Committed to health and sustainability

Living healthy lives as much as possible in a safe, healthy human environment. That is the goal of RIVM: the National Institute for Public Health and the Environment. The focus on living healthy lives starts even before birth. And RIVM maintains that focus throughout the life course. Find out more about how RIVM pursues that goal by conducting research and providing advice that will help people and their environment to stay healthy – in our own country and abroad, in every stage of life. Now and in the future!

For more information about the topics of this print version go to: www.rivm.nl/en/throughoutthelifecourse
A good start

for infants and very young children

When infants get off to a good start, they have a better chance to grow up healthy. Screening before birth, sometimes even before pregnancy, can already detect possible health problems. Performed in the first week after birth, the heel prick is used to detect rare, serious congenital disorders. Starting a few months later, the National Immunisation Programme protects infants and very young children against contagious and sometimes deadly infectious diseases. RIVM also conducts research in this field, contributing to a situation in which children ingest minimal levels of harmful substances.
Heel prick screening
detects rare, serious congenital disorders

In the first week after birth, newborns receive a heel prick. This newborn blood spot test is used to detect a number of rare hereditary disorders. The test is performed in the first week after the baby is born, making it possible to prevent or minimise serious damage to physical and cognitive development. Over the next few years, RIVM will be expanding the heel prick screening. This will ensure that more disorders and diseases are detected and treated at a very early stage.

Faster detection prevents health impact

In the first week after birth, a few drops of blood from the infant’s heel are examined for the presence of a number of rare, serious congenital disorders. These sick babies are generally not showing any symptoms at that point. Early detection of such disorders makes it possible to start treatment quickly, minimising or preventing serious damage to the child’s physical and cognitive development.

Many of the conditions that the heel prick detects are not curable, but they are treatable, for instance with medication or a special diet. Early treatment is particularly important for metabolic disorders. The benefits of the neonatal blood spot screening are obvious, which is why virtually all parents consent to have their newborns tested. According to the latest figures, participation is at 99.2%. Since 2015, heel prick screening is also performed in the Dutch Caribbean Islands.
National Immunisation Programme provides protection against twelve potentially fatal infectious diseases

In the National Immunisation Programme, virtually all children in the Netherlands are vaccinated. That is why certain infectious diseases caused by bacteria and viruses hardly ever occur any more. Vaccination is important: if your body is not capable of fighting off the virus or bacteria, the infection could make you very seriously ill. There is also a risk that other people could catch the disease.

Faster, better immune response

A serious infectious disease, such as meningitis, not only causes illness, but can even lead to permanent damage and disability. In some cases, children die from these diseases. Vaccinations help the immune system, since your immune system remembers which viruses and bacteria you have been exposed to. That is why it is able to respond even faster and better the next time. Viruses are a new threat to very young children and infants, so the vaccinations teach their immune system to protect them against twelve serious infectious diseases.

Dutch National Immunisation Programme

Practical information

Marieke Morssinkhof, paediatrician for the Municipal Public Health Service in the greater Utrecht region:

“Vaccination protects against a wide variety of infectious diseases. It means a healthy start in life. Vaccinations also help children and adults who are not protected against infectious diseases. For instance because they are still too young, or cannot get their vaccination shots due to illness. Vaccinations make it possible to gain quick and easy health benefits.

Fortunately, many of the diseases in the National Immunisation Programme no longer occur in the Netherlands. In any case, there is an e-learning module about vaccinations to keep us updated on the latest knowledge. It’s very useful, since physicians like me can receive much more background information as a result. In addition, it gives us the knowledge we need to respond to critical questions about vaccinations.”
Unborn children, infants and young children may well be even more sensitive to the effects of hazardous substances than adults. These substances present a particular hazard to them, because their bodies are still developing. Before birth, the unborn child can absorb these substances through the mother. Once the baby is born, it can ingest them indirectly through breast milk or directly by eating, touching or playing with objects. RIVM investigates the health risks of exposure to potentially hazardous substances in order to protect children’s health.

Specific attention for infants and very young children

We are surrounded by hazardous substances in our daily lives. Bisphenol A, for instance, is an industrial chemical that is used in plastic, resins and ink for sales receipts. It is also found in packaging materials used for food, such as plastic bottles and cans. Minute amounts can end up in our food. If you get too much of it in your system, it could lead to infertility and may affect your hormones.

