



Highlights of the year

Who we are

Sciensano can count on more than 850 staff members who commit themselves, day after day, to achieve our motto: Healthy all life long.

As our name suggests, science and health are central to our mission. Sciensano's strength and uniqueness lie within the holistic and multidisciplinary approach to health. More particularly we focus on the close and indissoluble interconnection between human and animal health and their environment (the "One health" concept). By combining different research perspectives within this framework, Sciensano contributes in a unique way to everybody's health.

For this, Sciensano builds on the more than 100 years of scientific expertise.

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A word from the managing director

Christian Léonard

I am proud to present you with the condensed version of our [2021 Activity Report](#). A condensed version that retraces our year through highlights, key figures and a retrospective of Sciensano's actions in the face of the crisis. Because this year, the crisis has once again remained at the centre of our work, taking up most of our resources and influencing all aspects of our activities.

A weary but still motivated workforce

First of all, I would like to dedicate these first lines to the staff of Sciensano. The past two years, which have put everyone under so much pressure, fully justify this decision but, on reflection, **this emphasis on people should be the expression of timeless values** and should not depend on the context.

Once again in 2021, the people who make up Sciensano have lived up to the expectations and demands expressed by the population and the public authorities. Our many achievements express the DNA of our institute: **science at the service of society**. Although not everyone was on the front line when it came to COVID-19, no employee was left idle, because **our monitoring concerns all potential risks to human health, animal health and the environment. It is a great source of pride to be able to work with such competent, enthusiastic and motivated people.**

As I write this, the COVID-19 figures we are publishing as indicators for our decision-makers bode well for the future. But it will take much more than the relaxation of constraints and the rays of a sun that has been too absent over the last few months for us to return to a 'normal' rhythm and way of working. **I would like to extend my special thanks to all my colleagues.**

Monitoring more than ever a priority in a "One Health" programmatic context

As you will see in this report, and even more so in the [full version available on our website](#), **it is cross-disciplinarity that prevails and characterises Sciensano**, whether in the context of the crisis or in that of our "usual" activities. What could be more normal for a health institute that is part of a **collaborative and interdisciplinary approach** and that bases its action on the **"one World, one Health"** paradigm.

A public health institute has a duty to scrutinise everything that may pose a threat to health. **The "one World, one Health" paradigm expresses how everything on earth interacts.** With monitoring as our primary occupation and concern, we do not limit ourselves to **human health** as a direct and sole area of interest but, rather, address the **animal and plant world as true "partners"** in life on our common earth.

This '**one World, one Health**' paradigm, however, needs to be properly understood as it does not reflect a fact but a **project**. It is true that we **share** our **Earth**, but not in an egalitarian way. If we have felt that we have been subjected to the same suffering for the past two years, it is because of our blindness to see the **inequalities in health** not only between continents and countries but also within our own population. **'One World, one Health' must therefore become an agenda; we must work towards the highest possible level of 'universal' health, we must raise the bar for everyone on this most precious of assets.**

However, we cannot achieve this without an **efficient national and international monitoring system**. In recent months, most people have seen this monitoring as the analysis of a virus, its presence, its evolution and its effects. But there are other ways of monitoring, and here are some examples:

When we carry out a food consumption survey, we report on trends, on the lifestyle habits of our citizens. We can then identify the chronic health problems that are of concern and make recommendations to avoid or minimise them.

When our **health survey** asks a representative sample of the population about their objective and subjective health, we uncover facts that allow us to take action in the field of health care, and health promotion or prevention.

And when we warn **allergy** sufferers that the substances to which they are sensitive are present in the environment, we enable them to take precautionary measures that improve their quality of life.

I could make a very long list of these areas where Sciensano is active, where we watch, monitor and alert the authorities and the public to risks that are sometimes so remote as to seem improbable. Let's hope that this crisis has taught us the lesson that monitoring can never be done too soon, that it must never be stopped and that we must therefore have the means to do it.

A strategy and prioritisation of our missions for the future

While it is clear that **monitoring is the main priority and the essence of Sciensano**, its protean nature probably makes it necessary to prioritise its many expressions. Although all our activities seem to be essential to us, it is worth taking a critical look at them in a transparent, objective and fundamentally scientific way. **Establishing priorities** seems to me to be **beneficial** on two levels:

- leaf firstly, for the **functioning of Sciensano, to prevent certain sclerosis**, justified by the sole argument that "we have always done it this way".
- leaf for the **functioning of society** as well, to lead it to make **choices guided** by a light focused on the **short, medium and long term**.

Transparent and secure data

In both the market and non-market sectors, **data** has become **a necessary condition for the efficiency of human action**. The health crisis is a shining example of this. For the vast majority of our fellow citizens, as well as for most politicians, Sciensano is known for **its 'numbers'**. However, this is a plentiful tree that hides the forest of **our many achievements**. There is a lot to be said about these so-called **numbers**:

- leaf we should point out that although we collect **data**, we do not necessarily own it.
- leaf note that the use and conservation of individual data, whatever its form, are governed by **European and national regulations** that are fortunately very demanding.
- leaf stress that, contextually, it is the **subject of requests** from all sides for a wide variety of purposes.

We have made numerous efforts, welcomed by most observers and partners, to gradually make as much data as possible available. **Daily, weekly and thematic reports have accumulated on our website, making the monitoring of the development of the pandemic accessible to as many people as possible**. In this way, we have simultaneously met a number of challenges: **making data technically accessible in a transparent and educational manner while respecting the legal limits that govern its use and dissemination**.

Data processing and provision

Can we do better? Certainly, and we are committed to a transparent approach which, with the relative easing of the crisis, will enable us to envisage and design future developments. However, we must be aware that any development in this area does not depend solely on Sciensano's goodwill and technical capabilities. A societal and political arbitration must be initiated in order to clarify the link between the **needs of scientific knowledge** (particularly epidemiological), our fellow citizens' **desire for transparency** as well as their **fears** of having their lives 'laid bare', their demand for more appropriate and individualised measures and **care**, the desire for **commercialisation** on the part of certain companies, and strict legal **regulations**, the aim of which is zero risk in terms of safety. In the end, this is a combination that must lead to a balance between individual and collective **responsibility**. Sciensano can provide input and enlighten the debate on the consequences of the choices made but cannot in any way substitute itself for the political world representing the population.



Working together in a way that respects specificities for the good of society

Sciensano is undoubtedly an important player in the field of human, animal and environmental health. The missions it has been assigned by law and its contribution to the management of the health crisis over the past 24 months make our institute indispensable. However, this should not make us forget that we need **other public institutions and universities, both nationally and internationally**, and that this need is **reciprocal**. If we want to serve society, we must open up to the outside world in order **to do more and do it better by working together**. We have begun to work with French and Dutch-speaking universities, and we are very active and sometimes even leaders at international level. **We are determined to develop these relationships and collaborations for the good of the community.**

Thank you

In addition to these words to the Sciensano staff, I would like to conclude by **thanking** the members of the **Board of Directors**, the **General Council** and the **offices** of our **two supervisory ministers**. Finally, I would also like to express my warmest thanks to a large part of the **population** who have placed their trust in us and some of whose members take the time to let us know.

