

Taking account of all types of environmental exposure

On a day-to-day basis and throughout our lives, the environment is a major determinant of our health.

It is essential to better identify exposure to the various pollutants, whether through air, water, technologies or consumer products. ANSES is fully committed to working with the scientific community to support research and develop risk assessment methods.

In 2021, it was particularly involved in the study of the exposome, a major issue for science, expert appraisal and public health action.



How can we better identify risks and anticipate new threats associated with different lifestyles and consumption patterns, professional practices, and environmental and climate change? In order to support public policies seeking to better protect health from a very early age, in 2021 ANSES conducted or funded new scientific studies on environmental pollution, electromagnetic waves, chemicals and particles found in everyday products or in the workplace. To refine risk assessment, it is essential to take account of the exposome, a topic in which the Agency is actively involved. Here are several examples from 2021.



The exposome

↘ **Definition:** in addition to the study of each risk factor taken in isolation, it involves integrating all exposures at a given moment, as well as throughout an entire lifetime.

↘ **Objective:** to better identify the health impact of multiple exposures and the interactions between the different types of chemical, physical and biological nuisance factors, as well as stress, organisational pressures at work and socio-economic living conditions.

↘ **Stakeholders:** the exposome has been the subject of numerous studies since its emergence in 2005. The interest shown by researchers has convinced public decision-makers, and it was included in the Act of 26 January 2016 on the modernisation of the health system.

OCTOBER 2021: ANSES-INSERM SCIENTIFIC CONFERENCE ON THE EXPOSOME IN PUBLIC HEALTH

Attended by several hundred scientists, representatives of associations, professionals and public decision-makers, this one-day event was a chance to take stock of research in this field and the operational application of this concept to scientific expert appraisals. Discussions mainly focused on characterisation of the various facets of the exposome and its effect on the occurrence of chronic diseases such as cancer, neurodegenerative and endocrine diseases. Mention was also made of advances in epigenetics, which observes how gene expression is influenced by the environment or other factors, particularly in children, with medium- to long-term consequences on health.

This meeting also provided an opportunity to review the challenges involved in ensuring that the exposome takes its rightful place in the various fields of public health expertise and ultimately in risk management: tools to be promoted and methodological approaches to be implemented, particularly in surveillance systems and risk assessments. Videos of the presentations are available on ANSES's YouTube channel. The Agency also published an edition of *Cahiers de la Recherche* on the determinants of child health.

↘ **Online at** anses.fr

EXPOSOME AND RISK ASSESSMENT: ESTABLISHMENT OF A DEDICATED WORKING GROUP

Taking account of the exposome in risk assessment needs to be more structured by mobilising different scientific disciplines and highly diverse approaches. To address this issue, a working group reporting to ANSES's Scientific Board was set up and began its work in early 2021.

Its report, due in 2022, will give an account of the methods, approaches, data, tools and techniques needed to introduce the various components of the exposome into the Agency's expert appraisal work.

Without waiting for the report's publication, the group is already formulating specific proposals to include the exposome in ongoing expert appraisals on the effects of digital tools on the health of children and adolescents, and on the use of data collected by air sensors. An assessment of workers in the waste industry is currently incorporating a debate on the psychological, biological and socio-economic factors that determine their mental health.

ANSES's Exposome Working Group is a multidisciplinary body bringing together several members of the Scientific Board: risk assessors, toxicologists, microbiologists, epidemiologists, chemists/analysts, statisticians, sociologists, economists and other professionals.

LAUNCH OF PESTIRIV ON PESTICIDE EXPOSURE IN WINE-PRODUCING AREAS

A large part of the rural population in France lives in wine-growing regions. How does this proximity to vineyards affect their exposure to pesticides through air, water and food? To find out, ANSES and Santé Publique France launched a large study in October 2021 involving 3350 participants in six regions, including control groups living far from vineyards.

The population's actual exposure level will be assessed by taking biological samples and measurements in air, dust, and garden fruit and vegetables. The results will be used to identify the sources that most contribute to pesticide exposure, clarify the impact of plant protection products used to treat vines, and strengthen preventive measures.



MICROPLASTICS: ANSES'S CONTRIBUTION TO THE MARCO PROJECT

Initiated in 2014 to boost research on the marine environment and aquatic products of France's "Opal Coast", the MARCO project was completed in late 2021. It was funded by the Hauts-de-France region and brought together five organisations: the University of the Littoral-Côte d'Opale (ULCO), ANSES's Laboratory for Food Safety, CNRS, the University of Lille and Ifremer.

Using state-of-the-art equipment capable of visualising microplastics, ANSES and ULCO found that the occurrence of these microplastics in mussels and cockles on the Channel coast was no greater than the European average. However, they also observed that the ingestion of microplastics by mussels modified the composition of their microbiota. As for fish, it was shown that only a very small amount of microplastics ends up in their flesh, as the particles tend to remain in their digestive system.

Supporting occupational risk prevention

Ecological, digital and technological transitions, evolving jobs and work patterns have an impact on occupational health issues. In recent months, thanks to ANSES's expertise, emerging risks have been documented and progress made on the issue of multiple exposures in the workplace. In 2021, the Agency also produced its first work to support the recognition of occupational diseases.



