

Nivel, Netherlands Institute for Health Services Research Self-evaluation 2016-2021



NIVEL
Kennis voor betere zorg

Table of contents

Summary	3
1 A short introduction to Nivel	5
2 Mission, goals and strategies for 2016-2021	8
2.1 To carry out high-quality research	9
2.2 To have a demonstrable impact upon society	10
2.3 To be a sustainable organisation	11
3 Evidence: key results	14
3.1 Research quality	14
3.2 Societal impact	16
3.3 To be a sustainable organisation	17
4 Our accomplishments over the past six years in the quality of research and relevance to society	20
4.1 Research quality	20
4.2 The impact upon society	24
4.3 Being a sustainable organisation	27
5 The strategy for the next six years	31
5.1 Continuity by maintaining our solid research base	31
5.2 Responding to the challenges that lay ahead	31

Summary

Our mission

Nivel's mission is to carry out high-quality health services research with a demonstrable impact upon society. The aim is to perform research on the edge of science, policy and practice to inform policymaking, and combine different perspectives, e.g. from patients, healthcare professionals and the healthcare system. Starting in 1965 as the scientific institute of the Dutch College of General Practitioners, Nivel gradually expanded its domain into primary and secondary care. Today, Nivel is one of the key players in the knowledge infrastructure of the Netherlands' healthcare system.

Looking back on major challenges

Looking back at the period of 2016-2021, two major challenges had a profound influence on Nivel. We started this period with a negative financial result in 2015, leading to a decrease in personnel. Targeted policies resulted in the return to a healthy financial situation for Nivel, followed by an increase in the number of employees. Secondly, from the beginning of 2020 the COVID-19 pandemic brought uncertainty, disruptions, and opportunities. Surprisingly quick, and with a high degree of flexibility from our people, solutions were found to collect data, conduct interviews, and hold meetings using online media. COVID-19 also proved an opportunity. We were able to provide rapid and valuable answers on the initial spread of COVID-19 infections, on how society reacted to the measures that were taken by the government and on how GPs and hospitals coped with these challenges. We also contributed to the scientific body of knowledge on COVID-19 with scientific publications, using our knowledge infrastructure in European collaboratives, and in national and international networks.



Our high-quality research

Nivel is an active partner in the academic community, with thirteen Special Chairs in seven Dutch and two foreign universities, with 40 dissertations based on Nivel research in the last 6 years, and with 27 researchers working on their theses by the end of 2021. We published more than 800 peer-reviewed scientific articles in international journals - of which 85% were in Q1 and Q2 journals - and have an active open science policy. We developed a tailor made training programme for our PhD students and postdoctoral researchers. Furthermore, Nivel has a unique research infrastructure in primary care and on the patient's perspective which is also used by a large number of university researchers. Nivel researchers engage in scientific discussions to add their health services research focus.



Our societal impact

Our research is well valued by our stakeholders from government, healthcare, professional and patient, care organisations. This impact is much more than just publishing results. Nivel researchers are increasingly part of the knowledge ecosystems that support decision-making and professionalism in healthcare. We respond to the need for information in a timely and accessible manner.



Our sustainable organisation

Nivel is a financially healthy organisation with an effective planning and control cycle and an effective human resource management policy. It has a mature system of quality control with a highly

professional manner of carrying out research. For many of our people, the main motivation to work at Nivel coincides directly with our mission – doing scientific research to contribute to society, to develop knowledge for better care for patients.

Our future

We face our future with confidence. We have developed a new research agenda for the next three years with even more focus on the combination of research perspectives and new methodologies to support our stakeholders, and together find solutions for societal problems. However, the future requires resilience to deal with possible new threats. The dependence upon project funding and the dependence of our unique research infrastructure on the Ministry of Health, Welfare and Sport, comes with a certain vulnerability. Also, there is increased competition from universities, departments of applied sciences, and consultancy organisations that are active in the Nivel domain. Nevertheless, we are convinced that we will continue to conduct high-quality health services research with demonstrable societal impact, based on our unique position and solid foundation.

1 A short introduction to Nivel

Nivel, the 'Netherlands Institute for Health Services Research', is an independent foundation which, by undertaking scientific research, contributes to the quality and effectiveness of healthcare, both in the Netherlands, as well as in Europe. Starting in 1965 as the scientific institute of the Dutch College of General Practitioners, Nivel gradually expanded its domain to all primary care and then secondary care. Today, Nivel's research covers the entire healthcare system, with a focus on somatic care. Nivel has 185 employees, of whom 116 are scientific staff. The scientific staff is organised in thirteen smaller research teams with experts in their specific fields. The research teams are clustered into three departments focusing on: 1) the perspective of patients, clients or citizens, 2) professionals and primary care, and 3) the organisation and system of healthcare. Nivel relies on an institutional subsidy from the Ministry of Health for the funding of several large research infrastructure. This covers around 45% of our annual budget and is negotiated every six years. The other 55% of our funding is based on grants from various stakeholders for specific projects.

Our mission

Nivel's mission statement can be summarized as: Research for better care. Nivel aims to inform policymaking and professional practice in healthcare to continuously improve healthcare for patients, support patients to participate in society, and contribute to a sustainable healthcare system. Nivel, as an independent research institute, has a unique role in the knowledge infrastructure of the Netherlands. A strength of Nivel is that it is very well equipped to translate issues relevant to society into scientific research questions, and to translate scientific knowledge into knowledge that can be used in society by policymakers, healthcare organisations, patient organisations and healthcare professionals. We connect the two worlds. Society challenges us to answer their questions. We, in turn, use scientific methods and theories to find right answers. The answers are broadly shared via our website, presentations, engagement in committees, public reports and scientific journals.

Health Services Research

Health Services Research (HSR) is a multidisciplinary field focusing on the delivery, quality, costs, and access to care from the perspective of various stakeholders. These include those of patients, clients and citizens, of the professionals and their organisations, and of the organisation and management of healthcare. This multidisciplinary and multi-perspective approach is essential to provide answers to the challenges facing healthcare because these challenges are not limited to the field of one discipline or one stakeholder. By publishing the results of our research in international scientific journals, we invite the research community to join us in proposing answers to these challenges.

Change

During the past six years, Nivel was a reliable research partner at the intersection of science, policy and practice. However, two major events have, indeed, had a profound influence on Nivel. Financial cutbacks, and a negative financial result in 2015, led to a decrease in personnel. Furthermore, from the beginning of 2020, the COVID-19 pandemic brought uncertainty and disruptions, but also opportunities. In the following chapters, we will show how Nivel has developed and dealt with these events.

Not a university department

As an independent foundation Nivel is not a university department. The roots of Nivel are found in its early years in a need of the society for general practitioners to access scientific support in their professional development. In a changing world, this history compels Nivel to reflect, continually, on our relevance to society. Being an independent foundation also means running a business, with its challenges and opportunities. We chose on a voluntary basis to use the Strategy Evaluation Protocol 2021-2027 (SEP) as a framework to reflect on our goals, strategies and results.

More about this document

In chapter 2 we describe our mission, goals, and strategies for the evaluation period 2016-2021. In chapter 3, we present selected key measures, and in chapter 4 the narrative in the light of our goals and strategies. In chapter 5 we present our strategy for the next six years.

Between the chapters 1-4, we present our three case studies:

- Citizen, patient, or client participation in research,
- Nivel COVID-19 research,
- When something goes wrong in healthcare.

Between chapters 4 and 5, we present a summary of three SWOT analyses.

Case study: Citizen and patient or client participation in research

Nivel has a long tradition of conducting health services research from the perspective of patients or clients and citizens. One of the first activities was the start of the Healthcare Consumer Panel in the 1980s. Later, other panels of people with chronic diseases or with physical and intellectual disabilities were realized. The aim of these panels is to investigate the perspective of patients or clients and citizens on healthcare issues and to provide this as input for policy decisions. These panels also generate data for many scientific publications.

About ten years ago, other methods of citizen involvement in research followed. Answering to the call of many patients' and clients' organisations under the slogan, 'nothing about us, without us', Nivel started to use and study new methodologies for citizen and patient or client participation in research. We illustrate this development with two examples, the citizen platform, and in-depth research on how members of the target group can participate in research.