Rest assured, dear reader, we are watching, we are monitoring.

2021 in pictures

January

Sciensano analyses the COVID-19 crisis in the light of 'One Health' and makes recommendations



In January, Sciensano participated in the publication of a [policy brief](#) that summarises the main lessons and recommendations for managing a health crisis from a One Health perspective. This brief is based on a survey organised by the Belgian One Health network at the end of 2020 as part of the management of the crisis in Belgium.

February

Our teams praised and thanked by the spokesperson of the crisis centre

During the [press conference on Friday, 26 February](#), the spokesperson of the crisis centre, Antoine Iseux, thanked the Sciensano staff for their monitoring of the epidemic and for the information we have provided every day since the beginning of the crisis.



March

Sciensano develops the Knowledge Translation project

Knowledge translation is a participatory process that aims to facilitate and improve the use of scientific findings by policy makers, healthcare professionals and the general public. Sciensano has embraced this approach because we believe that disseminating research knowledge and interacting with stakeholders throughout the different stages of the research process is something fundamental. After months of preparation, the first training modules for our experts were organised at the end of 2021. The aim is for them to learn how to integrate this approach into the design of their projects.



April

Happy birthday!

On the 1st of April, Sciensano celebrated its 3rd birthday! Born from the merger between the Institute of Public Health (IPH) and the Centre for Veterinary and Agrochemical Studies and Research (CERVA), our institute continues to grow and develop its activities. Along with its major role in the health crisis, we continue to pursue our public health missions with the motto "Healthy all life long".



May

Minister David Clarinval visits Sciensano

On the 18 May, Minister Clarinval (Federal Minister of Agriculture) visited our colleagues in the Infectious Diseases in Animals scientific directorate. This was an opportunity to discuss the current activities at Sciensano in greater detail, to visit the BSL 3 high security area and to let the Minister test our electronic analytical microscope.



June

Sciensano signs a strategic cooperation agreement with Belgian universities

Sciensano has been working closely with Belgian universities for many years. Through this agreement, they have validated the use of a standardised data transfer model to improve the efficiency and inclusion of their respective research projects. This puts the contribution of each party to better use, leading to improved health research. [Read our press release](#).

PROTOCOLE D'ACCORD en vue d'un partenariat dans certains domaines de recherche scientifique et académique	PROTOCOLAKOORD voor een duurzaam partnerschap op bepaalde domeinen van wetenschappelijk en academisch onderzoek
ENTRE:	TUSSEN:
Les universités francophones UCLouvain ULB ULiège UMons UNamur USL Ici représentées par le CRef,	De Franstalige universiteiten UCLouvain ULB ULiège UMons UNamur USL In deze vertegenwoordigd door CRef,
Les universités flamandes KU Leuven UAntwerpen UGent UHasselt VUB Ici représentées par le VLIR,	De Vlaamse universiteiten KU Leuven UAntwerpen UGent UHasselt VUB In deze vertegenwoordigd door VLIR,

Our employees organise a workshop on managing the infodemic

The over-abundance of information (sometimes correct, often incorrect) that occurs during an epidemic is known as an infodemic. This workshop brought together European experts from the WHO to share experiences and specific tools to help participants deal with misinformation and disinformation. Sciensano organised this workshop as part of the European PHIRI project that it coordinates.

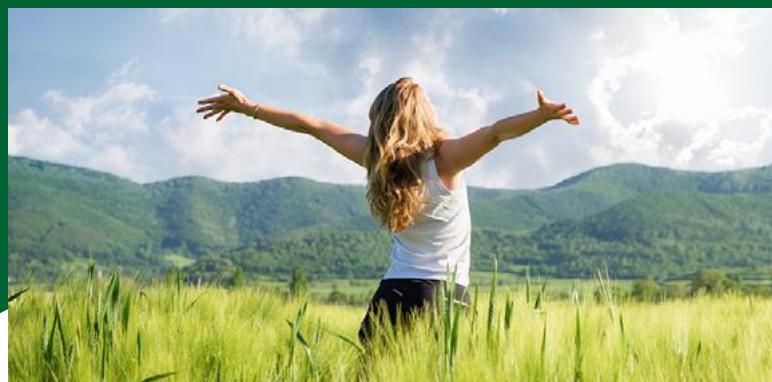
[Visit the project website for more information.](#)



Sciensano sets up a "well-being" committee

True to its slogan "healthy all life long", Sciensano places the physical and mental health of its employees at the heart of its priorities. In the summer of 2021, we set up a committee and a website dedicated to psychological, physical and social well-being in response to the needs of our employees. At Sciensano, we all want to be involved in well-being, as a colleague, as a superior and as an individual.

#we care



July - August

Sciensano organises its 6th animal health symposium



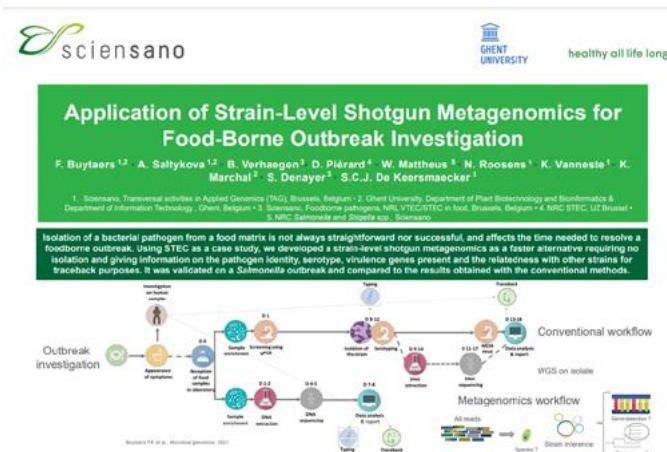
In collaboration with the FASFC, the Infectious Diseases in Animals scientific directorate organised its 6th animal health symposium on the theme of "Food safety and zoonotic diseases". This was an opportunity to illustrate the role of Sciensano under the 'One Health' lens by addressing the impact of animal health on public health and the role of food in the transmission of zoonotic diseases.

Fire Prevention: Sciensano trains its employees

As part of its on-going efforts to improve the safety of its employees and its infrastructure, Sciensano gathered 25 volunteers from among its staff for an exceptional training day. Welcomed on site during a relaxation of sanitary measures, the participants first learned the key elements of fire prevention and fire fighting, which they were then able to put into practice by using specific equipment.