ANSES is interested in all types of occupational risks: exposure to biological agents and chemicals, noise, waves, night work, tensions in work relations, etc. In particular, its activities contribute to reducing exposure to the most harmful chemicals, in support of French and European public policies. In 2021, for example, the Agency addressed the issue of the classification of carcinogenic substances, preparations and processes, as defined in the French Labour Code. Following its scientific opinion, an occupational disease table for prostate cancer related to pesticide exposure was also created, which will make it possible to supplement and facilitate the support offered to agricultural workers. This table takes into account workers exposed to chlordecone in the French Caribbean. As part of the expert mission to support the recognition of occupational diseases, which it was entrusted with in 2018, the Agency also produced an opinion on ovarian and laryngeal cancers related to asbestos exposure.

CUMULATIVE EXPOSURE AFFECTS ALMOST ALL EMPLOYEES

To better describe the situations of multiple exposure experienced by employees in France and identify the main occupational sectors concerned, a joint study was conducted by ANSES, Santé Publique France and DARES, based on the results of the 2016-2017 Sumer survey.

Carried out as part of the Third Occupational Health Plan 2016-2020, it shows that 97% of employees in the public and private sectors are exposed to several risks, and describes 12 typical cumulative exposure profiles. While exposure to chemical, physical or biological stress is specific to a particular job, all the multiple exposure profiles indicate exposure to organisational and relational constraints.

Specific combinations are observed among healthcare professionals, or those working in agriculture, the navy and fishing. The conclusions justify an approach that considers the different types of stress experienced by employees not in isolation but as a whole, and which possibly accentuate the associated occupational risks.

SUBSTITUTING FORMALDEHYDE WITH LESS TOXIC ALTERNATIVES

Formaldehyde (or formalin) has been recognised as a carcinogen at European level and must be substituted with other substances or processes to protect the health of exposed workers.

In a series of expert appraisals, ANSES identified less hazardous alternatives in five industry sectors.

It also pointed out the drivers and obstacles to substitution in different sectors. This work aims to support the authorities and occupational risk prevention stakeholders in enforcing substitution requirements among employers.

CYTOSTATIC MEDICINES, WELDING FUMES: RECOGNISING THEIR CARCINOGENIC NATURE

In two specific expert appraisals, the Agency recommended that the list of carcinogenic substances, mixtures or processes as defined in the French Labour Code should include:

- work exposing healthcare professionals such as nurses, caregivers, doctors, veterinarians and cleaning staff to 18 active ingredients of cancer drugs;
- all work involving exposure to welding fumes or metal fumes from related processes, concerning not only welders but also professionals in construction, installation and repair of machinery and equipment, vehicle repair and metalworking.



PARC: REFORMING CHEMICAL RISK ASSESSMENT IN EUROPE



Joint interview with **Sofie Nørager**, Deputy Head of the Industrial Transformation Unit in the European Commission's Directorate-General for Research and Innovation, and **Pascal Sanders**, coordinator of PARC at ANSES.

PARC, the Partnership for the Assessment of Risks from Chemicals, was launched on 1 May 2022. How did it come about?

SOFIE NØRAGER. It all started in 2018, with the preparation for "Horizon Europe", the European Commission's new research and innovation programme. Based on experience with projects under way at the time, in particular the HBM4EU human biomonitoring partnership, there was a need to imagine the next steps to be taken on chemical risks, as well as a desire to increase cooperation and connections between the worlds of research and risk assessment.

This led to the idea of creating a stable reference structure to establish a vision, a course, a working agenda, in particular in order to share data and knowledge generated by surveillance and research. ANSES, working with other risk assessment agencies, had suggested the concept of a European platform on toxicology, to collaborate and move forward together on chemicals. Discussions continued with Member States, health agencies and stakeholders, including industry, while Europe's Chemicals Strategy for Sustainability was being prepared.

What role did ANSES play in the construction of PARC?

PASCAL SANDERS. ANSES, together with its German, Belgian, Danish, Irish, Dutch and Swedish counterparts, had indeed suggested to the European Commission creating a toxicology programme, which laid the groundwork for PARC. The aim was to have an independent data generation tool to address health issues associated with chemicals. The Agency was already involved in HBM4EU and other related European projects. With the One Health EJP, we also had experience coordinating large European projects. When the principle of a major project financed under Horizon Europe began to take shape, our Director General, Roger Genet, wanted ANSES to be a player in this new partnership because of our cross-cutting position on health risk issues. At the Agency, we are convinced of the need for a "one health" approach. We are interested in the different uses of chemicals in our daily lives and at work, and their transfer to the environment, food, etc. PARC aims to look at chemicals and their effects on health and the environment in a holistic way rather than by sectors or products. The building of this partnership is a strong commitment by the Agency, which has invested significant human and financial resources for its launch and

coordination, with the consent of our supervisory ministries.

How does PARC support the European Union's Chemicals Strategy for Sustainability?