This risk is particularly high for infants and very young children. That is precisely why this group merits particular attention by means of thorough research into the harmful effects of this substance. Stringent European rules have been introduced for the use of Bisphenol A in food packaging. The substance is also prohibited in baby bottles and packaging for food intended for young children up to 3 years old.
Growing up healthy

room to grow for schoolchildren and young adults

At primary school, secondary school and later on in higher education, children and young adults are laying the foundations for making conscious choices in their adult lives. In doing so, they are investing in ‘what they want to be when they grow up’. To make that possible, they need room to grow and develop. A carefree childhood in a healthy, safe human environment can help with that. Research, targeted information and reliable advice from RIVM contribute to that goal.
Healthy at school

Growing children spend a substantial amount of their time at school. By learning basic skills such as reading, writing, maths and cultural awareness, children become more and more capable of thinking for themselves. It is important for children to know about their personal health and the environment they live in. That knowledge helps keep them fit and healthy.

Classroom activities: from guest teachers to interactive games
RIVM in the Classroom is an initiative that provides educational resources about health and a healthy environment for schools, museums, teachers and children. Schoolchildren can use the resources for class presentations or school essays, or teachers can use them to give lessons on specific themes. Schools can even invite RIVM staff members to come give a special class about a range of relevant topics – such as drinking water, soil quality, or how important it is to wash your hands properly. RIVM developed an interactive hand-washing game called Bactemon, as well as a hand scanner that teaches the proper way to wash your hands, currently installed at the Corpus Museum, an interactive ‘journey through the human body’. These educational activities are one of the ways that public health institutes like RIVM can play a role in promoting public awareness of key health issues.

Healthy children do better in school
Skipping breakfast, being overweight, or being a victim of bullying results in declining school performance and a higher risk that children will drop out of school. The Healthy School approach wants to address this issue. It makes schools aware of the importance of enough fresh air in the classroom and sufficient physical exercise to increase concentration during the lessons. Improving the health of children and young adults will create a solid foundation for future health – or lack thereof. Some of the health problems that occur in adulthood can be prevented or postponed by encouraging healthy behaviour during childhood.
**Growing up with minimal risks**

Hazardous substances can be found in the air, soil, surface water, drinking water, food and products. RIVM researches substances that pose a potential risk. Situations where children may be more at risk are prioritised, for example if children are likely to encounter a hazardous substance more frequently or intensively, such as during sports activities or while playing outside. This has been explicitly taken into account in the study on the safety of rubber granulate infill on synthetic turf fields, and in research on the impact of hazardous substances that leech into surface water.

**Research on safety**

If there is any cause for concern about industrial wastewater that ends up in rivers and groundwater, RIVM can investigate the extent to which the spillage could be hazardous to public health. For example, RIVM investigates exposure through groundwater and surface water, but also airborne exposure, or chemical concentrations in homegrown vegetables. RIVM also investigated the health and environmental impact of rubber granulate on synthetic turf fields, and reached clear conclusions:

Rubber granulate can be hazardous to the environment in the direct vicinity of the sports fields. Children at play and pets that accidentally ingest soil from the borders are not at risk. However, RIVM recommends taking steps to prevent rubber granulate from ending up in the soil borders, which can cause substances to leach into ditches via drainage water.
Staying healthy
both physically and mentally

One of the conclusions from our Public Health Foresight Study 2018 is that schoolchildren and students continue to experience more pressure to perform. This may have consequences for their psychological health. Society is facing increasing pressure in various areas, in response to developments on the job market, constantly increasing pressure in cities, and decreased access to green and blue spaces. These trends could lead to stress and health issues.

Stress in daily life
Increased pressure on our daily lives can cause more stress and associated health issues. Schoolchildren and students experience intensifying pressure to perform. Almost half of young people between the ages of 18 and 25 indicate that they feel tired or exhausted, and approximately one in five feel concerned or stressed, sometimes to an extreme extent. Sometimes the pressure increases to such an extent that a referral to a GP or to mental healthcare services becomes necessary.