Sciensano wins the BSFM prize (Belgian Society for Food Microbiology)



Congratulations to our PhD colleague Florence Buytaers, recipient of the [BSFM](#) award for the best poster in food microbiology. This prestigious award was presented to her during the 25th edition of the conference on food microbiology, organised in Brussels by the [BSFM](#). It is a testimony to the quality of our research as a scientific reference institute. [Visit the website dedicated to the event.](#)

Our colleagues rewarded by the IRET (Institut Royal des Elites du Travail - Royal Institute of Labour Elites)

The [IRET](#) is a national organisation that rewards professionals from different backgrounds for their know-how and their involvement in their professional environment. Our colleagues Bavo Verhaegen, Marie Polet and Maria Cristina Garcia Graells were awarded the "Rising star of the profession" prize, while Steven Van Gucht and Frank Koenen were awarded the "Expert of the profession" prize. This is further proof that Sciensano has some exceptional employees in its ranks. [Find all the information on the IRET website.](#)



November

Sciensano colleague receives the Pasteur Talent Award!



The Talent Awards 2021 ceremony, organised by the [Pasteur Network](#), rewarded our colleague Nathalie Vandevelde. As Scientific Director of the Belgian National Reference Centres for Rare Diseases, Nathalie is developing a clinical approach to improve the management of rare diseases by trying to offer the best diagnosis and follow-up to patients. Congratulations to her on her exceptional achievements. [Find all the details of this award on the Pasteur Network website.](#)

Sciensano organises the first One Health EJP theme day



Sciensano is in charge of the scientific coordination of the [One Health EJP](#) project, which is aimed at creating an effective European network and joint projects centred around the One Health approach. The objective? To improve prevention and the coordinated response at European level when a health problem emerges. Theme days will therefore be organised regularly in order to bring this network to life. Sciensano had the honour of organising the first day, with almost 120 participants (including FASFC, FPS, FAMHP, ULg and the University Hospital of Brussels). The first of many!

December

Sciensano launches a new platform dedicated to the data debate

This online platform "[The data debate – your say on the second life of health data](#)" has been created in cooperation with the Health Data Hub (France) and the NHS Confederation (UK). The aim is to stimulate engagement, reflection and exchange with and between citizens on the topic of giving a "second life" to health data through its re-use. "Second life" meaning once the data has been used for care (e.g. for research purposes).



Sciensano among the top 3 Belgian health organisations with the best communication on Twitter in 2021

Sciensano is a reference institute within the scientific community, but not only that! We also have a strong presence on social networks to ensure optimal information sharing with our different target groups. It is therefore no coincidence that the 2021 report by [HealthBuzz.be](#) puts Sciensano in 3rd place among organisations active in the health sector on Twitter, stating that we have "excelled in disseminating our messages within the Belgian healthcare community". HealthBuzz.be collects all articles and tweets related to the health sector in Belgium. It analyses them to identify trends and pinpoint the most popular ones on the web. [Not yet following us on Twitter?](#)

← Thread

 **HealthBuzz.be**
@HealthBuzzBE

Here it is, the top 10 of Belgian healthcare organisations on Twitter in 2021.



Well done all! 🙌

TOP 100 ORGANISATIONS	
1.	Zorgnet-Icuro
2.	Artsenkrant
3.	Sciensano
4.	UZ Gent
5.	Zorg en Gezondheid
6.	Le Spécialiste
7.	De Specialist
8.	HealthBuzz.be
9.	BVAS
10.	RIZIV

2021

These are the Belgian healthcare organisations which are best at spreading their message to the Belgian healthcare community on Twitter

 **HealthBuzz**

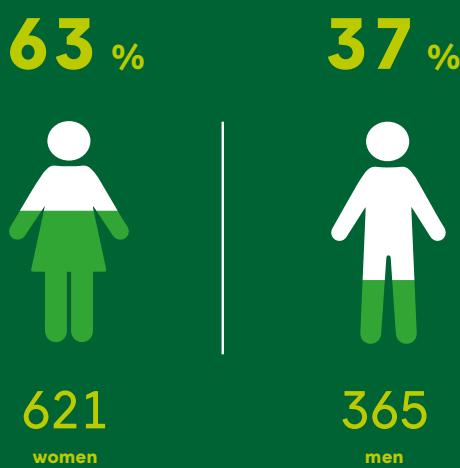
[www.healthbuzz.be](#)