SOFIE NØRAGER. PARC is a research and innovation tool that will provide the scientific know-how needed for this strategy, mainly for implementing the "one substance, one assessment" approach. The principle is to conduct a risk assessment of a substance that can be reused in other areas. Indeed, if a substance is determined to be toxic in a food, why would it not be toxic in another everyday product? In PARC, the aim is to pool resources and facilitate access to data and knowledge for national and European agencies. PARC will also lead to improved measurement of population contamination by different chemicals, which is necessary for public policies. There is also a part designed to support the development of safe and sustainable chemicals from the design stage, another ambition of the EU's Chemicals Strategy for Sustainability. To create alternatives to hazardous substances, data on toxicity, exposure and uses in products are needed. All the actions undertaken in PARC are interconnected, in order to invent a new way of producing and using chemicals in the European Union.

What is your ambition in coordinating PARC?

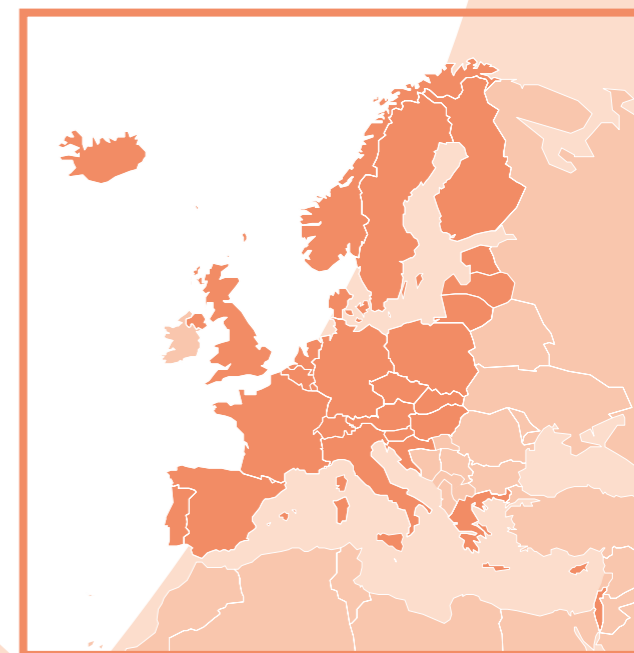
PASCAL SANDERS. In order to more effectively deal with chemical risk, there is a need to break down regulatory silos and answer all the scientific questions: where are the chemicals, what are the routes of consumer exposure and what happens to these substances in the environment? To do this, PARC will need to bring together scientists from different countries specialising in different disciplines to work in networks. This partnership will act as an interface between European research institutions and agencies, which will be able to specify the data they need and their expectations in terms of experimental methods or software, and also take better account of endocrine disruptors and the exposome concept in risk assessment. PARC will capitalise both on the new methods and knowledge developed, and on the networks of partners who have been working together for several years. Ultimately, the aim is not only to eliminate hazardous substances but also to integrate risk assessment into the chemical industry to support the development of innovative substances, materials and products that are not harmful to humans and the environment. 🍌

PARC (PARTNERSHIP FOR THE ASSESSMENT OF RISKS FROM CHEMICALS) IN FIGURES



PARTICIPATING COUNTRIES

- ✓ GERMANY
- ✓ AUSTRIA
- ✓ BELGIUM
- ✓ CYPRUS
- ✓ CROATIA
- ✓ DENMARK
- ✓ SPAIN
- ✓ ESTONIA
- ✓ FINLAND
- ✓ FRANCE
- ✓ GREECE
- ✓ HUNGARY
- ✓ ICELAND
- ✓ ISRAEL
- ✓ ITALY
- ✓ LATVIA
- ✓ LITHUANIA
- ✓ LUXEMBOURG
- ✓ NORWAY
- ✓ NETHERLANDS
- ✓ POLAND
- ✓ PORTUGAL
- ✓ CZECH REPUBLIC
- ✓ UNITED KINGDOM
- ✓ SLOVAKIA
- ✓ SLOVENIA
- ✓ SWEDEN
- ✓ SWITZERLAND



Health of plants and ecosystems

Spotlight on ANSES's activities

Through its various missions, ANSES helps prevent the emergence of plant diseases and pests, combat invasive plants and reduce the impact of using plant protection products in order to preserve the diversity of plant species and crops.

SUPPORT FOR SURVEILLANCE AND PREVENTION OF EMERGING THREATS

- Detect and identify emerging pathogens and pests
- Prevent their introduction and combat their spread in France
- Assess health risks to wild and cultivated plants

COMBAT INVASIVE SPECIES

- Actively monitor invasive plants such as ragweed and giant hogweed
- Identify insect pests and pathogen vectors through our insect library, which contains thousands of catalogued specimens

STUDY PHENOMENA OF RESISTANCE TO PLANT PROTECTION PRODUCTS

- Conduct research on the resistance of pests: fungi, oomycetes, bacteria, insects and weeds
- Study the underlying mechanisms and impact of the emergence of resistance in target populations
- Monitor the emergence of new types of resistance

REGULATE THE USE OF GENETICALLY MODIFIED PLANTS

- Develop official analytical methods for detecting genetic modifications in plants, whether or not they have been authorised in France
- From January 2022: assess health and environmental risks that may be associated with the release of genetically modified plants