The citizens' platform is a qualitative, policy-oriented method for exploring the opinions of citizens on difficult or abstract topics in healthcare. In such cases, a questionnaire or interview often yields limited relevant information. The method was based upon the 'Citizens' council'-approach of The National Institute for Health and Care Excellence (NICE). In a citizens' platform meeting, a mixed group of 20 to 30 people spend one to two days working on assignments and discussing issues relevant to the main topic. Before and during a citizens' platform, the participants receive relevant information on the subject at hand. During the meeting, they express their opinions and insights and engage in the discussion. One of the first examples concerned citizens' views on the Health Inspectorate (2017). For many people, the Inspectorate is only vaguely familiar organisation. For the Inspectorate, on the other hand, it is important to understand citizens' expectations of its role. The one-day programme alternated between short pieces of information about the work and practice of the Inspectorate and discussions between the participants with researchers and inspectors. One of the suggestions of the citizens involved was to make the Inspectorate's assessment frameworks public, and to involve citizens in this publicity. Since 2017, Nivel has used this method for many topics in healthcare.

In the past decade, Nivel performed many studies on patient and client involvement in research. In 2021, Aukelien Scheffelaar won the Netherlands School of Public Health and Care Research (CaRe) Award 2021 for the best dissertation of that year from this research school. The aim of this study was to develop tools to visualize and improve the care relationships from the client's perspective. The research focused on three client groups in long-term care: people with an intellectual disability, people with a mental health problem, and frail elderly. Because of their dependence on care, it is not always easy for these clients to tell care professionals what they find less pleasant or what wishes they have. By giving clients an active role as co-researchers in this study, relevant and usable tools were developed to include clients' perspective on the quality of care better. Recently, Femke van Schelven defended her dissertation entitled, 'Would you work with me?' on the added value of youth participation in research. Her studies focused on both the process and the impact of involving young people with a chronic illness in studies on their participation. This study won the Agis/Bert Huiskamprijns. Finally, Hille Vos wrote a thesis on Advance Care Planning in palliative care for people with intellectual disabilities, with people with an intellectual disability as participants. This thesis received the CaRe award 2022. The thesis was based on a Netherlands Organisation for Health Research and Development (ZonMw) project that received a 'ZonMw pearl' award.

2 Mission, goals and strategies for 2016-2021

The mission of Nivel is to carry out high-quality health services research which has a demonstrable impact upon society. We want our research to be of high quality, to support the continuous improvement of health and social care for patients, to support participation of patients in society, and to contribute to the sustainability of the healthcare system as a whole. To conduct our research Nivel needs to be a sustainable organisation itself. In this chapter, we describe our mission, our core values, and the strategies we applied to accomplish this mission in the period 2016-2021.

The two components of our mission are intertwined. The knowledge and insights from Nivel research are used to support decisions in, and about, healthcare. These decisions, in turn, have an impact upon people. It is therefore essential that the knowledge and insights are founded in good research, making full use of scientific methods. To ensure the uptake of scientific knowledge and insights from our research by decision-makers, timing and alignment with the relevant questions asked by those decision-makers is vital.

We defined four core values for our work:

- Relevance for society,
- Scientific reliability,
- Connecting science, policy and practice,
- Independence but involvement.

Feedback from the previous assessment committee in 2016

Besides a very positive evaluation, the previous assessment committee challenged Nivel to communicate the mission and its societal relevance more clearly. It was also suggested to focus our research more sharply. The committee recommended the continuation of the subsidy of the Ministry of Health while diversifying the sources of funding. The committee suggested to make better use of the diversity of skills and expertise of the staff. Young researchers should be encouraged to participate in strategic discussions of the institute. Finally, Nivel should develop and publish articles about new methods for health services research. We used the recommendations to improve and strengthen Nivel.

Continuity and change

We focused on combining both continuity and incremental change. Continuity contributes to the reliability of our organisation ensuring external parties are willing to commit to Nivel for the long term and that ambitious employees see working at Nivel as an opportunity to build a successful career. But, in addition, change is also necessary in order to remain relevant in the future, for society, for science, as well as for employees. This means that we employ a combination of short- and long-term strategies.

2.1 To carry out high-quality research

For the period 2016-2021, we set out three goals to enable us to carry out high-quality research:

- To be an active and respected partner in the academic community.
- To invest in our people to achieve scientific quality and relevance.
- To invest in our research infrastructure and in the innovation of our methods.

2.1.1 To be an active and respected partner in the academic community

We employed multiple strategies to achieve our goal.

We aimed to publish our results in high-quality open access scientific journals as these publications will add, predominantly, to the development of scientific theories and insights.

Nivel wants to be well embedded within the scientific community. As part of a long-term strategy, several Nivel staff occupy special chairs at several Universities. These Special Chairs enable Nivel employees to act as a 'Promotor' of PhD students who write their dissertation on the basis of Nivel research. Training our PhD students promotes collaboration with universities and supports Nivel in translating issues relevant to society into scientific research questions. Nivel aims to participate in scientific consortia since more and more relevant research is done in these large groups. Nivel also participates in the national research school CaRe (Netherlands School of Public Health and Care Research).

The sharing of knowledge is another way of being embedded in the scientific community.

Traditionally, Nivel has an open science policy, as written in our by-laws. As an independent research institute, we are convinced that our knowledge and results should be equally accessible to everyone.

2.1.2 Investing in our people to achieve scientific quality and relevance

In order to achieve scientific quality and relevance, it is essential to invest in an academic culture, in our people, and in their expertise.

Working at Nivel means working in a professional organisation with sufficient support staff and where the drive to contribute to better healthcare through high-quality research is shared. Nivel offers training programmes for all employees on many topics. A key element in ensuring the quality of our research and sustaining our academic culture is our internal peer review meeting twice a week. Research results are not published before an internal peer review has taken place. The review meetings focus on the scientific quality of our articles, reports and research proposals. Every document is discussed and conclusions on the quality are summarized by the chairperson. Conclusions may include compliments, suggestions for improvement and, in rare cases, binding conclusions regarding required changes. These meetings are obligatory for all researchers and are conducted on the basis of rotating participation. All researchers, irrespective of their experience, are asked to review the research products. As such, the meetings form an important educational element for junior researchers and respect a democratic element in research that is driven by intellectual contributions rather than a hierarchical position.

For us, an academic culture means that employees can do their job in a safe, proper, and scientifically sound way. We have developed an elaborate and well-integrated quality system containing our standard procedures and work instructions for, among other things, data collection and management, and proper archiving. Periodically, we carry out an audit entitled a 'systematic assurance of statistical analyses', in which a random sample of publications is re-analysed.

Meeting the scientific standards is also grounded by Nivel's explicit adherence to the Netherlands Code of Conduct for Research Integrity and its early affiliation to the National Board for Research Integrity (LOWI). In addition, Nivel participates in COREON (Committee on Regulation of Health Research) and is therefore bound by the Code of Conduct for Health Research. The quality manual and the Code of Conduct are standard components during the introduction of new employees. It is also important that individuals never work on projects alone but always work in teams. Also, Nivel has procedures for reporting incidents, a committee on scientific integrity and a confidential advisor.

2.1.3 To invest in our research infrastructure and in the innovation of our methodologies

The Nivel Primary Care Database (NPCD), the panels of healthcare users and providers, the professions registry, and the Nivel communications database ensure we have a robust research infrastructure. These are important resources for scientific research and an important strategic asset to maintain and to cherish.

Innovation in research methods was stimulated by earmarked budget for innovative initiatives from employees.

2.2 To have a demonstrable impact upon society

To have a demonstrable impact upon society, we set out three strategic goals for 2016-2021:

- To respond to the issues that matter in healthcare.
- To be a key player in the network of stakeholders in healthcare by contributing with research that is properly aligned with challenges these stakeholders face.
- To improve our communications strategy in order to be more visible for our stakeholders.

2.2.1 To respond to the issues that matter in healthcare

Healthcare is complex and the questions that arise from it are diverse. The perspectives from which these questions can be examined are also diverse. Nivel research teams have specific expertise, but all 13 teams together align with this diversity. Nivel's strategy is to combine different perspectives in its research, that of the patients, the professionals, their organisations, and from the organisation of healthcare. Our research infrastructure allows us to respond with reliable results when needed.

2.2.2 To be a key player in the network of healthcare stakeholders

One of the core values of Nivel is being independent while involved. An important asset of Nivel is its independent position in the Dutch knowledge infrastructure. We wanted to contribute to a situation where actors in healthcare share their thoughts, using a reliable knowledge base that is accessible to everyone, and that is accepted by everyone. And this independence of Nivel does not imply that we are not involved. The concepts of independence and involvement have been combined intentionally in one core value. Nivel's involvement with the people and processes in healthcare is essential in order to gain insight into the relevant questions, and for researching those questions in such a way that the results can be used in practice.