UZ Gent and 5 others

4:04 PM · Dec 20, 2021 · Twitter Web App



2021 in figures



58 % **578** scientists

17 % **164** lab technicians

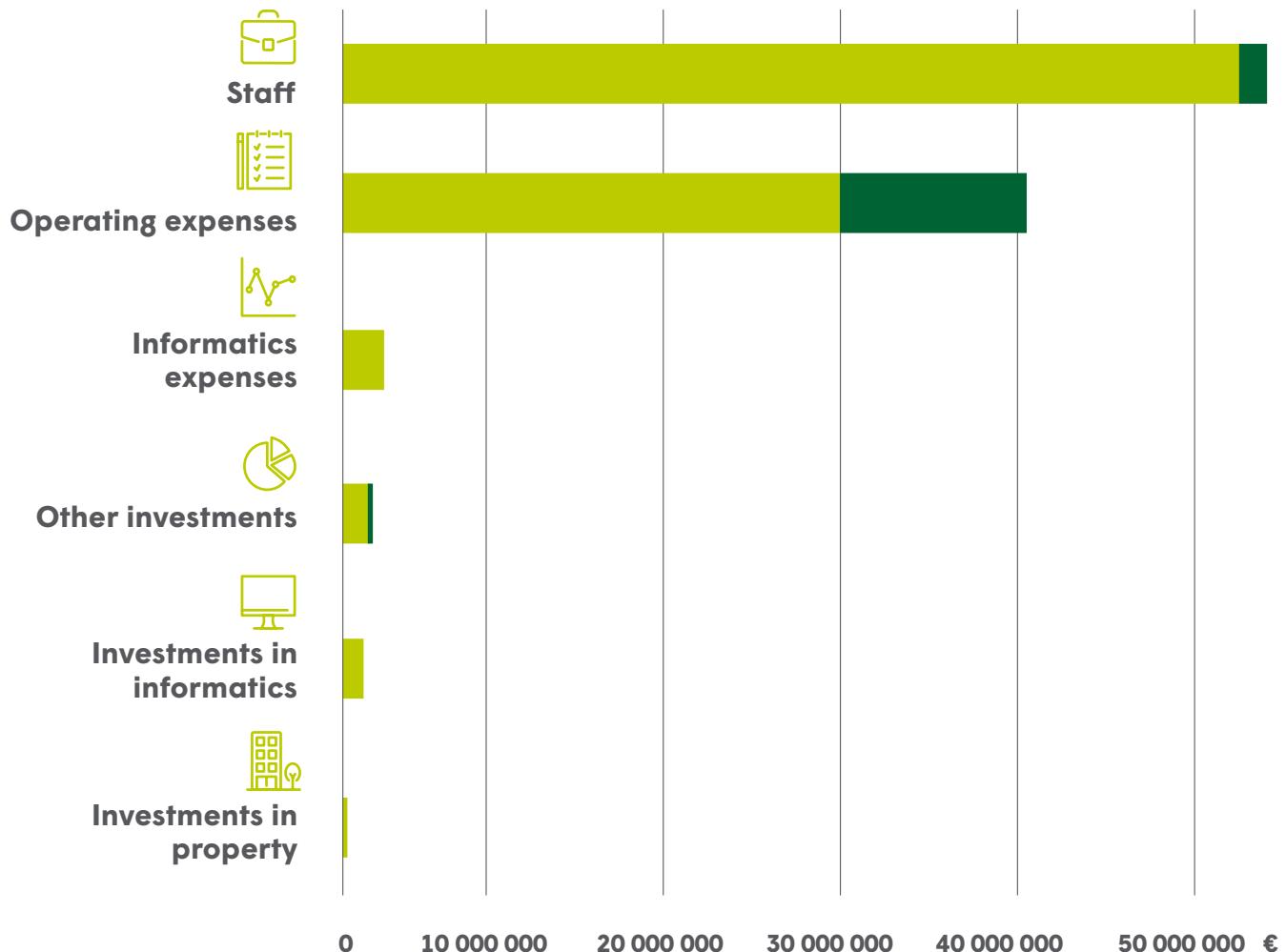
21 % **207** administrative staff

37 % **37** PhD scholarship students





■ Budgets 2021 ■ COVID-19



TOTAL
107 006 005 €



Sciensano continues to make its mark on the COVID-19 crisis

With the arrival of the vaccines at the end of 2020, we hoped to gain the upper hand over the unpredictable SARS-CoV-2. The emergence of the Delta and Omicron variants, as well as a third, fourth and even fifth wave, forced all of us, scientists and ordinary citizens alike, to come face to face with a very different reality. **In 2021, COVID-19 continued to put enormous pressure on society and the healthcare system.**

Sciensano remained an essential and indispensable partner for supporting the political decision-making in this extremely challenging crisis management context. Our staff provided expertise in a very wide range of areas:

- epidemiological surveillance
- (scientific) service delivery
- vaccination studies
- performance and quality assessment of diagnostic tests or vaccines
- seroprevalence studies and health surveys

Since the beginning of the pandemic, we have launched more than 100 COVID-19-related projects and activities , financed by the authorities and by our own funds. These projects have focused on, among other things, social issues, the indirect and long-

term consequences of COVID-19 (socio-economic consequences, creation of inequalities) as well as the impact on mental health.

These activities could not have been carried out without the support and collaboration of a wide **network of partners**, i.e. hospitals, general practitioners, nursing and care homes and laboratories, as well as the various federal and federated bodies and academia.

We have always taken great pains to communicate with **maximum transparency** and to make the data available to the authorities, healthcare professionals and the general public by means of the dashboard, epidemiological reports and scientific opinions.

We have endeavoured to **work in a multidisciplinary, cross-sectoral and complementary manner**: it was only possible to carry out projects such as the monitoring of SARS-CoV-2 in wastewater, the various vaccination and seroprevalence studies and the genomic surveillance project thanks to the close collaboration between different services. Services such as Communication, Information Security and the Legal service were also closely involved.

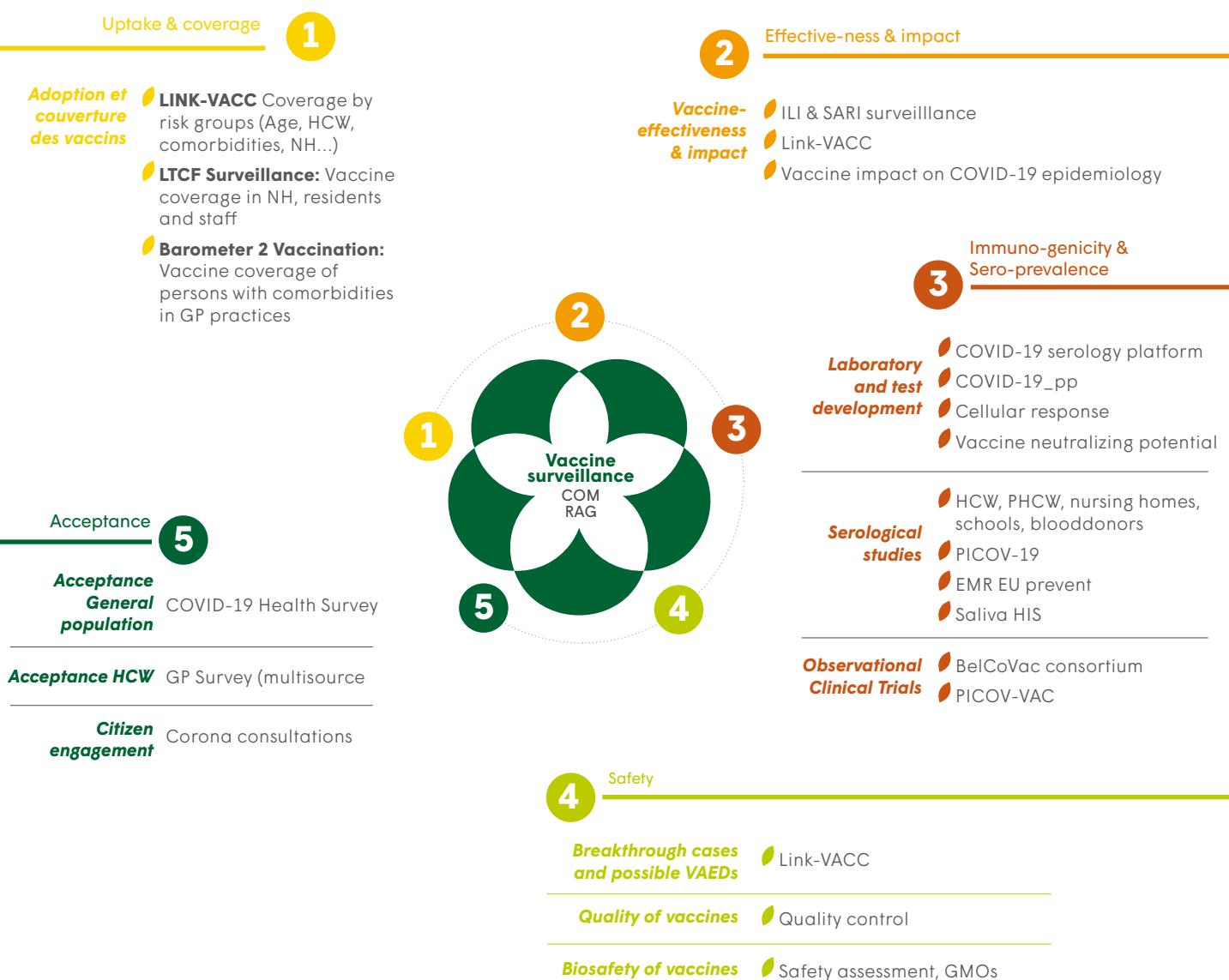
In the past year, the crisis also had a significant impact on the functioning of Sciensano and the well-being of our staff. The pressure on the scientists and the staff in the support services (P&O, reception, ICT, communication) remained very high.