In 2021, ANSES worked on several emerging threats and crises

THE XYLELLA FASTIDIOSA BACTERIUM, WHICH AFFECTS MANY ORNAMENTAL AND AROMATIC SPECIES, AS WELL AS OLIVE TREES



LETHAL YELLOWING DISEASE DETECTED IN GUADELOUPE



TOBRFV VIRUS, WHICH MAINLY ATTACKS TOMATOES



PINE WOOD NEMATODE

BACTROCERA DORSALIS FRUIT FLY

PANAMA DISEASE IN BANANA CROPS



SPECIALISED SKILLS IN PLANT HEALTH

A research laboratory

- With six sites: Angers, Clermont-Ferrand, Montpellier, Nancy, Rennes, Saint-Pierre (Reunion Island).
- National Reference Laboratory for all plant pests and EU Reference Laboratory for fungi and oomycetes, insects and mites, and plant pathogenic nematodes.

A quarantine scheme for assessing the health status of plants before authorising their admission into France under an exemption: 147 pests kept at the quarantine unit in Clermont-Ferrand.

Risk assessments drawing on a group of independent experts bringing together all the scientific expertise on biological risks to plant health.

A cross-functional scientific director who coordinates ANSES various plant health activities.

Right at the heart of research projects and networks, in France and internationally

➤ Pest diagnosis practices harmonised at European level
The Valitest project, which came to an end in 2021, assessed 83 tests and harmonised diagnostic practices for 11 plant pests. Funded by the European Commission's Horizon 2020 research and innovation programme, it brought together 16 public and private partners, together with the European and Mediterranean Plant Protection Organisation (EPPO).

➤ Identify new risks with the European "Horizon scanning" programme
→ This EFSA-funded project is conducting cross-checks of more than 10,000 sources of information from the scientific literature and the media in order to identify emerging risks.
→ ANSES is thus contributing to the identification of new risks and the development of a method for prioritising pests.

ANSES is involved in the National epidemiological surveillance platform for plant health, EPPO and the International Plant Protection Convention.

Sounding the alert in the event of adverse effects of everyday products

People are regularly poisoned or suffer adverse effects from everyday products, or foods they have harvested from the wild. Several vigilance schemes led by ANSES collect voluntary reports from consumers, healthcare professionals and companies. The Agency assesses these reports and recommends preventive measures. Here is a look back at some of the alerts of 2021.



330

cases of wild mushroom poisoning reported between 1 July and 29 August 2021: 3 were very serious and 3 deaths were recorded

SEASONAL VIGILANCE OF POISONING DUE TO WILD MUSHROOMS

Every year, around a thousand cases of poisoning caused by consumption of wild mushrooms occur in France. These have different causes: confusion of edible species with toxic species, or consumption of edible mushrooms that are in poor condition, undercooked or not stored properly.

ANSES conducts seasonal monitoring of poisonings due to wild mushrooms using data from the poison control centres. Between 1 July and 29 August 2021, 330 cases of poisoning were reported, three of which were very serious, with three deaths being recorded.

A review of the previous season showed that 56% of all poisoning cases reported between 1 July and 31 December 2020 occurred in October, when the weather conditions combining rainfall, humidity and cool temperatures favoured mushroom growth and picking. In response to this situation, which is repeated every autumn, ANSES, the poison control centres and the Directorate General for Health issued a reminder of the steps to be taken to avoid these accidents.



PUBLICATION OF PRACTICAL DATA SHEETS ON POISONOUS PLANTS SOLD IN SHOPS

Since 1 July 2021, professionals in the horticulture, floristry and landscape sectors have been required to inform consumers about the toxicity of the indoor or outdoor plants they sell and the precautions to be taken to avoid poisoning.

ANSES and the National Aerobiological Surveillance Network (RNSA) drew up a list of 58 plants that are a health risk because they can cause respiratory allergy or are toxic if ingested or in contact with the skin. For each plant, fact sheets detail the risks involved in the event of exposure, the toxic parts of the plant, the possible clinical signs in case of exposure, the measures to prevent the risk of poisoning and steps to take in the event of poisoning. All this information is available on the website plantes-risque.info.

PETS: BEWARE OF EXPOSURE TO HUMAN HORMONAL TREATMENTS

Adverse effects occurring in small dogs, cats, puppies and kittens were reported in several European countries following repeated contact with hormone replacement therapy applied to their owner's skin. Most of these cases, affecting both females and males, involved oestrogen. The French Agency for Veterinary Medicinal Products (ANMV) – part of ANSES – reiterated the precautions for use that apply to all medicines applied to the skin. Any adverse events occurring after an animal has been exposed to a medicinal product for humans should be reported to the national veterinary pharmacovigilance scheme, managed by the ANMV.

WHICH VIGILANCE SCHEME FOR WHICH PRODUCTS AND SITUATIONS?

➤ **Nutrivigilance:** food supplements, fortified foods and novel foods.

➤ **Toxicovigilance:** natural or synthetic substances or mixtures of substances found in products on the market or present in the environment.

➤ **Phytopharmacovigilance:** plant protection products and their residues in media including food.

➤ **Veterinary pharmacovigilance:** veterinary medicinal products and their residues in media including food.

The National Network for Monitoring and Prevention of Occupational Diseases (RNV3P) also identifies situations involving occupational risks.