Steps have been taken to play a more active role in undertaking research to support the European Commission in the development of future policies and research. Projects respond to a request for a service that is identified by the European Commission's directorate general for health DG Santé, and its European Health and Digital Executive Agency (HaDEA). They are financed through a non-

competitive single framework contract. This will make Nivel better known as a relevant research partner in the EU health domain.

2.2.3 To improve our communication in order to be more visible for our stakeholders

In the first years of this evaluation period we held intensive discussions with staff about how to increase the visibility of societal relevance. These discussions were fuelled by the advice of an external communications agency. This led to a range of initiatives such as a more emphatic communication strategy, an explicit mission statement in our logo, more attention to a consistent house style, and a new design for our website. It also led to innovations such as the development of new ways of communicating our research outcomes through infographics, Nivel Connect sessions, and webinars.

Parallel to this, we showed that we combine three perspectives in our research, that of the patient or citizen, the professional and their organisations, and the organisation of care and healthcare system. These were good first steps. We took this further in 2021, motivated by our experiences with the challenges posed by the COVID-19 pandemic. We identified four societal challenges to focus on in our new research agenda.

2.3 To be a sustainable organisation

To achieve our strategic goals, it is necessary that the Nivel organisation is well-organised and sustainable. This provides a continuous challenge. Sustainability is a financial and organisational issue, but it is more than that. Nivel can only be sustainable if the people who make up Nivel feel that it is a good place to work, an inclusive community where people are valued and talents can flourish. Also, a vibrant system of quality control is essential to assure the highest standards for our research.

We set out three strategic goals in order to support the sustainability of our organisation:

- To strengthen the solidity and sustainability of our financial base
- To improve, continuously, the Nivel organisation

To anchor our system of quality control within our organisation and to make it relevant for everyone's day to day work.

2.3.1 To strengthen the solidity and sustainability of our financial base

We aimed to increase and diversify Nivel's income in response to the financial challenges faced at the beginning of this period. We explored the possibilities of developing new products based on our research and expertise. We later set a financial target of 10% of our turnover to be achieved from international research projects. In addition to this, we increased the overhead tariff covering support costs, we set about increasing the awareness of costs among the Nivel staff, and we developed a system to provide timely steering information for management.

2.3.2 To improve, continuously, the Nivel organisation

Several actions were undertaken to improve the Nivel organisation in the areas of human resources management, and team building. Nivel conducts an Employee Monitor every three years to monitor these policies.

The 2016 Employee Monitor revealed a high level of work pressure and job insecurity, especially among researchers. These signals lead to increased efforts to make Nivel a better place to work. On the individual level, we invested in extra training facilities and sought

ways to provide more job security and explain our policy better. On the level of research teams, courses on project management and negotiating skills were organised, in order to create a better financial and management context for researchers working on projects. At the departmental level, a budget was made available that could be used to solve temporary problems. Also, our official salary grid was expanded in recognition of the importance of Nivel professionals working on the Nivel research infrastructure.

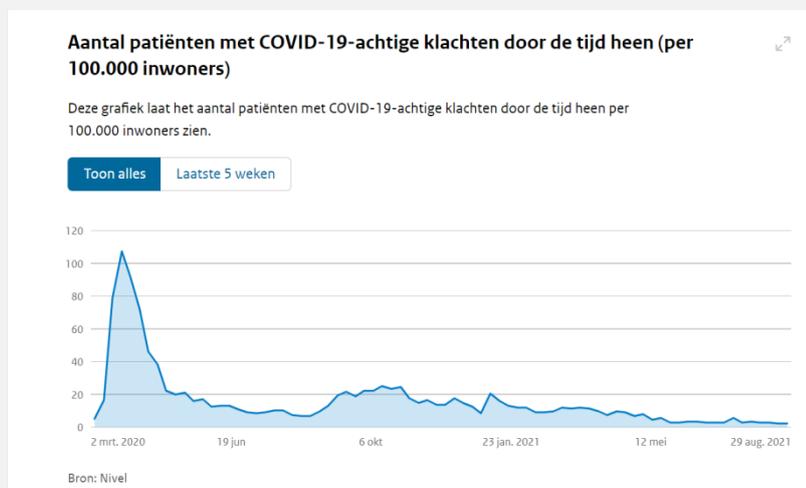
2.3.3 To anchor our system of quality control within our organisation so it is relevant for everyone's day to day work

Nivel's research quality assurance is part of the whole system of quality control started in 1997. In a four-year cycle, all elements of the system are reviewed and updated, based on internal and external audits. The system is laid down in a quality hand book with subsequent procedures and instructions. These relate to all aspects of our research process including the support activities and the process of transferring knowledge. The quality control working group maintains these, familiarizes new employees with our system of quality control, and has a four-yearly audit schedule to harmonize the system with our daily work. This system is audited by an external auditor based on ISO 9001 every year.

Case study: Nivel COVID-19 research

The first reports on the coronavirus came from China in late 2019. On 27 February, 2020, the first patient in the Netherlands tested positive. In early February 2020, at the request of the National Institute for Public Health and the Environment (RIVM) Nivel started preparing for coronavirus monitoring. From 2 March onwards, this monitoring was reported every week, both on the basis of symptoms and of clinically confirmed cases. These figures were published almost immediately on the national Coronavirus Dashboard. In late March, Nivel reported for the first time on the population's reaction to the corona measures and their need for care and support, and then in late April on the impact upon primary care.

Nivel reported COVID-19 cases on the Dutch Corona Dashboard



After the first corona wave, the testing capacity of the Municipal Health Services (GGD) in the Netherlands was scaled up and monitoring was taken over by them. The focus of Nivel research then shifted to more in-depth research. Nivel studies focused on the impact of COVID-19 on regular healthcare and care avoidance, on the influence on other viral infections such as influenza and Respiratory syncytial virus (RSV) and on the long-term effects of COVID (Long COVID). Furthermore, both the opinions and behaviour of the general population, as well as the specific situation and needs of vulnerable groups, were studied. This research generated a solid information base for policy. In the period 2020-2021, Nivel published 146 news items and 25 international scientific articles about our research on COVID-19.

We are especially proud that we were able to provide important information very fast to support decisions taken in the initial phase of the pandemic. We were able to do this thanks to our broad research infrastructure and our broad expertise. For example, we were able to use the existing methodology for the surveillance of influenza, the collaboration that existed with the RIVM, and our knowledge of disease coding in primary care to monitor the development of the coronavirus very quickly. We were able to use our Health Care Consumer Panel and our knowledge of survey research to monitor the experiences of citizens. Our registration of professions and knowledge of the organisation of general practice (GP) care enabled us to respond adequately to a request from the Dutch Healthcare Authority (NZA) to provide insight into the consequences for GP care in the Netherlands. Ongoing research on patient safety shifted its focus to lessons learned in hospitals and experiences of nurses.

3 Evidence: key results

In this chapter, we present key results over the years 2016-2021.

3.1 Research quality

For the monitoring and evaluation of the quality of our research, we have a set of indicators looking at our scientific output. In Chapter 4, more qualitative data are added to the figures in this chapter. Table 1 shows our extensive scientific output, with its increasing share of open access publications. Table 1 also shows a decline of the number of publications in the second half of the evaluation period. In our policy we emphasised more the publication in high-quality journals on one hand and our societal focus expressed in web-publications and factsheets on the other hand. The latter support faster dissemination of relevant knowledge to our stakeholders. This was very important during the pandemic. Graph 1 confirms our strategy to publish primarily in Q1 and Q2 journals. In Text 1, the picture is completed by providing information on the number of Nivel dissertations and on our network.

