solving environmental disease outbreaks
- Expertise in natural disasters and climate-related crises

Surveillance

- Harmful components in water
- Side effects of cosmetics
- Allergic reactions to food and "illegal" allergens in foods

Counselling

- Risk assessments, approvals, risk-benefit assessments and risk communication
- Practical advice on measures to reduce risk and promote health
- Active participation in national and international regulatory and advisory bodies

Research

- Scientific expertise in selected core areas of environmental medicine
- Contribute to solving specific Norwegian environmental health problems
- Broad national and international efforts to secure funding and competence-building

Emergency preparedness – responsibility, expertise

Our goal is to prevent and limit health damage in the event of acute chemical incidents as far as possible

We will build and strengthen our preparedness by:

- Contribute to a clearer definition of responsibilities so that we can respond quickly in the event of acute incidents
- Establish "breakout groups" for defined subject areas and scenarios
- Contribute to rapid access to necessary analytical data, which forms the basis for health risk assessment

Advice – breadth and weight – possible focus areas

Our goal is to provide good and health-promoting advice within the division's areas of activity.
Our areas for consulting today, as well as some focus areas that will require more effort:

WATER

- Biofilm in drinking water pipes
- Leaching of chemical substances from materials in contact with drinking water
- Water Treatment Chemicals

AIR

- Air pollution outdoors
- Indoor climate, including moisture damage, allergens
- Plagsom succeeds
- Tobacco

FOOD

- Leaching of chemical substances from materials in contact with food
- Environmental contaminants in food; environmental pollutants (PCBs, dioxins, heavy metals)
- Pesticides
- Natural toxins, including fungal toxins (mycotoxins)
- Harmful substances formed during food processing (process-induced contaminants)

- Positive and negative health effects of the diet

Advice – continue.

CHEMICALS

- Assessment of chemicals in accordance with the European chemicals legislation (REACH)
- The ability of chemicals to cause cancer, genetic damage and fertility (CMR)

IMMUNE SYSTEM AND ALLERGIC REACTIONS

- The importance of environmental factors for the development of allergy, and possible prevention
- The importance of environmental factors for a good immune system

ANALYTICAL METHODS

- Measurement methods for hazardous environmental pollutants

RADIATION

- Radiation from mobile phones (high frequency electromagnetic fields)
- Other types of radiation (radioactive radiation, UV radiation)

Surveillance

Our goal is *the lowest possible exposure to harmful substances* in the environment. A good overview of the scope of the problem is a prerequisite for advising on measures

- We are currently responsible for registration of water quality, side effects of cosmetics and allergic reactions to food. These are areas we want to strengthen and make more complete
- We want a better overview of health damage caused by poor indoor climate (tobacco smoke, moisture damage, allergens), noise, harmful chemicals, food with environmental pollutants and unhealthy diet
- We want a broader basis for assessing health damage caused by outdoor air pollution.
- We want a monitoring function of nutritional status in children and adults to assess the extent to which we are exposed to harmful substances through food

Research

Our goal is to maintain high research competence on selected topics within environment and health. We want increased national and international efforts in collaboration with researchers at research and study institutions with common objectives.

Our research will take place in the following areas:

Exposure to environmental factors

- Biofilm in drinking water pipes
- Environmental contaminants in water, air and food
- Process-induced substances in food
- Allergens in food
- Nutrients and protective substances in food
- Chemicals in consumer products
- Tobacco smoke
- Noise
- Radiation
- Nanoparticles
- Biomarkers of exposure and effect

Health effects

- Cancer
- Cardiovascular disease
- Lung diseases (COPD, asthma)
- Diabetes
- Overweight/obesity
- Sleep problems, noise problems
- Allergy and immune system
- Infertility and reproduction
- Health through pregnancy, birth, growth, and development

How do we investigate the links between environmental factors and health, and how can we contribute to reducing health risks from environmental impacts?

- Population studies where exposure data from physical and chemical environmental factors are associated with disease and ailments
- Measure human exposure to health-damaging environmental pollutants (blood, urine, breast milk)
- Conduct systematic quality work to ensure good analysis results
- Investigate the relationship between the presence of microbes and toxins in water with disease outcomes
- Provide knowledge and overview of measures that ensure safe drinking water and bathing water
- Study the effects of environmental factors in relevant animal models and cell-based systems to understand causes and mechanisms, and use the data to assess health risks
- Investigate the significance of "illegal" allergens in industrially made foods.

Some targets and wishes

- To implement a major investment in the pipe network for drinking water. Better operation and maintenance routines for the pipe network and remedial measures in order of priority will result in fewer disease outbreaks and boil warnings
- Better and more systematic compilation of exposure data, including air pollution data and radon exposure, so that these data are more accessible for research
- Establish an environmental specimen bank for human samples in accordance with White Paper No. 14 (2006-2007) Together for a non-toxic environment. This will enable studies of time trends and geographical differences as well as future investigation of new drugs
- Contribute to gaining knowledge about the population's diet and how this affects the body's content of nutrients and promotional substances. Health data and biomarkers for exposure and efficacy should be included
- Strengthen the division's statistical competence in order to build up the division's activities in experimental research and environmental epidemiology
- Coordinate expertise and use of environmental epidemiology and toxicology to a greater extent to strengthen research and consultancy
- Establish new, temporal experimental methods. Possible focus areas may be bioinformatics/systems biology and epigenetics

Communication and Public Affairs

We aim to engage in active communication and knowledge dissemination

To achieve this goal, we will

- Highlight our role in society as an advisory and emergency preparedness institution by updating and improving the division's website
- Collaborate actively with important social partners and clients
- Strengthen and facilitate communication for important user groups in society
- Strengthen the dissemination of research results and evidence-based information
- Further develop our risk communication
- Work actively to maintain good internal communication

Future changes that may have an impact on our work

- Population changes
- Climate change
- Policy guidelines and changes
- Changes in public administration
- Greater expectations of the public sector
- Technological barriers/innovations
- Greater expectations from audiences and media
- Increase in information flow
- Changes in the use of chemicals and consumer products
- Several tasks must be solved in relation to the number of employees

Organisational development – adapting to new times

One challenge is to adapt the division's activities to the available staff. We are also facing a time that may be characterised by tighter budgets and increased demands and expectations from society and the media

We will work actively to meet future challenges in the best possible way by:

- Strengthen internal professional competence – develop and retain key personnel by ensuring relevant training and transfer of knowledge from older to younger employees
- Identify and develop future leaders by offering courses and/or practical training in a defined leadership role
- Work actively to obtain funding from alternative sources, including by continuing to invest heavily in external research funding
- Ensure the most appropriate departmental structure and distribution of tasks between departments. Good dialogues across the board are an important start
- Strive for flexibility within the division to strengthen focus areas. This can be achieved by running multiple projects across departments

- Expand cooperation with other divisions by participating in seminars, relevant meetings and forming professional groups across the divisions