VITAMIN D: WARNING ABOUT OVERDOSE IN INFANTS

In 2021, as part of the nutrivigilance scheme, cases of vitamin D overdose were reported in young children following the use of vitamin D-enriched food supplements. ANSES, the French Health Products Safety Agency (ANSM), paediatric scientific organisations, the national college of midwives and the poison control centres alerted health professionals and parents. They emphasised the importance of taking vitamin D in medicine form rather than as a supplement. Medicines provide clear information on doses, precautions for use, risk of adverse effects and overdose.





TOXICOVIGILANCE: POISON CONTROL CENTRES AND ANSES WORKING TO COMBAT EVERYDAY POISONING



Joint interview

with **Juliette Bloch**, Director of Health Alerts and Vigilance at ANSES, and **Jérôme Langrand**, head of the Paris poison control centre.

What are your respective roles in the toxicovigilance scheme, and how do they fit together?

JÉRÔME LANGRAND. A poison control centre is a hospital department specialising in medical toxicology. The rather unique feature of poison control centres is that their mission covers both treatment and vigilance.

Each centre provides round-the-clock telephone support for poisoning cases. Poison control centres also communicate signals to health agencies, such as ANSES or the ANSM depending on the situation, and exchange information among themselves within the framework of the coordination provided by ANSES.

JULIETTE BLOCH. Since 2016, ANSES has been coordinating the toxicovigilance scheme, along with the vigilance activities of the eight French poison control centres and the specific scheme for the Indian Ocean. To do this, we rely on the expertise of toxicologists from poison centres and other experts, within the framework of the Agency's thematic working groups on chemicals, regulated products (pesticides, biocides, veterinary medicines) and natural toxins.

How does this work in practice?

JÉRÔME LANGRAND. With each call, we take on the case and collect the related information. We add information to our database in real time: it now contains almost 4 million cases! The data can be extracted by different operators. We directly report any serious or new phenomena, or anything that catches our attention... Starting with one unusual case, we check whether others may have

gone unnoticed. Sometimes our investigations end without any health alert being issued. At the Paris poison control centre, we had two very serious poisoning cases following the consumption of morels. When we queried the database, we found others. Our experience has shown us that signal detection cannot be either 100% human or 100% computerised.

JULIETTE BLOCH. ANSES is the recipient of the reports and can also access the poison control centres' database. It can initiate studies, for example on certain types of poisoning, and performs automated signal detection. We can also set up daily surveillance on certain topics, check trends and test hypotheses. Our work may result in products being withdrawn from the market. This was the case, for example, in 2021 with adulterated food supplements, i.e. containing substances that should not have been present (in this case sibutramine and sildenafil). We work with the DGCCRF, customs and the Central Office for Combating Damage to the Environment and Public Health, which have intervention powers. These specific actions are very gratifying, they crystallise our duty to protect consumers from dangerous products. Three times a year, we publish Vigil'anses, the bulletin for all our vigilance schemes, which looks back at representative alerts issued by the network of poison control centres. Available in French and English on the ANSES website, it helps

raise awareness among the public and professionals.

What are the prospects for improving consumer safety?

JÉRÔME LANGRAND. ANSES's coordination of the poison control centres' activities enables them to share information within a structured framework and carry out joint work combining their various skills. This is a virtuous collaboration!

JULIETTE BLOCH. If you don't know what you are looking for, the database remains a black box. Without direct reports to ANSES from the experts in the poison control centres, we would have difficulty in focusing our research. Our collaboration is working very well and is set to be strengthened, since 2022 will see the setting up of two new toxicovigilance schemes in Martinique and Guadeloupe, which will not provide an emergency telephone hotline service, but will analyse data on poisoning cases based on hospital admissions and use of emergency care. 🍓

Ensuring food safety

When it is safe and nutritious, food is a powerful ally for our health. However, an imbalanced diet or contaminated food can expose us to immediate risks or the development of chronic diseases. ANSES acts to prevent and control health risks for all aspects of food: safety from farm to fork, nutritional balance and food quality, physical activity and sedentary behaviour. These are just some of the topics it worked on in 2021, while meeting the challenges of animal welfare and environmental preservation.



Faced with the globalisation of trade, the diversification of available foods and the emergence of zoonoses, great vigilance in food safety is required. This is further accompanied by new public expectations, for example in terms of animal welfare. Events in early 2022 have also shown the extent to which well-known risks, such as *Salmonella* or *Escherichia coli*, remain difficult to control and can affect large or particularly susceptible populations. For all these reasons, ANSES chose to dedicate its stand and presentations at the most recent Paris International Agricultural Show to the health challenges of today's food.

BACTERIAL RISKS OF RAW MILK AND CHEESE PRODUCTS

Over the last decade in France, the consumption of raw milk cheeses has been implicated in 34% of salmonellosis outbreaks, 37% of listeriosis outbreaks and 60% of enterohaemorrhagic *E. coli* (EHEC) infections. In order to further improve control of these risks, a recent expert appraisal by ANSES ranked the main bacterial hazards associated with the different types of raw milk cheeses and other dairy products made from raw milk. It stressed that levels of hygiene and risk control are now very high on farms. The self-checks implemented at the processing stage are also able to identify a large number of problematic batches. To reinforce prevention, the Agency recommends improving epidemiological investigations, ensuring early identification of poor hygiene practices and increasing consumer awareness of cheese storage temperatures in the refrigerator, use-by dates and the ages at which consumption of these products is not recommended (particularly among young children).