Table 1 Scientific production (2016-2021)

	2016	2017	2018	2019	2020	2021	Total
Articles NL	33	28	19	11	12	6	109
Articles	181	187	158	157	148	122	953
- those which have an impact factor	159	160	146	118	120	108	811
- those which are in open access journals	83(46%)	110(59%)	101(64%)	113(72%)	109(74%)	93(76%)	609(64%)
Scientific books/-chapters	4	1	1	0	1	1	8
Inaugural lectures	1			2		1	4
Nivel dissertations	7	6	10	6	9	2	40
Total	226	222	188	176	170	132	1114
Advanced access	0	0	0	0	3	14	17

Graph 1 Scientific publications in Q1, Q2, Q3 and Q4 journals (2016-2021)

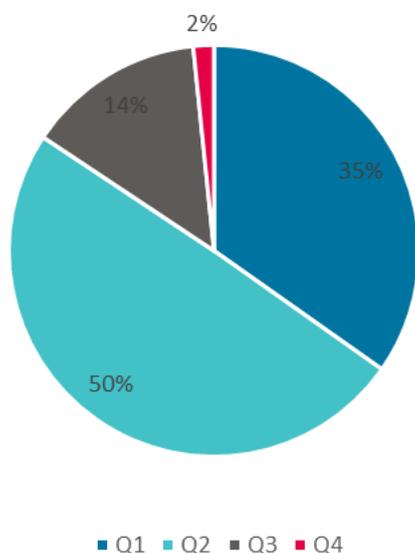


Table 2 Scientific knowledge dissemination/presentations (2016-2021)

	2016	2017	2018	2019	2020	2021	Total
Presentations	59	57	48	54	14	52	284
Key Notes	12	8	14	10	1	3	48
Abstract/Poster (published)	35	33	16	1	0	3	88

Text 1: Scientific involvement (2016-2021)

- In addition to the 40 dissertations based on Nivel research, 44 dissertations were published with a Nivel researcher as ‘Promotor’ or ‘Co-promotor’.
- The success rate of our scientific proposals was around 30%.
- Nivel is firmly placed within the scientific community through its thirteen Special Chairs occupied by Nivel staff.
- Nivel collaborates in many national and international consortia: structurally (the National Institute for Public Health or Statics Netherlands), thematically (the topic of pharmacovigilance or openness in healthcare), or international (quality improvement of European reference Networks, on Long COVID or on vaccine effectiveness).
- Nivel participated in 24 NWA calls, the Dutch Research Agenda of the Dutch Research Council.
- Every year more than 50 requests to use data from our primary care database are honoured.
- In 2020 and 2021, 25 Covid-19 related scientific papers were published.

3.2 Societal impact

In Chapter Four, more qualitative data are added to the figures in this chapter. Table 3 shows that Nivel also has an extensive output concerning healthcare professionals and policymakers. In particular, the number of web publications, fact sheets, and internet reports in 2020 is notably high, which is explained by our national function in monitoring the effects of COVID-19 on our society. Text 2 gives examples of Nivel networks, enabling us to be actively involved in society. Table 5 provides insight into the role of our website in disseminating our research findings.

Table 3 Products geared towards social issues and their knowledge dissemination (2016-2021)

	2016	2017	2018	2019	2020	2021	Total
Articles	23	23	22	14	12	10	104
Books/ Chapters	23	14	3	12	7	2	61
Reports	58	41	55	65	56	52	327
Web publications/ Fact sheets/ Internet reports	91	91	94	80	253	113	722
Infographics	5	13	32	15	7	16	88
Presentations	80	54	46	46	8	15	249

Table 4 Societal engagement via lectures, committees and board positions of Nivel staff

	2016	2017	2018	2019	2020	2021	Total
Guest Lecture professional education	6	2	2	2	4	6	22
Committees	70	62	53	49	60	63	
Board positions	14	19	24	22	22	22	

Text 2 Involvement in society

Examples of partnerships concerned with relevant societal questions:

- Since 2020 Nivel is a partner in the programme 'learning from data in Nursing Homes', where, together with University Network Elderly Care and the Association of Nursing Home Physicians, a methodology is being developed to make care data, recorded in geriatric medicine, useful for research and policy making.
- Together with the Zorginstituut Nederland (National Health Care Institute), Nivel founded an academic workshop to contribute to more appropriate care through research and, especially, live data.
- Nivel collaborates with RIVM (National Institute for Public Health and the Environment) in monitoring influenza and other infectious diseases, including COVID-19.

- With the Patient Safety Monitor, Nivel and Dutch hospitals work on increasing the capacity to learn from adverse events to improve patient safety.
- In the network OPEN in care, Nivel, together with participants from around twenty hospitals, investigated better ways of reacting to sentinel events in patient care.
- Together with the Capacity Agency, Nivel developed an internationally recognized planning model for determining the necessary influx in medical training.
- In the Health Literacy Alliance, Nivel is contributing to raising awareness of the importance of taking account of people with limited health literacy.
- For the Commission on Human Rights, Nivel monitors developments in the participation of people with disabilities in the National Panel (for the) Chronically Ill and Disabled People.
- With the Transparency Monitor, Nivel offers a mirror to the field, and policy on, the developments in transparency in Dutch healthcare.
- Together with Lareb (Netherlands pharmacovigilance centre) Nivel started a project to gain rapid insight into the effect and side effects of new medicines that have been permitted onto the market.
- Together with the GGD GHOR (The Netherlands association for public health and safety in the Netherlands), Nivel is researching and developing how best to respond to local and national disasters
- With the National Dementia Monitor, Nivel, together with Alzheimer Nederland, provided insight into the experiences of informal carers of people with dementia.

Table 5 Use of Nivel's website

	Page views	PDF downloads
2016	687.729	N/A
2017	825.530	38.160
2018	910.217	31.321
2019	962.398	55.883
2020	1.428.126	100.891
2021	1.251.032	76.757

3.3 To be a sustainable organisation

To monitor the sustainability of our organisation, we employ a set of annual indicators on financial stability and human resources. In addition, indicators on the satisfaction of our staff with their work and their working environment are looked at every three years. In Chapter Four, more qualitative data are added to the figures in this chapter. Table 6 demonstrates the various sources of income, including the subsidy from the Ministry of Health. We were able to reverse a negative financial results of 2015 to a more balanced result. Table 7 shows the growth of Nivel in the second half of this evaluation period.

Table 6 Financial resources

	2016	2017	2018	2019	2020	2021
	€	€	€	€	€	€
MoH subsidy	5.710.275	5.770.519	5.392.020	6.080.030	6.384.723	7.156.422
Scientific Research grants	2.170.795	2.780.415	2.219.107	1.693.234	1.498.791	1.608.179
Subsidies and contracts	4.029.246	3.147.349	3.902.596	3.892.498	4.276.837	5.275.756
International	1.201.600	602.451	614.450	778.725	1.458.509	1.548.169
<i>Correction transfers to third parties</i>	-855.739	-940.377				
Other income	855.739	952.664	726.483	262.594	152.842	204.305
Total funding	13.111.916	12.313.021	12.854.656	12.707.081	13.770.702	15.792.831

Table 7 Nivel staff

	2016	2017	2018	2019	2020	2021
Scientific management	4	4	4	4	4	4
Programme leaders	11	10	10	11	11	11
Senior researchers	24	25	26	25	26	28
Researchers > 6 years work experience	28	19	25	24	20	27
Researchers =< 6 years work experience	21	19	22	27	44	46
Total research staff	88	77	87	91	105	116
Research support staff	34	34	31	35	39	41
Knowledge centre	3	3	3	3	4	4
Total research support staff	37	37	34	38	43	45
Non-scientific management	1	0	1	1	1	1
Management support	2	2	2	2	3	4
Other support staff	15	15	16	16	17	19
Total staff	146	131	140	148	169	185
Share of scientific staff	62%	60%	64%	63%	64%	65%

Case study: When something goes wrong in healthcare

In 2007, the first monitor of healthcare-related harm in Dutch hospitals was published. The fifth monitor was completed at the end of 2021 and was published in 2022. Every four years, Amsterdam University Medical Centre and Nivel use these monitors to measure the occurrence of healthcare-related harm and serious adverse events using an internationally comparable method. These monitors feed the agenda of the improvement programmes of Dutch hospitals and subsequently form the 'reality check' of these programmes. This research, and the improvement programmes, follow a national PDCA, or Plan, Do, Check, Act cycle on patient safety in hospitals. The results of this research are published in the international literature and are part of several PhD thesis.

In order to be able to carry out this research, a high degree of trust is needed in how Nivel deals with this critical information. Hospitals must have the confidence that this research will be carried out in a reliable and valid manner. At the same time, the importance of this monitor is broader than that of individual hospitals. The survey is therefore supervised by a supervisory committee that include the professional organisations of doctors and nurses, the association of hospitals and academic hospitals, and the Inspectorate and Patient Federation.

The monitoring on patient safety is constantly evolving. For example, previous monitors paid particular attention to the safety of the use of medical devices and to the culture within different medical departments. The latest monitor paid extra attention to safety in outpatient focus clinics. In this way, reports are not only drawn up on the incidence of care-related harm, but also areas are identified where specific improvements can be carried out. The research received two awards over the years.