Although COVID-19 took the lion's share of the attention, other crises were also dealt with by Sciensano last year, such as PFOS/PFAS pollution and avian flu.

In the spotlight: vaccination against COVID-19

Sciensano has been heavily involved in the various aspects of COVID-19 vaccination. The success of the activities has demonstrated the added value of a multidisciplinary, complementary and cross-cutting approach, as well as the close collaboration between a large number of services within the Institute.

Figure • Overview of Sciensano's COVID-19 vaccination activities



The activities are divided into **five main areas**:

1. Vaccine uptake and coverage

The [LINK-VACC project](#) was launched with a threefold objective:

- 1 **to determine vaccine uptake and coverage**
- 2 **to determine vaccine efficacy**
- 3 **to monitor the safety of the COVID-19 vaccine**

The project links VACCINNET+ with other databases (IMA, Statbel, COBHRA) and takes place within the framework of post-market surveillance. Vaccination uptake and coverage (by region, type of vaccine, age group, target group, etc.) are two important indicators to **assess the roll-out of the vaccination campaign** and adjust it where necessary.

Monitoring of COVID-19 vaccination among the priority group of residents and staff of **nursing and care homes**, the results of which were presented in a [thematic report](#). Vaccination coverage is also monitored in the second priority group of **healthcare professionals**, thanks to data linkage between VACCINNET+ and Cobhra ([vaccination rate report among healthcare professionals](#)).

Surveillance of vaccination coverage among people with **comorbidities in GP practices** via the Barometer 2 project.



2. Vaccination effectiveness and impact

Surveillance of effectiveness and impact, the second objective of the [**LINK-VACC project**](#), is essential to assess the proportion of the population actually protected. This uses a negative test case-control model **coupled with different surveillance systems** (SARI, mortality, contact tracing, hospitalisations, wastewater, etc.). A detailed analysis was published in November.



3. Immunogenicity and seroprevalence

- Projects initiated in 2020 in support of **immunological studies** continued in 2021: COVID-19 serology platform (development and validation of serological tests), COVID-19 pseudoparticles, cellular immune response and neutralisation potential of vaccination.
- Seroprevalence studies** with healthcare professionals, in nursing and care homes, schools, etc.
- PICOV study**, started in nursing and care homes during the winter season 2020-2021 and extended in 2021-2022, to monitor the impact of previous SARS-CoV-2 infection on the development of influenza or acute respiratory tract infections or on immune protection against COVID-19.

At the end of 2020, the **DelCoVac consortium** was formed, centred around three complementary laboratories (Sciensano, ITG, ULB), and is coordinated by Sciensano. The aim is to streamline the **observational clinical studies on the SARS-CoV-2 vaccine** in Belgium. These studies evaluate the immune response after vaccination against SARS-CoV-2 in healthy people who are part of: the active population or are living in a nursing and care home; cancer patients; dialysis and kidney transplant patients; bone marrow transplant patients; lung transplant patients and pregnant women. Two other studies evaluate the effect of a reduced dose of vaccine or a longer interval between vaccinations.



4. Vaccination safety

The detection and description (severity, time since vaccination, link to vaccination site or batch number) of **breakthrough infections** were set up via the LINK-VACC project, in support of the Federal Agency for Medicines and Health Products (AFPMS). An initial analysis was published in mid-2021.

Last year, the Vaccine Quality service developed and validated tests for the **quality control of the Pfizer/BioNTech mRNA vaccines and the Janssen vaccine**. The validation of the Curevac mRNA vaccine tests was stopped on account of the application for EMA registration being withdrawn.

The Biosafety and Biotechnology service studied the **possible adverse effects of COVID-19 vaccines on people and the environment** in support of the FAMHP.

5. Willingness to be vaccinated

The willingness of the general population to be vaccinated was assessed in the various **COVID-19 health surveys**. The eighth survey (October 2021) investigated, among other things, the attitude of the non-vaccinated population towards the vaccine, the reasons for refusing to be vaccinated and the perceived effectiveness of the vaccine.

We also organised the corona consultations, discussions between a 100 or so citizens and experts to formulate vaccination policy recommendations.

Because of their extensive involvement in the vaccination campaign, it was important to explore **doctors' knowledge of vaccination and attitudes towards it**. The results of the assessment of the position of doctors, conducted by the Journal du Médecin, the Sciensano Sentinel Physicians, the CHARMING study and a survey by the ULB, were compiled in a report earmarked for policy makers.

Surveillance

Sciensano also played a major role in collecting, processing and providing data on COVID-19 in 2021.

Our scientists were active in an ever broader range of surveillance activities essential for monitoring the epidemic and supporting policy.

COVID-19 data management and exchange

The [COVID-19 dashboard](#) continued to be the central public data platform for policy makers, healthcare professionals, the press and the general public, acknowledged (including abroad) for its clarity, user-friendliness and comprehensiveness. The platform continued to develop, in particular with data on vaccination (coverage) and variants. Raw data sets were made available to researchers and the procedure for requesting additional data was further developed, with due consideration for [GDPR guidelines \(COVID-19 data requests\)](#).

Sciensano was the central administrator for the collection, processing and provision of data related to COVID-19. The [Healthdata](#) service played a key role in coordinating various databases related to testing and contact tracing (manual and digital contact tracing, e.g. the Coronalert application). We also managed databases for surveillance in primary care, for hospitals/nursing and care homes, and in the context of vaccination.

At the European level, Sciensano joined the PHIRI ([Population Health Information Research Infrastructure](#)) project, which is aimed at **promoting the exchange of COVID-19 data and best practices between countries**.

At the end of 2021, we launched **BY-COVID** (Beyond-COVID), a three-year project aimed at **improving access, linking and exchange of (meta)data on SARS-CoV-2 and other infectious diseases** in the fields of medicine, public health and policy.

« Our scientists
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supporting policy »



Reports

Since the beginning of the crisis, Sciensano has been busy drawing up **epidemiological reports** and has published **several hundred daily and weekly epidemiological bulletins**, as well as **weekly reports** on the situation in nursing and care homes, hospitals and wastewater. Moreover, our scientists have published a **series of thematic reports on COVID-19**, related to mortality, vaccination coverage and impact of the vaccination campaign, COVID-19 surveillance in schools, vaccination among healthcare professionals and in nursing and care homes, as well as drug use.



Surveillance

Surveillance does not only take place at the **national level**, most data and analyses are also available for the different **regions** and, in some cases, at the level of the **municipalities**. As part of the basic surveillance and for epidemiological risk assessment, we analyse indicators such as **incidence**, **hospitalisations** and **mortality trends linked to COVID-19**. The existing mortality surveillance system, BE-MOMO, has been used to **analyse all-cause and COVID-19 mortality and to monitor excess mortality**.

We have published various reports:

- [surveillance of COVID-19 mortality in Belgium during the first and second wave](#),
- [excess mortality during the first and second wave of the COVID-19 epidemic in Belgium](#).