NEW ALERT ON THE LACK OF PHYSICAL ACTIVITY

Physical activity has long been considered beneficial to health without being essential to it. ANSES's work has confirmed its short-, medium- and long-term benefits on all the components of health. In 2016, in the framework of the PNNS, the Agency had established guidelines on physical activity and sedentary behaviour. Using this basis and data from the INCA 3 study on population habits, it assessed the health risks associated with physical inactivity and sedentary behaviour among children and adolescents in 2020, and then among adults in 2021.

This work scientifically confirmed the health emergency in this area: today, only 5% of adults are sufficiently physically active and 70% of women are below all the levels of activity identified for good health, compared with 42% of men.

Concerning sedentary behaviours, sitting for more than eight hours a day poses a health risk. Adults with a low level of education and those under the age of 45 are the most affected. Another alarming finding is that more than a third of adults have both a high level of sedentary behaviour and insufficient physical activity, resulting in higher mortality and morbidity rates.

ANSES stresses that there are currently serious obstacles to creating an overall environment conducive to changing behaviour. They mainly concern town and country planning, modes of transport, and organisation of time and space with regard to work and school.

CHLORDECONE IN FOOD: LAUNCH OF CHLOREXPO IN THE FRENCH CARIBBEAN

Initiated in the summer of 2021 in Guadeloupe and Martinique for a period of three years, the ChlorExpo study aims to take better account of the effects of local food procurement and preparation practices, especially the effect of cooking methods, on the chlordecone content of food. The findings will be used to identify new ways to help limit the population's exposure, without requiring them to abandon local products, or production and distribution methods. This study, which is part of the national Chlordecone IV plan, follows on from the Kannari study, which identified the most problematic supply channels and production areas, as well as the populations concerned.



THE DIFFERENT FOOD QUALITY AND SAFETY SCHEMES MANAGED BY ANSES

➤ **CIQUAL** is a public database that details the average nutritional composition of foods consumed in France. This table, one of the most comprehensive in Europe, is a reference for dietitians, nutritionists and food manufacturers. It is freely available on the Internet and generates more than 1 million visits per year.

➤ **INCA studies**, national surveys of individual food consumption, provide a snapshot of the food consumption habits of the population of metropolitan France every seven years.

➤ **Total Diet Studies (TDS)** identify the most problematic chemicals and quantify them according to geographical area and age, taking actual dietary behaviour into account.

➤ **The OQALI observatory** focuses on the composition of processed products placed on the market in France. It is run jointly with INRAE.

ENSURING THE SAFETY OF FOODS SOLD IN BULK

In response to growing demand, products sold in bulk have conquered the shelves of retail outlets. Dried fruit, cereals, soap, detergent, etc., the AGECE Act provides for the bulk selling of many everyday consumer products. To effectively protect consumer health, retailers need to put in place systems tailored to this new purchasing process. In its 2021 expert appraisal, ANSES recommended hygiene practices such as cleaning equipment, including objects handled by customers, managing product storage conditions, and using fixtures and fittings appropriate for bulk selling.

The Agency also ruled on products that should not be sold in bulk for public health reasons. This is particularly the case with highly perishable foodstuffs such as those sold in the chilled section (meat, fish, certain dairy products or delicatessen meat products, etc.) or certain animal feed.

Lastly, it specified the good practices consumers need to adopt to avoid contaminating products, especially foodstuffs, during purchase and storage, or to keep information on use, the presence of allergens and shelf life.

Improving animal health and welfare

Animal diseases such as avian influenza, bovine tuberculosis and swine flu were a major focus of ANSES's work in 2021, and the Agency also remained vigilant to the potential transmission of pathogens to humans, as in the case of the COVID-19 pandemic. In addition, its animal health activities in 2021 covered a wide range of situations and major work on veterinary medicines.



REARING CONDITIONS: THREE KEY OPINIONS

While the European Commission was considering the reintroduction of animal proteins in pig and poultry feed, the Agency gave its view on the risks this could pose to animal and human health. The experts identified situations in which transmissible spongiform encephalopathies could be transmitted, then become amplified and difficult to control a decade later, as had happened during the "mad cow" crisis. ANSES reiterated the importance of strictly separating production chain sites by species to avoid, for example, pigs consuming pig protein.

In 2021, the Agency also looked at the ingestion by cattle of metal foreign bodies accidentally mixed into their feed. This debris can cause damage to internal organs, leading to death in the worst cases. Since the expert appraisal showed that 7 to 20% of cattle were concerned, ANSES recommended practical preventive measures and stressed that magnets can be administered as an effective way of avoiding injury.

Last year, ANSES also concluded that any link between the presence of a wind farm and various disorders reported in two cattle farms in Loire-Atlantique was "highly unlikely", but recommended establishing a suitable comprehensive diagnostic protocol, in order to be able to act promptly in the event of disorders occurring in other farms close to wind turbines.