In addition to this monitor, Nivel has a line of research that focuses on finding an adequate response after something has gone wrong in healthcare. The perspective of patients and professionals involved is central to this. Various procedures have been developed to support patients in situations where a clinical encounter has gone wrong. These include complaints and claims procedures. Disciplinary law also offers a procedure for calling a doctor to account. For some time now, research, including that by Nivel, has shown that these types of procedures do not really help patients. For doctors, a disciplinary procedure always has a major negative impact.

This insight prompted the start of a learning network: 'Open in healthcare'. The initiative for this learning network was taken by lawyers, working in the field of liability law and health law, and by Nivel. The network consists of representatives from 20 hospitals, ranging from quality officers to calamity investigators and to complaints officers. From the beginning of 2015, regular network meetings were organised in which a form of action research was used to search for barriers preventing an open response to incidents and for solutions to deal with them better. Possible solutions were tried out by the participants in their daily practice and experiences were then shared with each other. Based on these experiences and additional research, various knowledge products were created and made available to be used in practice, such as a method for sharing an accident report with the patients involved or their families. The learning network thus functioned as a practical laboratory for non-procedural responses to situations in which a clinical encounter went wrong. A PhD thesis based on the experiences in this network will be defended by the end of 2022.

4 Our accomplishments over the past six years in the quality of research and relevance to society

In this chapter, we look back on the last six years. In a narrative, we reflect on the realization of our mission, on our scientific and societal impact, and on the resilience of our organisation.

4.1 Research quality

In Chapter 2, we laid out our strategy to achieve high-quality and societal relevance in our scientific research during 2016-2021. We described our goals. In this chapter, we will discuss what we have achieved for each of these goals.

4.1.1 Being an active and respected partner in the academic community, on a national and international level

Our scientific output

In the first half of the evaluation period, we maintained a stable level of scientific articles (Table 1). This level declined in the second half, because of our focus on societal publications during the pandemic. Earlier, we referred to the challenges at the beginning of this evaluation period. These were predominantly financial, but in turn this led to a reduction in the size of our organisation (Table 7). This reduction also had consequences for our scientific output which were not felt immediately. In the first full year of the pandemic (2020), we decided to focus on answering our government's request to step in and report on the development of the pandemic. The government needed to understand how the measures were being received by the general public (see case study COVID-19). We also needed to focus on the continuity of our ongoing projects, managing the difficulties that arose in undertaking these projects because of the pandemic. We expect that the increased size of our institute and the return to normal after the COVID-19 pandemic will lead to an increase in our scientific output in the near future, but, the aim is not to maximise numbers, but to balance scientific and societal impact equally.

With regard to our strategy, 85% of our international publications have been published in a Q1 and Q2 peer-reviewed scientific.

Examples of Nivel authors who published in high impact journals

Joling, K.J., Janssen, O., Francke, A.L., Verweij, R.A., Lissenberg-Witte, B.I., Visser, P.J., Hout, H.P.J. van. Time from diagnosis to institutionalization and death in people with dementia. *Alzheimer's & Dementia*: 2020, 10 p. IF: 17.1

Giles-Vernick, T., Kutalek, R., Napier, D., Kaawa-Mafigiri, D., Dückers, M., Paget, J., Masud Ahmed, S., Yeong Cheah, P., Desclaux, A., Vries, D. de, Hardon, A., MacGregor, H., Pell, C., Rashid, S.F., Rodyna, R., Schultsz, C., Sow, K., Wilkinson, A. A new social sciences network for infectious threats. *Lancet Infectious Diseases* 2019, 19(5), 461-463. IF: 27.5

Borlée, F., Yzermans, C.J., Aalders, B., Rooijackers, J., Krop, E., Maassen, C.B.M., Schellevis, F., Brunekreef, B., Heederik, D., Smit, L.A.M. Air pollution from livestock farms is associated with airway obstruction in neighboring residents. *American Journal of Respiratory and Critical Care Medicine*: 2017, 196(9), 1152-1161. IF: 13.2

Merten, H., Galen, L.S. van, Wagner, C. Safe handover. *British Medical Journal*: 2017(359) IF: 17.2

The output in terms of scientific presentations seems to have suffered less from the decline in personnel. We only see a dip in 2020, and a return to the old level in 2021 (Table 2). Also, with the exception of the involvement in dissertations in the second half of the evaluation period, other indicators are less affected by the reduction in the size of our organisation. The success rate for achieving grants to fund scientific research proposals was 33% in 2021, and 24% in 2020. In the last six years, 40 Nivel dissertations were published, and in addition to this, 44 dissertations were published in which a Nivel researcher acted as a 'Promotor' or 'Co-promotor'. We are proud that among others a Nivel dissertation won the CaRe (Netherlands School of Public Health and Care Research) dissertation prize in three of the six years – and again in 2022.

Being a part of the scientific community, recognised for the quality of our scientific research

Nivel is a typical networking organisation, maintaining active links with universities in The Netherlands and Europe. Nivel is fully involved in the scientific community through its thirteen Special Chairs occupied by Nivel staff, by participation in scientific consortia, and participation in the national research school CaRe. In recent years the Dutch Research Agenda (NWA) was launched by the Dutch Council, inviting large-scale consortia to apply for grants. Unfortunately, Nivel was excluded from applying to this high-profile research agenda as principal investigator as this was only awarded to university research groups. Nevertheless, Nivel researchers participated in 24 NWA proposals, demonstrating the commitment and attractiveness of Nivel research to the scientific community.

On an international level, Nivel participated, and still participates, in various consortia and networks. Examples include, among others, the I-Move consortium, comprising 29 partners from across 15 different European Member States, who aim to measure the effectiveness of influenza vaccine. Furthermore, Nivel is also a member of at least 20 international associations who are active in health services research. In some cases, Nivel acts as chair of the associations (e.g. ESPACOMP - International Society for Medication Adherence) and/or hosts the association (e.g. EFPC -European Forum for Primary Care). Also, some Nivel staff have part-time professorships at European Universities (Finland and Norway). Through these international channels, Nivel increases its impact upon science and society, reaching results that go well beyond the Dutch borders.

A concrete example of how taking part in international consortia can lead to significant scientific output is the Sonar Global network. Sonar Global is a network of 15 international partners, including those from Africa and Asia, who work together to strengthen the participation of the social sciences in the prevention and response to infectious threats. Since the start of the network in 2020, these joint efforts have led to the publication of five articles in peer-reviewed journals.

Sharing our knowledge: open science

For decades, Nivel has a self-imposed obligation to publish all its results. Through this principle, we have become part of the open science movement. Our open science policy consists of the following elements:

- All our publications can be found on our website. These data are stored in compliance with the conditions for inclusion in NARCIS¹, and are harvested into its repository of research.
- We publish, increasingly, in open access journals. In 2016, the percentage of publications in open access journals was 46%, rising to 76% in 2021 (Table 1).
- We share the data in our databases, taking into account the requirements of privacy and good governance. We answered, on average, more than 50 requests for data from our primary care data base each year. The last two years have seen a steep rise to 92 and 72 requests, respectively.
- We are part of a community that develops governance strategies for sharing data in healthcare. Nivel plays a pioneering role in this with one of its research teams specifically focusing on the governance of data sharing in healthcare.

4.1.2 Investing in the competences of our people

Providing training

Tailored training options are available for all employees. Moreover, Nivel offers a training programme for junior researchers (Talent development programme – TOP). This includes courses in basic skills for researchers, and personal development. Some of the courses are offered by Nivel itself, others are offered through our contacts with the various universities or they are designed for us by other parties. For junior researchers undertaking a PhD, these courses form the basis of their doctorate training. Some junior researchers may choose not to pursue a PhD but still make full use of the training Nivel offers. As a result, they enter the labour market as better skilled researchers than when they entered Nivel. In case of Post-doc researchers, we learned that they could benefit from training in the Nivel context. For this group a tailored post-training programme was developed, with courses including networking, proposal writing, leadership, and time management. Finally, travel grants have been made available to support staff visiting other research groups abroad. Nivel also enables all researchers to visit international conferences so they can share their research results with others.

Building an academic culture

Our research projects are conducted in teams in which young researchers are supervised by more experienced colleagues. In this way, Nivel offers many young researchers an opportunity to gain experience. This, training on the job, is an important aspect of our academic culture, in which senior researchers train juniors in our core values and methods of conducting research.

Twice a week, internal peer review meetings are organised. In recent years, we have chosen to limit the number of participants and the number of documents per meeting, which provides a more safe environment.