Youth and sports
Lifestyle also affects how teens and young adults feel. For the past few years, children and young adults have also been included in the Lifestyle Monitor study. RIVM is one of the parties involved in this research project. In 2017, 65% of Dutch children aged 4–11 were engaged in sport activities on a weekly basis, or more frequently than that. This activity level corresponds to previous years. The percentage of Dutch people aged four years and older engaged in weekly sports activities was 57.3% in 2017. Compared to the figures from 2014–2016, the percentage of Dutch people engaged in sport activities on a weekly basis or more frequently has increased slightly for all age groups, with the exception of children aged 4–12 and adults aged 20–35.

Public Health Foresight Study 2018
Video: key messages from PHFS 2018
Lifestyle Monitor
Living and working sustainably
adults making conscious choices

If you want to make carefully considered choices, you need to know what is important to your health and safety. This holds true in your work, in your free time, and in your environment. However, you should also be able to rely on high-quality air, soil and water. If anything does go wrong, you should be able to access reliable information, ensuring that you can keep any potential risks to a minimum. These are important conditions for a sustainable and maintainable life that includes room for work, relaxation and family.
Self-measurement and self-testing

Government bodies and institutions are entrusted with facilitating public health and a healthy environment. However, many people enjoy contributing to those goals themselves. Some people might just be interested in seeing how things work, while others simply prefer to do tests themselves in the privacy of their own home. More and more often, self-measurement and self-testing are viable options. The result: engaged citizens who are more aware of their health and the surrounding environment.

Citizens making a personal contribution
Citizen science is receiving an increasingly important role in research at RIVM. Getting citizens more involved is one of the ways that RIVM can align research more closely with what is actually needed. These initiatives are also referred to as citizen science. For example, an app is available that lets individuals help monitor air quality by taking local measurements. These results are even more interesting when air quality is potentially compromised due to fireworks or Easter bonfires.

Testing at home
Individual contributions are possible in lots of ways. Population screening is one of the areas where people are getting more involved in the process. In the population screening for bowel cancer, the participants submit their stool samples by post. A self-test recently became available for women to do their own home test for the population screening for cervical cancer.
Knowing what’s on your plate

What we eat and how our food is produced have a huge impact on our public health and the environment – and that affects our personal health. That is why RIVM collects facts and figures on current dietary habits in the Netherlands and their effects on safety, health and sustainability. You can use that information to make more conscious choices. Your choices can facilitate sustainable, safe food production, and benefit your own health.

Safe, healthy and sustainable food

When it comes to food, there are many factors to measure and investigate. RIVM collects data about food consumption and the composition of food products in the Netherlands. RIVM also researches the parameters for good food and the requirements for safe and sustainable food. Safe food is not always self-evident. The incident involving fipronil contamination in eggs has shown that it sometimes takes quick action and smart collaboration to limit any public health risks to a minimum.

Safe, healthy and sustainable diets in the Netherlands

What do the Dutch eat?

More information about food and nutrition

Possible toxic substance in eggs
Chemicals in your home

Products should be safe; that may seem self-evident. Consumers want to be sure that what they buy is safe to use. However, some substances in products can cause serious damage if they are used incorrectly. There are many factors to take into account to ensure that you can use products safely. RIVM wants to ensure that everyone knows what those factors are and how to make healthy choices.

Daily use
Even in our own homes, we encounter all sorts of chemicals, often without realising it. These substances make our lives much easier. Chemicals are found in laundry detergent, all-purpose cleaning products and drain cleaners, but also in shampoo, mascara, glue, paint and toner cartridges. They ensure that our skin cream stays fresh for a year, that the wallpaper is washable, and that the bathroom is sparkling clean. Even toys, furniture, carpeting and clothes contain chemicals. These substances are not dangerous, as long as they are handled properly.

Mattresses and anti-tick sprays and medications
Mattresses, for example, are fireproof because they are made using fireproof thread and textiles. In some countries, mattresses are also treated with flame-retardant substances. As a precaution, it is smart to air out a new mattress for at least 72 hours after removing it from the packaging. If you use anti-tick spray or medication, it is important to follow the instructions on the packaging. Excessive exposure to the active ingredients can cause medicine poisoning.