In collaboration with academics from the University of Hasselt and the University of Antwerp, our scientists have developed **short-term models**, including forecasts of the **expected number of hospitalisations**. The (rapid) spread of the Delta and Omicron variants has shown the importance of an efficient **molecular surveillance system** based on Whole Genome Sequencing (WGS). At the beginning of 2021, a **genome analysis platform** was set up and is closely monitoring the situation by means of **basic surveillance** (analysis of 5-10% of positive PCR tests) combined with active surveillance (people returning from a red zone, reinfections or breakthrough infections, etc.).

Within the framework of the **Health Emergency Preparedness and Response Authority (HERA)**, an initiative to improve infrastructure preparedness, Sciensano has obtained a budget to develop a **genomic surveillance platform in Belgium**.

Better access for all actors to harmonised molecular and genomic data and the central collection of additional microbiological and epidemiological information allow for faster and more efficient management of infectious disease outbreaks (not only COVID-19) at national and European level. The development and elaboration of this project was a good example of **cross-functional collaboration within Sciensano**, between the Epidemiology, Viral Diseases and Healthdata departments. Further opportunities within HERA will be explored in 2022.

Sciensano has closely followed the different aspects of testing and contact tracing, which has been a challenge given the many changes in strategy during the epidemic. We reported the number of tests or the positivity rate by test type, test indication, age group and region. In order to evaluate the success of the contact tracing system in rapidly identifying at-risk contacts, the number of contacts (high and low risk) of index cases, the number of persons contacted and the possible location and source of infection were kept up-to-date. Finally, the turnaround time of the different steps of the testing and contact tracing process was also monitored and reported to policy makers on a weekly basis.

We conducted surveillance at all levels of the **health sector**, as well as in specific **professional sectors and population groups**:

Frontline: building on the existing network of sentinel physicians (set up in 2006 for flu monitoring), we developed an application for monitoring the syndrome in GP practices. **The COVID-19 barometer 2.0 allows for quick and easy collection of data on suspected or confirmed COVID-19 viral syndrome, influenza or acute respiratory tract infections.** In addition, we continued to monitor GPs' workloads on a weekly basis.

Second line: via the **Clinical Hospital Surveillance** and the **Hospital Transport & Surge Capacity**, we **monitor developments in hospitals** through weekly reports and analysis of a detailed set of indicators for inpatients and intensive care patients, i.e. clinical data, immunisation status, length of stay and outcome.





Nursing and care homes were heavily affected during the first waves. In order to improve monitoring among this vulnerable population group, a detailed surveillance system was set up with weekly reports on the number of cases, mortality and the number of clusters or outbreaks in nursing homes. We also published a thematic report containing an epidemiological analysis of the **vaccination campaign in nursing and care homes**.

The situation among **children** and in **schools** (number of cases among pupils and staff, number of clusters and outbreaks) was closely monitored, in close cooperation with the education networks and the student support centres (CLB/PSE). We published specific reports with an analysis of COVID-19 in education in the first quarter of the 2020-2021 school year and on SARS-CoV-2 among children and adolescents aged 0-17 years in the 2020-2021 school year.

Finally, the impact of the epidemic on the **occupational sectors** was assessed on the basis of NSSO data. Various reports were published on the incidence of COVID-19 in the working population, by sector, for the periods 09/20-01/21 and 06/2021.

In order to monitor the development of **herd immunity** in the Belgian population during the epidemic, as well as the duration and quality of acquired immunity after infection or vaccination, the Immunological Response and Epidemiology services worked closely together to set up **different serosurveillance studies** (results in the COVID-19 dashboard). Serological tests were developed, validated and optimised to detect anti-SARS-CoV-2 antibodies in serum, saliva and breast milk.

The studies were set up in the following population groups:



Blood donors:
32 test periods and 28,000 tests in cooperation with the Red Cross/Rode Kruis.



Healthcare professionals in hospitals



Primary healthcare providers:
Prospective cohort study of 2,680 primary healthcare providers



Children and school staff:
Large study with 5 testing periods, 5,000 saliva tests among pupils and 22,00 tests among staff, in cooperation with KUL



Residents and staff of nursing and care homes



General population:
the SalivaHIS study examined the prevalence of anti-SARS-CoV-2 antibodies in the population aged 18 years and older, using saliva samples.

Ongoing surveillance is necessary due to the rapid decrease in the amount of antibodies produced after infection and/or vaccination and the emergence of new variants. From 2022 onwards, anti-Omicron antibodies will be measured in these studies.

The surveillance of SARS-CoV-2 in wastewater project is another example of the cross-cutting nature of Sciensano's activities, made possible by close cooperation between the Epidemiology-Infectious Diseases, Food Pathogens, Viral Diseases and Cross-sectional Activities in Applied Genomics services. The Belgian partners are the University of Antwerp, the University of Ghent, the University of Namur, E-BIOM and the Catholic University of Louvain. Sciensano was also an active partner at European level.



- In 2021, the project was further developed and covered 45% of the Belgian population at 42 treatment plants. This made it possible – independently of the testing strategy used – to **monitor the development of SARS-CoV-2 in the Belgian population**. A good correlation was found between the values in the wastewater (based on 3 alert indicators) and the incidence over 14 days.

- The wastewater surveillance was a **complementary tool in the assessment of the epidemiological situation** and was reported weekly in the epidemiological bulletin and on the dashboard.

- Variant monitoring will be launched shortly.

Legal and privacy aspects

Epidemiological surveillance, surveys and scientific studies have generated a **large amount of data**, for which **specific databases have been created**. Given the complexity of data management and the challenges related to data protection, our Data Protection Officers and lawyers continued to play a key role in 2021.

In particular, they were involved in conducting **Data Protection Impact Assessments** (manual and digital contact tracing), in **communication campaigns** for citizens on privacy and personal data protection (manual contact tracing, Coronalert, hospital monitoring), in drawing up the FAQ, in consulting with external partners on data processing and sharing, in drawing up **processing agreements and cooperation agreements** and in developing data sharing procedures with other scientific institutions.



Studies

Indirect and long-term consequences of the epidemic and the measures

In addition to the extensive surveillance, Sciensano has been heavily involved in studying the **indirect consequences of the epidemic and the measures implemented on the health and lifestyle of the population, mental well-being, the social inequalities and the long-term consequences of COVID-19.**

- Since the beginning of the epidemic, we have already conducted **eight COVID-19 health surveys HIS online**, including three in 2021. This year, we have surveyed, among other things, people's impressions when strict measures were still in place, **mental and social health, vaccination, the presence of diseases** that aggravate COVID-19, **frailty in the elderly, quality of life** and **health-related behavioural determinants**.
- The **huge impact on mental health** has become apparent as the epidemic has progressed. Sciensano has invested heavily in documenting this problem: we have integrated questions on mental well-being into existing surveys (COVID-HIS, Cocimpact or BE-Heroes) and launched the PSYCOV project, a **multidimensional surveillance of mental well-being and mental healthcare supply/demand**. The **POWER-TO-CARE** project and the international BE-HEROES study looked specifically at the **well-being of carers and community workers**.
- The **online survey on DRUG supply and use** examined the impact of the pandemic on drug use and the drug market, as well as the possible long-term consequences.