In addition to these structural measures, we organised, in 2019, the first ‘science afternoon’. The aim was to emphasize the importance of our scientific work and share scientific developments. The format was that of a scientific conference with three keynote speakers from Nivel and six different parallel sessions. Due to its great success, the science afternoon conference was repeated in 2020. However, we had to switch to a digital format during to the COVID-19 pandemic. This proved less inspiring and we decided to wait until the pandemic passed before holding further events.

¹ National Academic Research and Collaborations Information System

4.1.3 Investing in our infrastructure and in innovation of methodologies

Nivel Primary Care Database (NPCD)

The NPCD is our largest research infrastructure. Here, we made choices on a strategic level about connecting with other parties who want to use the data to contribute to better care.

For example, Nivel supports the Health-RI-initiative to establish a national health data infrastructure. We collaborate with physician registration systems at Dutch universities in order to answer questions regarding Long COVID. We launched a 'living lab' with the Dutch Care Institute, where researchers of Nivel and employees of the Care Institute conduct research together.

At a tactical level, we have chosen to respond to questions regarding regional surveillance of infectious diseases. We've put in extra efforts to include other professional groups such as physiotherapists, speech therapists, and dieticians given the increasing importance of a more integrated approach to health.

Operational issues are dealt with on a day-to-day basis. Finding the best possible collaboration between researchers, database specialists, data scientists and account managers remains a challenge. We expanded our quality system to include our databases using NEN7510/ISO27001 as a reference.

The innovation of methodologies

In our case study, 'Citizen and patient or client participation in research', we describe methodological innovations in patient participation in research. There are several other examples, in addition to this, where Nivel is constantly trying to introduce innovations:

- We have noted that the response rate of professionals to the questionnaires used to supplement the register of general practitioners, has dropped to a low level. We also noticed that much of the information needed may be found on the internet. Therefore, scraping technologies were developed where structured readable data could be extracted.
- Researchers working with the Nivel communications database joined forces with other parties such as homed.ruhosting.nl, to make the best use of an automatic speech recognition system for transcribing and analysing video or audio recordings. An online feedback portal was also developed with which healthcare providers can receive personalized feedback at a distance based on recorded conversations with patients.
- The Nivel Dutch Consumer Panel Healthcare has developed technologies that allow respondents to answer our questions using their smartphones. Experiments were also carried out to present a questionnaire in a chat format.
- Within NPCD, a new module was introduced that enables Nivel researchers to implement a 'trigger' in the patient files that are held by their GPs. Such a trigger can be used to present a short questionnaire in cases where a patient presents with a specific disease or to invite the GP to do a mouth or nose swab in order to detect a possible influenza or COVID infection.
- Machine learning skills were developed in order to get more out of the data in the NPCD. Two data scientists have been appointed to support this development by acting as a bridge between the data and the researchers.

4.1.4 Responding to the scientific challenge from Covid-19

COVID-19 was not only a challenge for Nivel, it also proved an opportunity for our research. We contributed to the scientific body of knowledge on COVID-19, using our knowledge infrastructure,

and our national and international networks and expertise. This resulted in 25 Covid-19 related international publications in the years 2020/2021. (See Case study 'Covid-19')

4.2 The impact upon society

In Chapter 2, we laid out our strategy to have a demonstrable impact upon society, especially decision makers in healthcare, patient organisations and healthcare professionals. We set three goals. In this chapter, we will discuss what we have achieved for each of these three goals.

4.2.1 Responding to the issues that matter in healthcare

In 2019, the Minister of Health, Welfare and Sport reported on a policy review of the effectiveness and efficiency of ZonMw and Nivel. In a letter to parliament he concluded that: 'The results show that ZonMw and Nivel contribute very well to the development of knowledge in healthcare in the Netherlands.'²

Our societal output

This output shows different developments following societal developments. When we look at the number of articles, book contributions, and presentations, we see that these - like our scientific output - decreased in the second half of the evaluation period (table 3). On the other hand, we see an enormous increase in the number of web publications. Most of these are about the weekly developments in the number of COVID-19 virus infections and other COVID-19 news. The number of reports are very stable along with the participation in supervisory and advisory committees. We can even see a slight increase in the number of board positions of Nivel employees. The success rate for achieving grants concerning societal issues was 67% in 2021, and 66% in 2020.

Our impact upon society as presented in three case studies

The three case studies are examples of how we created societal impact in interaction with our stakeholders. The case study, Citizen and Patient or Client Participation in Research, shows how we responded to a challenge from patient organisations by giving substance in our research to their principle 'nothing about us, without us'. We investigated various ways in which this principle could be applied to our research. The Citizens' Platform led to demonstrable results in the short term. Designing the participation of the target group in more complex research projects, however, requires a longer commitment. This has been addressed in three PhD projects, that also received prizes for the quality of their research and relevance to society. This development is currently continuing.

With the case study on COVID-19, we show how the Nivel infrastructure and expertise was used at very short notice to provide the information needed to make decisions about dealing with the pandemic. Nivel data appeared on the national COVID-19 Dashboard, in order to support policy decisions. At the same time, this case study also demonstrates that policy oriented research has led to further academic publications.

With the case study, When Things Go Wrong, we show how our research is very close to policies on organisational and national level, relating to quality, patient safety and incidents in Dutch hospitals. The patient safety study is part of a national, Plan Do Check Act (PDCA) cycle that runs over 15 years.

² Beleidsdoorlichting Volksgezondheid, Welzijn en Sport Nr.35 BRIEF VAN DE MINISTER VAN VOLKSGEZONDHEID, WELZIEN EN SPORT Tweede Kamer, vergaderjaar 2018–2019, 32 772, nr. 35

Research into policies after an incident is exploratory and is done in co-creation with practitioners, bringing in issues and their experience, while researchers reflect on this, based on their expertise. Together, exploratory steps are taken aimed at improvement. Insights derived from these are used again in subsequent research projects.

Supporting societal challenges

The review committee recommended in 2016 that Nivel focuses on three priority areas of research. At the same time it should maintain the flexibility to answer questions from stakeholders and society that can be answered by making use of the infrastructure of the institute. This recommendation was discussed extensively with our staff, leading to three main perspectives in our research. The patients, the professional and the organisation and system as a whole. The three departments of Nivel were slightly altered to support this approach:

- Collaboration and diverse expertise is needed to provide answers to the challenges facing healthcare which are not limited to one discipline. Also, specific as well as broad expertise is required in order to answer questions from stakeholders and society.
- COVID-19 challenged our ability to answer questions that came up in the first months of the pandemic. We were able to provide rapid and valuable answers on the initial spread of infections, on how society reacted to the measures taken, and on how GPs coped with these challenges. We could do this, not just because of our databases, but also by using our expertise on, the epidemiology of infection, strategies for coping with disasters, consumer behaviour, and eHealth. (See also our case study on COVID-19). This strengthened our conclusion that, apart from our databases, a broad spectrum of expertise is required to be able to answer such questions.
- The challenge of the COVID-19 pandemic, and the success of our response, made us realise that a research agenda based upon responding to societal challenges would be an even more effective strategy.

Our international impact upon society

Many of the international projects that Nivel takes part in have a strong focus on society. A relevant example is the EU Health Support Consortium. This Consortium is led by Nivel and comprises the RIVM, the Royal College of Surgeons in Ireland, and Infeurope, a Luxembourg provider of services on communications and multimedia. Projects respond to a request for service that is identified by the European Commission health directorate general (DG Sante) and the European Health and Digital Executive Agency (HaDEA). Projects are financed through a non-competitive single framework contract. Since its inception in 2018, four projects have been completed and other will follow shortly. The projects are primarily carried out to support the European Commission with the development of future policy and research. Webinars are being organised and scientific based policy reports developed in collaboration with high level expert groups of the European Commission and EU Member States. The topics are broad and include, among others, EU regulations on GDPR data privacy management, non-communicable diseases, infectious disease surveillance, and access to financial products for people with a history of cancer.

4.2.2 Being a key player in the network of stakeholders in healthcare, contributing with research that is properly aligned with challenges in healthcare

Nivel's staff participation in the health and social care community

Nivel's staff participate in around 60 committees and hold approximately 20 positions on boards (Table 4). Nivel is also involved in a diverse set of healthcare partnerships (see Text 2, chapter 3) ranging from national organisations, such as the Capacity Agency or the National Care Institute, to healthcare organisations such as hospitals or local public health and safety organisations. A number

of staff members have been trained as care workers in addition to their academic training, and some are employed in care organisations in addition to their work at Nivel.