A website managed by RIVM and the Dutch Consumer Safety Institute (VeiligheidsNL) – waarzitwatin.nl – provides independent information about chemicals in consumer products. That information will help consumers make good choices and use products safely. The number of products listed on the website are still limited and will be extended over time.
Staying fit and healthy

Older people and the elderly keep working longer and live longer

Our bodies grow older and more vulnerable over time, but that is no reason to stop being fit and healthy. People grow old differently now than they did in the past. We live longer and keep working longer. Improved medical facilities, increased health awareness and longer life expectancy ensure that people can live fit and healthy lives. This is especially true if you are aware of the risks and what to watch out for to prevent further decline due to age and illness.
The impact of time: safety for people, machines and processes

Ageing can affect safe working practices. As people get older, they may be more likely to make mistakes or respond less quickly. The machines that people use are also susceptible to ageing; they can wear out, rust or break down. Some substances used in the workplace also involve certain risks. Similarly, work processes may become less effective over time, or need to be updated to reflect current standards.

A growing percentage of the Dutch population is in the upper age brackets, and that trend will continue. As a result of the ageing population, healthy ageing and safe working practices are key themes. The need to continue working to a later age makes it important to remain fit for the job. RIVM is investigating how initiatives to promote employee health can lead to a decline in sick leave, but also to increased satisfaction, higher motivation and lower workforce turnover.

Safety risks due to ageing systems
Machines and work processes are also affected by the passage of time. It is mandatory for companies to identify and control the safety risks due to ageing and corrosion in installations. In that context, RIVM has investigated the role of ageing installations in incidents involving chemicals. Approximately 30% of all installation incidents could be attributed at least partly to outdated systems.

30% of all installation incidents could be attributed at least partly to outdated systems.

More information about occupational safety
Ageing installations and how they influence incidents
Study on outdated chemical plants
The danger of resistant bacteria

All people carry bacteria. Some of these bacteria can make us sick. To recover from a bacterial infection, we sometimes need antibiotics. An important disadvantage of antibiotics is that bacteria can stop responding to them. That is known as antibiotic resistance. These resistant bacteria can pose a risk to people whose health is more fragile, such as the elderly. RIVM investigates the risks, but also researches how to prevent resistant bacteria and how to combat the spread of bacteria.

Hard to treat
The more often you use antibiotics, the higher the risk that bacteria will develop an immunity to them. Infections from these resistant bacteria are harder to treat. Since treatment of resistant bacteria is more difficult, patients are often ill for a longer period of time, or become more seriously ill. That is why it is important to make sure that these strains of bacteria do not spread, especially to people whose immune systems are less robust.

Combat the spread of bacteria
A large-scale national study was launched in early 2018 to find out how often resistant bacteria occur in nursing homes. In this study, measurements were taken at one specific moment to determine whether resistant bacteria were present in nursing home residents, and if so, which strains were involved. These results can be used by nursing homes to take steps to combat the spread of these bacteria.

Study on resistant bacteria in nursing homes
Using antibiotics wisely
Death toll
due to skin cancer rising

Every year, more than 51,000 people in the Netherlands develop skin cancer – and over 900 people die from the resulting complications. That figure has quadrupled since 1990. The RIVM report on ‘UV radiation and health’ provides an overview of the main health effects of UV radiation and future projections. In addition, RIVM constantly measures UV radiation levels, promoting awareness that it is important to protect yourself from the sun’s rays.

Risk to older people
Unprotected sunbathing can eventually cause skin cancer and cataracts, as can spending time in the sun too long or too often. Sunlight exposure poses a risk for everyone, but primarily for older people. The number of cases of skin cancer is increasing much more rapidly than other forms of cancer. Researchers also expect this trend to continue. The most dangerous form of skin cancer is melanoma. Melanoma occurs relatively often in the Netherlands: the Netherlands ranks among the top countries in Europe for melanoma cases.

UV level and protection
Being cautious and protecting yourself is strongly recommended. That is why RIVM measures the current UV level: the amount of ultraviolet (UV) radiation emitted by the sun. UV radiation causes sunburns, makes your skin age faster, and leads to skin cancer. When UV levels are higher, you will get a sunburn more quickly. That is why effective skin protection is so important.