The COVIMPACT study was launched to monitor the **long-term effects of COVID-19 on physical, mental and social health for a period of 2 years (long COVID)**.

- The 3-year **HELICON** project is also aimed at determining the **indirect and long-term health effects of the COVID-19 crisis in Belgium**, with particular focus on **socio-economic patterns**.
- In cooperation with the HoGent, we carried out a qualitative survey, as part of the **KWAQUA** project, on the **underlying motives of the population to observe quarantine and isolation measures**.
- The **RESISTIRE** project, set up in collaboration with nine European partners, is investigating the **impact of COVID-19 policy on behavioural, social and economic inequalities in the 27 EU countries, Serbia, Turkey and the UK**. This new information will help prevent inequalities arising from COVID-19 policy and ensure better preparedness for future pandemic management.
- unCoVer**, a **functional network of 29 research institutes in 18 countries**, including **Sciensano**, has been formed to **collect data on the care of COVID-19 patients in Europe and beyond**. unCoVer is using this practical data to develop studies on patient characteristics, risk factors, treatment safety and effectiveness, as well as potential strategies against COVID-19 in practical cases.



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- In cooperation with partners in the Netherlands and Germany, we investigated the **impact of the COVID-19 epidemic in the Meuse-Rhine Euroregion (EMR)**: seroprevalence among inhabitants, documentation (of perception and compliance) of coronavirus control measures and cross-border mobility.

Mask safety

Masks remain a cornerstone of SARS-CoV-2 control. Since the beginning of the crisis, many different types of masks have come onto the market. Some contain biocides, such as silver ions or titanium dioxide, added for their antimicrobial action or as a dye. In order to investigate potential **adverse effects**, and in particular the **release and inhalation of nanoparticles during use**, we set up the **AgMask and TiO2Mask study projects**. The results will help policy makers when developing guidelines for the safe use of masks.

Ventilation and air quality

The importance of ventilation and good air quality in the control of SARS-CoV-2 and, by extension, all respiratory viruses has become increasingly evident as the epidemic has progressed. In collaboration with VITO, Sciensano set up the **AIRCO** project to **investigate ventilation and indoor air quality in nursing homes, schools, public transport and catering establishments**. The results of the study will contribute to the development of appropriate guidelines.

Genomic monitoring tool

In the past year, the TAG service (Transversal Activities in Applied Genomics) has continued to work on **improving the genomic surveillance tools (clinical and general)**:

- COVIPRIM** and COVIPRIM-VAR: **continuous monitoring of the performance of the methods used to detect SARS-CoV-2 in clinical samples** (RT-qPCR), based on WGS data, in the context of the emergence of new variants.

- COVIDDIVER** : development of a **method for monitoring the diversity of SARS-CoV-2 circulating in Belgium**. Wastewater samples would serve as an indirect indicator of the circulation of SARS-CoV-2 in the Belgian population.

- DIGICOVID** and DIGICOVID-VAR: development of a **digital PCR method for the detection and quantification of the SARS-CoV-2 genome and variants in human and environmental samples**.

These projects also made a key contribution to the wastewater monitoring project.





Service delivery and policy support

(Scientific) service delivery remained a key task of the Institute during the crisis: our scientists played a key role in the formulation of **scientific advice** and as members of the various **scientific and policy support committees**. The pressure remained high, between the timely delivery of independent scientific advice and the use of that advice in policy.

Scientific advice and guidance

Last year, Sciensano published a large number of (updated) scientific opinions and guidelines:

- [COVID-19 Factsheet](#)
- [Risk assessments](#) carried out by the **Risk Assessment Group (RAG)** in various areas: determination of threshold values for the corona barometer, Delta and Omicron variants, use of the CST and identification of countries at risk for variants of concern (VOC).
- [Weekly epidemiological risk analyses](#) by the RAG.
- [Scientific advice from the RAG](#) (other than risk assessments) on **testing strategy, measures for infected persons** and their **contacts, measures for children/schools** (wearing masks), **ventilation**, outbreaks in **hospitals**, use of **dogs** to detect COVID-19.
- [Sciensano scientific advice on the testing strategy or the wearing of masks in schools.](#)

● **Publication of guidelines** on the Sciensano website, the content of which is validated by the RMG or the Inter-Ministerial Conference (IMC) (and which cannot be modified by Sciensano).





Scientific committees

Sciensano has played a key role in scientific committees. Under the coordination of Sciensano, the **RAG (Risk Assessment Group)** became one of the main scientific advisory bodies in the context of COVID-19 in Belgium.

Policy support

In addition to being present in various scientific committees, Sciensano was very active on various **operational and policy support platforms**.

At federal level, we participated in (among others) the Federal Crisis Centre, the Corona Commission, the Interministerial (IMC) and Preparatory Conferences, the COFECO, the Risk Management Group (RMG), the Vaccination Task Force, the Testing Task Force, the GEMS, the Inter-federal Tracing and Testing Committee (CIF), the Hospital Transfer & Surge Capacity Committee and the Primary and Outpatient Care Surge Capacity Committee.

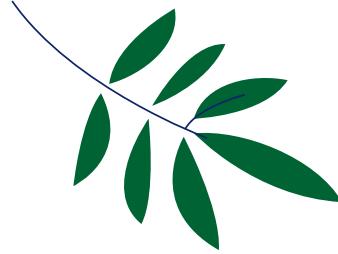
In 2021, we answered a total of **364 parliamentary questions** (289 oral and 75 written), causing a great deal of work for our staff, as written questions always have to be answered in both national languages.

Service delivery

Sciensano manages the central COVID-19 BIOBANQUE, a valuable collection of **samples for COVID-19 studies**, which scientists (from Sciensano and outside) can use to develop and validate new diagnostic tests or tests to determine immunological status, for example.

The system can store 100,000 samples for up to five years.

Sciensano's expertise has been in great demand for the **quality control of laboratories, diagnostic tests and vaccines**. We have overseen the accreditation and quality monitoring of laboratories for SARS-CoV-2 testing and external quality assessments for molecular testing for SARS-CoV-2 antibodies. In addition, we conducted external audits in more than 100 laboratories, including the eight laboratories of the federal COVID platform.



COVID-19 and animals

Since the beginning of the human SARS-CoV-2 pandemic, it is known that this virus can infect humans, but also certain animal species. Sciensano has been designated by the Federal Agency for the Safety of the Food Chain (FASFC) as **National Reference Library (NRL) for SARS-CoV-2 in animals**.