The Nivel Connects Sessions

We developed interactive live workshops in the Nivel building entitled the Nivel Connects Sessions. The aim was to facilitate the use of research findings in healthcare practice by discussion and enquiry between the intended users (policy makers, healthcare professionals, patients) and researchers, before finalising the research project. Starting in 2018, the Nivel Connects Sessions put the Nivel mission statement 'Research for better care' into practice. Eight seminars have taken place covering themes such as: 'learning from complaints', 'health literacy', 'learning from big data using innovative methods', 'eHealth: a solution to what problem?' and 'solidarity in healthcare'.

With the emergence of the COVID-19 pandemic, live workshops were no longer possible. We switched, therefore, to webinars. The first webinar was entitled: 'From real world data to practice'. It dealt with the prescribing of medicine. The advantage of a webinar is that it can be attended by much more people, in this case 120. A subsequent webinar was held to share the results of the evaluation of Dutch legislation on Quality and Complaints. This webinar was attended by more than 200 guests. A webinar was also held to share our ongoing COVID-19 research within Nivel and with our network. Subsequent webinars were held with policy makers and the healthcare field in preparation for our new research agenda for 2022-2024.

4.2.3 Improving our communications strategy in order to be more visible and increase societal relevance

Several measures have been taken in response to the review committee's recommendations in 2016 regarding the visibility of our research:

- We added a clear mission statement to our logo: research for better care. We also formulated four core values: Societal relevance; Scientific reliability; Connecting with stakeholders; and, being Independent but Involved. These were discussed and developed with our staff and are currently part of introductory sessions with new employees.
- We improved our communication strategy, which was laid down in a specific plan, in order to be able to broadcast our mission more clearly.
- This strategy pays attention to both corporate and knowledge communication. Nivel's Knowledge Centre is responsible for the corporate communication. The programme leaders and senior researchers are responsible for the communication of knowledge.
- Two professionals (science marketeers) support researchers in creating an impact with their research and advise on improving the communication strategy. One member of the management team focuses explicitly on the communication strategy of Nivel
- We put more investment into the visibility of our organisation through an updated website and the systematic use of our corporate identity.
- We developed new means of interacting with the potential users of our research through the Nivel Connects Sessions and, since Covid-19, through webinars.
- We increased the budget for our communication.

In 2021, 152 short summaries of research outcomes were produced, which were distributed to 2,800 subscribers to our alert service, through social media and via our website. On average, these summaries are re-used 25 times on other websites. Between 2016 and 2022, we saw an increase of page views on our website from 688.000 in 2016, to 1,251,00 in 2021. (Table 5)

4.3



Being a sustainable organisation

In Chapter 2, we laid out our strategy to be a sustainable organisation. We set three goals. In this chapter, we will discuss what we have achieved for each of these three goals.

4.3.1 Strengthening the solidity and sustainability of our financial base

Strengthening our financial base by engagement in international projects

We formulated a target of receiving 10% of our annual budget from international projects. This was attained.

Experiments with new products

The review committee recommended in 2016 the diversification of products. We explored the opportunities to develop new products, based on our research and expertise, that could be offered and sold to potential new stakeholders. We invested in the communication and marketing of these products and services. We learned that this way of working was not compatible with the competences of most Nivel researchers, which would require far-reaching investments to make it a success. The same time Nivel was 'evaluated' by a committee of the Ministry of Finance on the law regarding state aid (staatssteun). This evaluation forced us to make clear choices about our identity as a scientific research institute working for the public domain and not as a commercial enterprise. We therefore abandoned our attempts to develop new products and services that could be sold to interested parties.

Cost-awareness

As a short term response to the negative financial result in 2015, we increased the overhead tariff, which generated more revenues but also tested our competitiveness. We compared the level of our overhead rate to other, similar, organisations and concluded that we were still within the market range: more expensive than universities and less expensive than consultancy research organisations. We also increased the cost-awareness of our staff. This quickly led to a positive financial result in 2016. We also noticed that cost awareness remained. The downside of this was an increased sense of pressure and a tendency among our staff to avoid risks. It appears this cost-awareness inhibited the entrepreneurial ability of Nivel. We, therefore, introduced 'flywheel money' at the level of the three departments. With this money, our staff could call in extra help to write proposals or to fill in for projects that were understaffed, without having to give a financial guarantee in advance. We have also introduced internal calls for innovative projects to stimulate innovations. This allowed for more entrepreneurship among staff, while maintaining the benefits of a cost-conscious organisation.

Better financial management

The planning and control cycle has been strengthened by introducing quarterly progress reports. This offered more internal steering opportunities.

In monthly project evaluations, project leaders exchange with their management the financial and factual progress of their projects. Standard project progress reports have been available since 2020. At the end of 2021, the financial system Navision (2009) was migrated to MS Business Central (2019). This new system lays the foundation for the further development or automation of progress reports.

4.3.2 Improvements to Nivel's organisation

Fluctuations in the number of people who work at Nivel

The level of staffing at Nivel has fluctuated in the last period (table 7). In the first half of this evaluation period around 140 people worked at Nivel, whereas in 2021 this increased to 185. Management information on our human resources is periodically provided to our management team. Talent management, academic culture and work pressure were repeatedly discussed and measures taken.

Employee satisfaction

In 2021 Nivel changed the way to assess employee satisfaction. This means results from 2016 and 2022 are not easy to compare. In 2022, Nivel employees were more often satisfied with their work at Nivel as compared to a reference group of people working in government positions. In addition, Nivel employees felt it is a safe place to work as compared to this reference group.

Among Nivel staff, 83% would recommend Nivel as an employer. Similar high percentages were found in 2016 and 2019.

In 2016, work pressure was seen as the biggest problem. 60% of employees said that they often or always had too much work. During the evaluation period several actions were implemented and at midterm the evaluation of work pressure showed positive results. Now, after the pandemic, the level of work pressure is high again. There are, however, differences within Nivel. Among research support staff, 60% experienced a high work pressure in 2022 compared to 34% of the research staff. The problem among research support staff remains a source of concern.

Strengthening our research teams

The small scale of the individual autonomous research programme brings opportunities as well as vulnerabilities. The opportunities lie mainly in the flexibility of a small team, the direct personal relationships, and the fact that the relatively large number of teams makes it possible to respond to various scientific and societal challenges. The vulnerability lies in the limited power of an individual team, the many tasks that the central figure in the team - the programme leader - is responsible for, and the difficulties of succession management in a small team. Various strategies have been considered to reduce these vulnerabilities, without detracting from the opportunities. Three, mutually supporting, strategies were valuable to strengthen the research teams:

1. To formulate an ideal type of research team so that, in addition to the programme leader, each team should have at least one, but preferably two, senior researchers who can take over some of the tasks of the programme leader;
2. The 'flywheel money' was used to hire a postdoctoral researcher who is not part of a research team and who can step in any team at times of great pressure or staff shortages;
3. Establishing greater cooperation between the research teams so that strength and expertise can be combined.

By 31 December, 2021, nine out of the 13 programmes had at least two senior researchers in addition to the programme leader.

Establishing annual focus areas

We established a strategy to work with three annual focus areas, which were to be given specific attention in that year and which related to our three organisational goals. One of the focus areas always related to the internal Nivel organisation, for example, personnel, steering information, or improving internal collaboration. The other two points always related to Nivel's environment, for example the profiling of Nivel, our international orientation, or stakeholder policy.

4.3.3 Anchoring our quality system in our organisation

Since 1999, Nivel is ISO 9001 certified ensuring the quality of its organisation. In 2020, Nivel also acquired the NEN7510/ISO27001 certificate for the management of information security for the NPCD. The most recent re-certification was granted in 2021. The external auditors see Nivel as a flexible organisation, with a well-developed policy cycle where the quality system is very much alive.

The last external quality survey (2021) found:

'Nivel has a mature quality system with, on the one hand, a very professional execution of research and, on the other hand, a broad view on the field of work and the appropriate course for the organisation.'

And:

'There is a clear organisation and consultation structure. The consultation structure is adapted to the COVID-19 situation. For example, online coffee moments are organised and there is extra attention for social interaction. A new feature is a monthly meeting called "Frisse", or fresh, Start. This is currently a hybrid meeting with a good turnout (approx. 1/3 of the entire organisation) and is a great way to meet each other and share information and knowledge. Part of this is also that new employees introduce themselves.'

4.3.4 Having a sustainable response to the challenge of the COVID-19 pandemic

Almost all projects have gone ahead in spite of the COVID-19 pandemic. The Covid-19 pandemic made it necessary for our staff to work from home. This was a major challenge and it was a 180 degree turnaround from the previous Nivel office policy. It also proved to be a major challenge for our IT infrastructure, which was based on the premise that people work on site every day. We managed, however, to get the job done due to a high degree of flexibility from our staff. Surprisingly quickly, solutions were found on how to collect data, conduct interviews, and hold meetings using online media.