BRUCELLOSIS: SCENARIOS FOR MANAGING THE INFECTION OF IBEX IN THE BARGY MASSIF

Since 2013, ANSES has produced several expert appraisals on ibex populations in the Bargy massif (Haute-Savoie *département*) following a number of cases of brucellosis. This has a dual objective: to limit the risk of contamination in domestic animals and work towards the natural extinction of the disease in the wild population. In its opinion published in late 2021 following the detection of a local strain of brucellosis on a cattle farm, ANSES noted, without playing down the extent of the damage to farmers, that it was a one-off event that had not previously occurred since 2012. After studying six scenarios for managing the situation, it recommended management through a combination of targeted captures and shooting, in order to maintain downward pressure on the local outbreak over time until its extinction.



MEETING ON BEES: CLOSE-UP ON THE EUROPEAN POSHBEE PROJECT

Every two years, the Agency organises a one-day meeting devoted to research, expert appraisal and surveillance work on bees. Open to a wide audience of beekeepers, researchers, public decision-makers, companies, professional representatives and the media, it provides an opportunity to review recent scientific advances in the field. In 2021, the focus was on the research carried out as part of the European PoshBee project, for which ANSES is coordinating the part on bee exposure to chemical products and various pathogens. In its Sophia Antipolis Laboratory, which has several European and international mandates on bee health, among other things the Agency is developing a technology that can identify and quantify 11 different viruses, bacteria and parasites more specifically and more quickly, and even simultaneously. Other work aims to simulate the actual exposure of bees to pesticides.

VETERINARY MEDICINE: ANSES INVOLVED IN IMPLEMENTING THE NEW REGULATIONS

The French Agency for Veterinary Medicinal Products (ANMV), part of ANSES, is the competent authority for the assessment and management of risks associated with veterinary medicinal products in France. In particular, it is tasked with issuing marketing authorisations for veterinary medicinal products, and monitoring their adverse effects and quality. It is also responsible for authorising imports and temporary uses of veterinary medicinal products, as well as for inspecting veterinary pharmaceutical establishments. The ANMV is closely involved in work at European level, and especially in legislation reform.

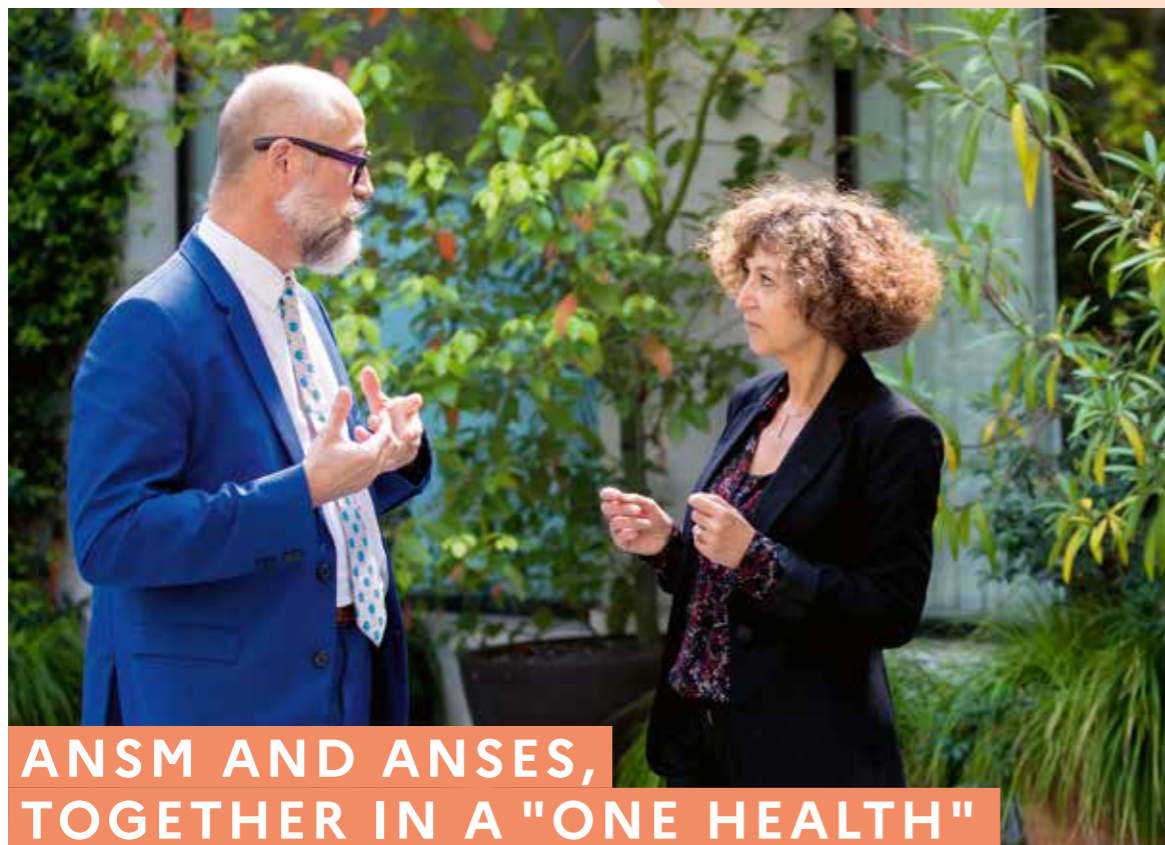
On 28 January 2022, the new European regulation on veterinary medicines came into force. Its main objectives are to improve the safety and availability of veterinary medicinal products, strengthen action to address antimicrobial resistance, enhance the EU internal market for veterinary medicinal products and reduce the administrative burden. During the preparation phase, the ANMV initiated the setting up of a task force, which it co-chairs with EMA. To harmonise implementation of the regulation and common procedures, this network of agency heads supported coordination among the competent authorities of the Member States.