Initially, these were mainly reports of **infected cats** whose owners had caught COVID-19. Soon afterwards, however, it was shown that minks could also be infected with SARS-CoV-2. Since a number of **mink farms** were still active in Belgium and there was also a **risk of transmission to humans**, Sciensano was asked to test the mink on these farms. **No positive animals were detected during this surveillance.**

Collaboration was established with a **shelter** in Brussels to **test sick and injured wild animals** before releasing them into the wild. In 2021, samples from 9 weasels and 33 foxes were analysed and **all tested negative**.

Large mammals can also **be contaminated by humans**: for example, at the end of November 2021, the two **hippos** in Antwerp Zoo showed symptoms of the common cold. Samples were taken and, after analysis, revealed **contamination with the Delta variant**.

In addition to animal samples, we processed **24,000 human samples** in cooperation with a laboratory in Brussels.

In addition to our mission as NRL for SARS-CoV-2, we participated in the **Risk Assessment Group-Covid Animals**, a group that brings together academics, representatives of the FPS Public Health and representatives of the FASFC. The RAG-CA formulates and disseminates **recommendations for SARS-CoV-2 policy and surveillance in animals**, in order to **detect possible reservoirs in time**, and maintains close contacts with the **regions** for the monitoring of **wild animals**.

The main **outcomes** were an **assessment** of the **risk of transmission of SARS-CoV-2 to wildlife, communications to authorities and veterinarians** on the **risks** associated with the emergence of **new variants of concern in animals**, the **publication** of a **position on vaccination of animals against SARS-CoV-2** and **recommendations to encourage surveillance of domestic and wild animals**, particularly **deer**.



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Communication

Clear, transparent and targeted crisis communication is an essential pillar of crisis management. The role of Sciensano's Communication service in communicating to different target groups has been widely recognised. Last year, for example, the daily newspaper De Tijd was full of praise for our clear communication. The **very close interaction between our scientists and our communication officers** was a clear added value and a guarantee for scientifically sound crisis communication.

- We continued to be involved in defining the **communication strategy**, in support of the NCCN National Crisis Centre and the FPS.
- We organised weekly **press conferences**, together with the FPS Public Health and the Crisis Centre, to explain the figures or the results of the studies, as well as supporting the inter-federal spokespersons. Our experts played a leading role in explaining the science without the jargon in the form of **understandable messages**.
- We kept an eye on the need for **sign language interpreters**, with our communication staff also coaching (new) speakers for the press conferences in 2021.
- Thanks to the Crisis Centre's **media monitoring**, we had a good overview of the perceptions of the population or specific target groups such as healthcare professionals. This enabled us to provide additional explanations where necessary, taking into account the changing needs.

- Communication staff answered many **questions from journalists**, in cooperation with the scientists.
- We produced **FAQs and popularised scientific content**, answers and advice for other communication channels (www.info-coronavirus.be, contact centre, webcare via social networks, journalists, epidemiological reports).
- We have also paid great attention to improving the **visibility of our activities related to COVID-19**. In 2021, Sciensano was among the top 10 most searched terms related to the coronavirus. We were awarded the bronze medal in the ranking of the 100 organisations active in the field of healthcare on Twitter because, according to HealthBuzz.be, "Sciensano [...] excelled at spreading their message in the Belgian healthcare community on Twitter in 2021".
- And, perhaps less visibly, as this is not one of our key tasks or responsibilities, our reception and secretarial staff fielded several hundred **calls from citizens** about the Coronalert application or the Covid Safe Ticket last year.

**The Times described
Sciensano's scientific
communication as "top
quality"**





Non-COVID crises

Although COVID-19 undoubtedly had the greatest impact on society in general and on the functioning of Sciensano in particular, the Institute was also **active in monitoring other crises**: the **PFOS/PFAS pollution** in Flanders, the **floods** that caused enormous material and human damage in Wallonia, as well as the **avian flu** epidemic at the end of 2021.

Crisis management

With regard to **internal crisis management**, various changes were introduced in 2021, based on the experience gained during the first year of the crisis:

- Creation of a new **central crisis coordination & strategy function**, more directly linked to the Managing Director and the Governing Board. This central function provided a better overview of all crisis activities throughout the Institute and ensured better interaction between the scientific directorates and support services.
- **Mapping** and **central database** with all COVID-19 related projects and activities.
- Intermediate **internal COVID-19 review**.
- Resumption of weekly meetings of the **Sciensano COVID-19 crisis cell**.
- **"Easing of lockdown" working group** for implementation of the authorities' measures in the workplace.

Various surveys and assessments were carried out in 2020:

- assessment of the impact of the crisis on Sciensano's activities
- assessment of overtime/leave days in 2020
- feedback from the satisfaction survey - "Impact of the COVID-19 crisis" part
- feedback on psychosocial support by IDEWE.

On this basis, an internal **COVID-19 improvement plan** was developed for 2021, focusing on **4 areas, actions and timetables**:



crisis
coordination



human
resources



communication



assessment
of the crisis

Outlook 2022

The (few) certainties about SARS-CoV-2 and the management of the virus had to be constantly reviewed in 2021, in an increasingly sensitive social context. The arrival of the Omicron variant at the end of 2021, the prospect of the possible end of the pandemic and a possible endemic phase, the emergence of new variants, and a persistent degree of uncertainty will continue to challenge scientists and policy-makers in 2022. **The main certainty is that uncertainty will be with us for some time to come.**

In 2022, Sciensano wants to continue to be a key pillar in the management of the COVID-19 crisis and is committed to continuing extensive epidemiological surveillance and to continuing to support policy makers and healthcare professionals with independent and informed scientific advice, the development of studies in relevant areas and quality control.

Lessons need to be learned from the current crisis, in cooperation with policy makers and academics. The Corona Commission has taken the first initiative to develop a **multidisciplinary pandemic preparedness plan**, in which we want to play an active role.

A discussion will also be initiated on the strategic, scientific and political role of our Institute in future crises. In future preparations, the epidemiological surveillance strategy will have to be considered, with a greater focus on syndromic or sentinel surveillance which, in addition to infectious diseases, will have to pay greater attention to mental health and chronic diseases.



Sciensano has collected a **huge amount of data**, which has great potential for scientific studies. **A coherent data strategy, including open data, needs to be developed.**

Internally, we will collaborate even more at cross-sector level, inspired by various model projects such as wastewater surveillance or the various multidisciplinary activities related to the COVID-19 vaccination.

The integration of a **crisis element in our One Health projects**, most of which (antimicrobial resistance, foodborne pathogens or zoonoses) have an **epidemic potential**. As part of the European One Health Joint Programme (**OH EJP**), a crisis simulation exercise, coordinated by Sciensano, is on the cards for 2022.

Lessons will be learned from the internal management of the crisis, leading to a new integrated crisis plan and updated business continuity plans.

Addressing the **immense and ongoing impact of the crisis on our employees** and their **mental well-being** is and remains a **top priority**.





MORE INFORMATION

Consult the [full version](#)
of the 2021 activity report
or visit our website
www.sciensano.be.

Contact us at
info@sciensano.be.

Christian Léonard • T+32 2 642 51 11