To keep people connected to Nivel during the isolation of the pandemic, Nivel management issued weekly personal 'Friday afternoon messages' to all of our staff, sharing our feelings and valuable developments. Also, on the first Monday of the month, a digital meeting for all people was held entitled the 'Fresh start'. In this meeting, people who recently joined Nivel got the opportunity to present themselves and short presentations on research and organisational issues are given. This 'fresh start' will be continued in the coming years. Thus, COVID-19 not only created a challenge, but also opportunities for Nivel.

Nivel SWOT analysis 2022

We present, here, the results of three 'Strengths, Weaknesses, Opportunities, and Threats' or SWOT analyses, undertaken in the first quarter of 2022. The first SWOT was carried out among external stakeholders of Nivel. The second among employees of Nivel, with an overrepresentation of postdoc and senior researchers who joined Nivel in the last two years. The third SWOT was carried out among the Nivel programme leaders. This document presents a summary of these SWOTs.

What the three SWOTs have in common

In each of the three SWOTs, a number of themes are present. As a strength, the quality of our research, our independence, and reliability are mentioned. Also our research infrastructure is seen as an essential asset.

As a weakness, it was mentioned that this asset, our research infrastructure, is not always visible to parties outside of Nivel and that it is easily taken for granted by the organisation itself. This research infrastructure needs continuous maintenance.

A threat for Nivel is its dependence upon project funding, possibly limiting Nivel's ability to act on a long-term agenda. The dependence on the Ministry of Health, Welfare and Sport, also brings a certain vulnerability. And, there is increasing competition in our field. Universities are doing more short term policy oriented research, universities of applied sciences are focusing on the research market, and consultancies are also active in the Nivel domain.

The opportunities for Nivel lie in the integration of our three perspectives, its relevance for society, and answering to the challenges healthcare is facing.

What the external stakeholders add

In addition to this, external stakeholders mentioned the relevance of Nivel research to society as a strength. As a weakness, it was pointed out that Nivel's wide range of research programmes can get in the way of a clear profile. Also, changing perspectives on the use of data and the appreciation of scientific research were noted as a possible threat. Opportunities for Nivel were seen in linking Nivel research even better to the challenges healthcare is facing and to become involved as a research partner in practice oriented participatory action research.

What the Nivel employees add

The Nivel employees added that a strong point of Nivel is that it is safe and pleasant work place. Feelings of uncertainty about one's own position, the limited possibilities to deepen scientific knowledge, and the high demands are, however, seen as a weakness. The difficulty of finding and retaining staff due to the large number of temporary contracts, competition from parties with more innovative research methods, and the salary level were mentioned as a threat. Finally the non-staff members challenged Nivel to seize opportunities that arise.

What the programme leaders add

Nivel staff mentioned the robustness of the organisation as a strength. As a weakness it was mentioned that too little attention was paid to the maintenance and expansion of the Nivel network. As a threat, the increased pressure of accountability and regulations was mentioned. As an opportunity, staff mentioned the many challenges facing healthcare for which Nivel can offer answers.

5 The strategy for the next six years

Our mission remains to conduct high-quality health services research with a demonstrable impact upon society. Our strategy for the coming period is one of building further on our solid research base, integrating our knowledge to support societal challenges, and being flexible in a changing environment.

5.1 Continuity by maintaining our solid research base

In each of the three SWOT analyses the quality of our research, our independence and reliability, and our research infrastructure are seen as our strengths. We will continue the strategies that brought these strengths. We will continue our policies to be an active member in the academic community and to be a key player in the network of healthcare stakeholders. We will maintain academic chairs for Nivel staff members, our PhD programme and our policy of open science publishing. We will consolidate our academic culture, continue to be a safe and inclusive research institute and we will invest resources in our research infrastructure.

In order to remain a sustainable organisation, we will continue to improve our planning and control cycle and keeping our strong quality system alive. We will provide 'flywheel money' that researchers can call in for extra help if needed. We will also continue to strive for 10% of our turnover to come from European projects. And we will actively invest in communication within the Nivel organisation, keep monitoring employee satisfaction and follow up on issues that arise.

5.2 Responding to the challenges that lay ahead

Building upon our solid research base, we have implemented and will implement strategies that will help Nivel to face the challenges that lay ahead. We benefited from the three SWOT's to get a clear picture of these challenges.

5.2.1 ... bring more focus in how Nivel research is relevant for society

In all SWOTs a major opportunity for Nivel was seen in answering to the challenges health care is facing. The external stakeholders added the need for a clearer profile among the health care stakeholders, Nivel employees challenged Nivel to be more self-aware and the programme leaders stressed the need to pay more attention to the Nivel network.

We agree that it is essential be more clear and apply more focus on how our research contributes to the healthcare challenges in society. Already in 2021 we invested time and energy in developing a new research agenda that focuses on four societal challenges in health care. This agenda was created with input from various colleagues at all levels of the Nivel organisation and with the involvement, in webinars, of external stakeholders representing patients, professionals, care organisations, researchers, as well as the Ministry of Health.

We are confident that this research agenda will impact positively on our scientific relevance, our impact upon society, and the standing of Nivel as a relevant research institute. Moreover, we have noticed that it is important to many Nivel employees that their work contributes to relevant societal

challenges. This is an important motivation for all researchers, but in particular for junior and mid-career employees. The choice for this research agenda, therefore, also contributes to the recruitment and retention of Nivel's future cadre. This is essential for the continuity of Nivel, in light of the expected restrictions in the future labour market.

5.2.2 ... the quality of our research is our greatest asset

As the three SWOTs show, the quality of our research is our greatest asset. We want to continue to live up to this in the years to come. That is why we are taking extra measures.

- We will provide additional support for researchers to publish the results of their work. For each postdoctoral or senior researcher in our research teams, funding is available for four hours per week to be spent on developing innovative ideas and writing scientific publications. We also provide funding for four PhD positions, one for each challenge in our research agenda.
- We will develop Artificial Intelligence or AI methodologies to build predictive models on disease development and the effects of medical interventions, as well as for modelling the pressure on the use of primary healthcare facilities in the future. We develop these methodologies based on real life data from the Nivel primary care database.
- We will develop methodologies to involve clients or patients more in our research.

5.2.3 ... integrating knowledge, implementing our new research agenda

Responding to the challenges faced by healthcare is seen as an important opportunity for Nivel. Our new research agenda provides a good starting point to seize this opportunity. Implementation activities:

- Four teams of researchers have been formed, one interdisciplinary team for each challenge, to boost research ideas, to communicate with external parties, and to support the visibility of Nivel's contribution to these challenges to society. These teams are monitored and supported by Nivel's management.
- Our researchers will be stimulated to be more involved in the relevant knowledge ecosystems. These will be joined, and if needed Nivel will initiate, new networks that may develop into new knowledge ecosystems. For this we will use our earlier experiences with building networks on, for instance, health literacy or openness after medical incidents.
- Researchers will be challenged and supported to be more outspoken on the relevance of their research.

5.2.4 ... improve our sustainability

Staff members mention the robustness of the Nivel organisation as a strength. However, the financial dependence on the Ministry of Health is seen as a major threat for Nivel. In addition to this, non-staff employees mention feelings of uncertainty about one's own position and the high demands that are placed on one's performance as a weakness of Nivel.

- It is vital to invest in our relationship with the Ministry of Health. We are committed to continuing, and preferably expanding, their financial support. We will maintain an active relationship with the various directorates of the Ministry of Health on specific topics, with our account holder at the Ministry, and with the chief science officer of the Ministry.
- We want to increase the cohesion of the organisation. We need more cooperation between the different research programmes, and between researchers and the professionals involved with data infrastructure. This will allow us to use the benefits of our multidisciplinary staff even more.
- We have already taken, and will continue to take, action to better explain our staff appointment policy. The recent growth of Nivel offers more opportunities for longer or more permanent appointments. We will take advantage of these opportunities as much as we can.

- There is also a need for the members of the management team to be more closely connected to the primary process. This requires more substantive involvement of the department heads in the various programmes and the data infrastructure. Also regular meetings between the management and our people will be organised.

Building upon the policies that are already in place, together with these additional strategies for the near future, we are convinced that Nivel will not only continue to carry out high-quality health services research with a demonstrable impact upon society, but also increase this impact.