PHYTOTHERAPY AND AROMATHERAPY: ADAPTING RISK ASSESSMENTS IN VETERINARY MEDICINE

Herbal veterinary medicinal products are becoming increasingly popular among farmers and veterinarians. However, the plants, plant preparations and essential oils most commonly used in veterinary medicine have generally not been assessed under veterinary medicinal product regulations and cannot therefore be used therapeutically on food-producing animals. This is due in particular to the absence of maximum residue limits (MRLs), which correspond to the maximum quantity of an active substance contained in a medicinal product that can be found in food of animal origin without posing a risk to consumer health. In order to be a driving force for ideas, the ANMV recently proposed an adapted assessment method.

This could be used to produce a list of plants for which an MRL does not need to be defined since their use is considered safe for consumers, to exclude the use of plants whose toxicity has already been proven, and to identify any missing data. The proposed method was tested on 21 plants, essential oils and substances found at significant levels in essential oils commonly used in veterinary medicine.



ANSM AND ANSES, TOGETHER IN A "ONE HEALTH" APPROACH



Joint interview

with **Jean-Pierre Orand**, Director of the French Agency for Veterinary Medicinal Products (ANMV) within ANSES, and **Caroline Semaille**, Deputy Director General in charge of Operations at the French Health Products Safety Agency (ANSM).

In France, two health agencies are responsible for medicines. How do the ANSM, which oversees human medicines, and the ANMV, responsible for veterinary medicines, coordinate their actions?

CAROLINE SEMAILLE. The ANSM and the ANMV have been working together for a very long time, mainly in the inspection of pharmaceutical establishments with combined human and veterinary activities. We pool

our resources in this area, and coordinate our efforts: in 2021, we conducted five joint inspections for non-clinical studies. Our agencies also work together during major problem situations. This was the case with the shortages of human medicines and the possibilities of supplementing them with veterinary medicines if needed during the COVID-19 crisis. We will be extending this cooperation to the assessment of marketing authorisation applications in order to capitalise on our respective expertise.

JEAN-PIERRE ORAND. We also work together at European level. The ANSM and ANMV represent France's position at the European Medicines Agency and take part in the network of European Heads of Medicines Agencies, which addresses health policy and management issues. We co-chaired the two meetings of this network during the French Presidency of the European Union, by video conference and in Saint-Malo.

On which subjects, historical or new, do you work together? And what do you get out of these collaborations?

JEAN-PIERRE ORAND. Of course, we are still heavily involved in the issue of antimicrobial resistance, one of our longest-standing areas of collaboration. We also see other issues emerging. For example, the use of herbal veterinary medicinal products

is becoming increasingly popular among farmers and veterinarians. In 2021, the ANMV produced a consumer risk assessment in which ANSM staff participated, as this is also a well-known topic in human medicine. While each agency has its own tasks and assessors, there is a clear benefit in working together, particularly on the assessment of environmental risks associated with the use of medicines.

CAROLINE SEMAILLE. In some areas, such as herbal and homeopathic medicines, skills are scarce.

It is therefore in both our interests to exchange our respective expertise. The ANSM's toxicology experts participate in the ANMV's work and, in parallel, their experts are associated with the French Pharmacopoeia Commission. In addition, the ANMV, and ANSES more generally, has developed environmental health expertise from which we can also benefit. With the new European policies related to the Green Deal, we are moving towards a greater consideration of environmental impacts, including for human medicines.

What future collaborations have you planned?

JEAN-PIERRE ORAND. In animal health, we are seeing the emergence of new therapies, such as gene therapy or the use of stem cells, which

already exist in human medicine. This encourages us to strengthen our exchanges with the ANSM on these innovations by taking the overall "one health" approach even further.

The subjects are increasingly cross-cutting and call for closer links. For example, the two agencies are partners, along with the Ministries of Health and Agriculture, in the WHO-led, EU-funded PARS project. This is designed to support structural reforms in the Member States regarding antibiotic availability. We are also jointly supporting a project to assess a European dossier on a human vaccine for avian influenza.

CAROLINE SEMAILLE. To put into action our desire to break down barriers in public health activities, we are launching the construction of the future joint ANSM-ANSES facility, whose first stone will be laid in Lyon in July. The teams of our two Lyon agencies will be grouped together in a single building: they will share a single laboratory offering a high level of biosafety and advanced technologies. This facility will thus enable us to pool our skills, which will focus primarily on one of the pioneering topics of our collaboration: antimicrobial resistance, for which the "one health" approach is of great importance. This is a great achievement in our cooperation. 🍷