Report on UV radiation and health
Current UV level
Actively supporting health and the environment around the world

Living healthy lives in a safe and healthy environment is not just limited to the local level. People travel more and more. Commodities, products and food are shipped all around the world. The global context is increasingly relevant for addressing infectious diseases and public health, climate and the environment, and public safety. As a result, policy is increasingly defined at an international level, for instance within the European Union or the United Nations. RIVM has therefore adopted a more international perspective, working closely with international partners to find collaborative solutions for global challenges, such as climate change and sustainable lifestyles. RIVM is uniquely positioned to do so, as one of the few institutes to have a combined focus on health and the environment.
International activities

In addition to its partnerships with counterparts in other countries, RIVM is actively participating in 35 projects within the research and health programmes of the European Union. RIVM is also host to nine Collaborating Centres of the World Health Organisation (WHO), focusing on topics that demand attention around the world, such as antibiotic resistance and chemical aspects of food safety.

Experts in many roles
The international nature of our work is also visible in the many roles that RIVM experts hold as advisers to the EU and international organisations. The RIVM laboratories set international standards, serving as reference points internationally. Analysis methods and techniques are developed in the RIVM laboratories that are then adopted in other countries. For instance, RIVM has been designated by the WHO as the reference laboratory for an infamous childhood disease: polio.

Innovative projects within our Strategic Programme for RIVM (SPR) are frequently implemented in an international context. For instance, as part of its efforts related to Integral Risk Assessment, RIVM is currently working on controlling the risks and dangers posed by new technology. Examples include the use of new biobased materials, which are currently a significant focus in an international context. This scope of assessment ensures that new products are not only eco-friendly, but also safe to use – and preferably at a low cost.
Global goals for sustainable development

RIVM considers health and the human environment to be inseparably interconnected. Many of the seventeen goals defined in the UN 2030 Agenda for Sustainable Development are focused on improving health, the human environment and the climate.

Combined goals
These global goals, known internationally as the Sustainable Development Goals (or SDGs), cannot be considered in isolation. Progress towards achieving one goal never occurs in isolation; it always has an impact on the other goals. For that reason, RIVM has not just proposed steps towards SDG3, ‘Good Health and Well-being’, but is also proposing measures related to reducing poverty and facilitating education, promoting a healthy environment, addressing climate change and pursuing responsible consumption. All these factors will ultimately have an impact on public health.

Interdisciplinary research to support policy
Data from RIVM computational models and monitoring results have been used to see how the Netherlands could reach the SDGs in 2030. RIVM can also conduct interdisciplinary research to support policy initiatives, demonstrating what will be needed over the next few years to actually achieve the targets. This places RIVM solidly at the heart of a sustainable society, in the Netherlands and throughout the world.
Health worldwide

RIVM also wants to make a global contribution on the basis of the Dutch situation – if only because threats to public health and the environment are not held back by national borders. Moreover, the human environment and public health are very closely connected.

International collaboration
Our current activities related to Global Health mainly involve projects on which RIVM employees are collaborating on an equal basis with experts from other countries. For instance, fellow public health officials from Pakistan visited RIVM to gain inspiration for their own National Public Health Institute. Through the WHO Collaborating Centre Risk Assessment of Pathogens in Food and Water, which is hosted by RIVM, the institute works on water, sanitation and hygiene with Ethiopian colleagues. RIVM staff members are also deployed globally in response to disasters, as part of the internationally coordinated Environmental Assessment Unit.

International networks
The international activities of RIVM are closely aligned with the priorities of the Dutch Government in global health, foreign trade, development cooperation and environmental policy. To that end, RIVM collaborates as closely as possible with the European Union, the World Health Organisation (WHO) and the International Association of National Public Health Institutes (IANPHI). RIVM makes optimal use of its extensive international network.
Actively supporting health and the environment around the world

RIVM, the National Institute for Public Health and the Environment, focuses on health and a safe and healthy human environment. RIVM pursues those goals by conducting scientific research and by collecting and applying knowledge. In addition to arranging thorough and effective screening at birth, RIVM also fights infectious diseases, and plays a central role in population screenings. RIVM also researches what needs to be in place to ensure good healthcare, safe products and a healthy environment.

RIVM keeps a close eye on a safe human environment by taking environmental measurements and working to prevent incidents. These activities take place as commissioned by the Dutch Government, often in collaboration with other research and knowledge institutes, within the Netherlands and abroad. RIVM also has its own programme for research, innovation and knowledge development. Through this Strategic Programme for RIVM (SPR), RIVM focuses on topics which could have a future impact on our public health and human environment.