NETHERLANDS FEDERATION OF
UNIVERSITY MEDICAL CENTRES

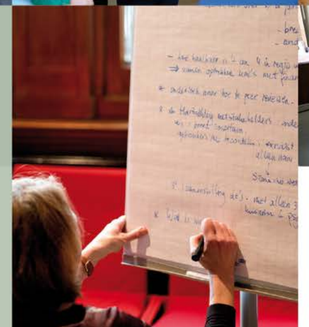
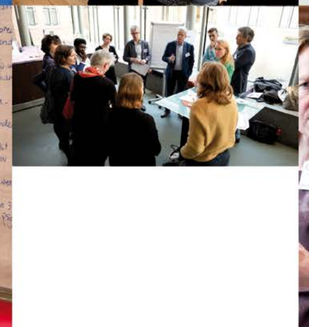
Research and innovation with and for the healthy region

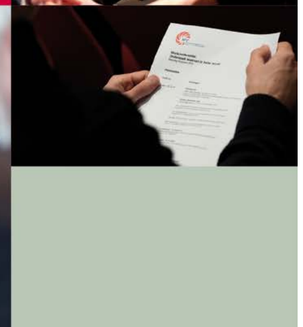
think globally, act locally







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think globally, act locally

Contents

"Researching what is important demands active interaction of research, policy and practice."

"Work on health gains and positive health."

"It is necessary to invest in order to benefit; investing in infrastructure is worthwhile."

"What will be truly different in five years' time? There will be a permanent platform in the region within which the dialogue can take place, the context will be taken into account, sharing knowledge will form the basis, data about the chain will be shared, other outcomes (than care) will be relevant, we shall learn from each other, and the focus will be on 'population health thinking'."

During the work conference on 28 January 2019, many different stakeholders discussed ten themes. Quotes from them are incorporated throughout this plan.

Foreword

An active and binding role of the university medical centres in solving health problems close to home. If UMCs commit to that vision, together with those directly involved in the region, they can count on broad support from laypeople, patients, primary and specialist healthcare, colleges, insurers, the business community and many others.

This was the most important conclusion of the conferences that took place in the past few months with the theme 'Research that makes you better', after the report of the same name from the National Health Council. Discussions with different interested parties, but who appeared to have a common interest, led to the ambitious plan presented here, in which the UMCs redefine their societal role as 'academy with and for the region'.

The challenges in healthcare and prevention demand a joint approach, in which UMCs and their scientific research play a unique role. With our knowledge and care function, we apply research and innovation over the entire range of healthcare and health: from fundamental to applied research and from prevention to palliative care. At the international, national and, increasingly at the regional level.

This plan gives the collaboration in the region a hefty stimulus for the coming years. It covers more than just the clinical conditions being treated in the UMC. It also concerns issues that apply outside the UMC, such as prevention and healthy living. The trend towards regional involvement follows on from the recently signed National Prevention Agreement, the Medical-specialist care Global Agreement and the Prevention Knowledge Agenda of the Netherlands National Science Agenda.

Representatives from local authorities, Municipal Health Services, residents, patients and laypeople, informal and formal careproviders, experts from UMCs, general hospitals, independent clinics and nursing homes have provided enthusiastic contributions to the creation of this plan. I want to express my deepest thanks to them. We are looking forward to the continuation of the collaboration.

Prof. Willy Spaan,
chair of NFU

Summary

“Excelling in public health requires excelling in science.” (Johan Mackenbach)

How do we contribute to essential innovation of prevention and care? To answer this question, the Netherlands Federation of University Medical Centres (NFU) held several round table sessions with many other interested parties at the request of the Minister for Medical Care and Sport. You can read the result in this plan.

The core of the plan involves the UMCs setting up networks in their own region to collaborate on innovation with laypeople, patients and involved organisations. They will start by making an inventory of the most important challenges in the region. Then regional knowledge and innovation agendas for health and care will be prepared.

Regional potential

By utilising the broad potential in the regional networks, the relevance and societal impact of research will increase, and the results of the innovation process benefit the entire region. Such a regional approach is required to take local variations in demography, socioeconomics and public health and disease burden into account, although national harmonisation is needed in which the regions support and inspire each other.

The UMCs fulfil an initiating and facilitating role in this entire process. They organise the infrastructure, supply their methodological expertise and knowledge, and form an ‘academy for the region’ together with other knowledge institutions and stakeholders.

Mutual collaboration

Network formation and common agenda setting are part of this age. The UMCs, universities and other knowledge and care institutions have considerable experience with mutual collaboration in the region, for example:

- Academic Collaborative Centre on Care for Older People
- HartNet North-Netherlands
- Academic Collaborative Centre for Insurance Medicine
- LUMC Campus The Hague
- Stichting BeterKeten
- University Knowledge Network Care for Older People Nijmegen
- Amsterdam Mental Health
- Bestuurstafel Gezond Utrecht
- Aletta Jacobs School of Public Health
- SchildklierNetwerk
- University Network Care for Older People of VU medical centre

Shared responsibility

To realise the aims presented in this plan, an additional stimulus is needed. It is important to construct sustainable networks, in which the parties share responsibilities and the cost with each other over a long period of time. That demands leadership and ownership from all those involved, and commitment to form a consensus if there are conflicts of interest or differences of insight.

Innovation involves more than just conducting research and publishing the results. The intention is to run through the entire research cycle in the region, including implementation, monitoring and evaluation.
That definitely does not mean that a complex structure must be set up. The simpler the organisation and accountability, the greater the chance of success.

Getting started

What is going to actually happen in the regions and nationally?

June – December 2019

- The UMCs take the initiative to set up a regional network.
- A dedicated projectleader invites the regional parties to attend.
- Together the parties start working to explore the urgent issues.
- Issues are translated into responsible and testable innovations, a research agenda or action plan, making use of the collective expertise.
- The main outline of a regional agenda is created.

January – December 2020

- All of the regional agendas are brought together in a national working meeting.
- A detailed regional agenda has been prepared that contains agreements on approach and financing.
- All regional knowledge and innovation agendas including an investment plan are collated in a national report in 2020.

"One of the lessons learned in the National Care for the Elderly Programme is that investing in infrastructure had a snowball effect."

"Linking the networks is a challenge."

"Broad, multidisciplinary thinking is needed to tackle complex problems."

"A lot is already happening! Learn from the best practices in terms of inbedding, co-creation, timing, interdisciplinary education."

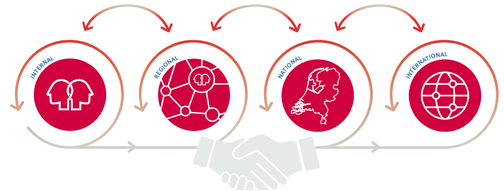
"It concerns sustainable collaborations."

Introduction

Dutch healthcare and prevention are facing a number of important challenges in the coming decades. Demographic developments (greying of the population), epidemiological trends (increase in the number of people with one or more chronic diseases), changes in society (increased empowerment, but also greater differences), technological innovations (e-Health, big data, personalised medicine, nanotechnology) and a changing view on health contribute to a total picture in which change is the only constant.

Innovation is thus essential, and the university medical centres (UMCs) want to play an active role in this. The UMCs have been important innovators in the field of healthcare since they were established, thanks to the strong interaction between pioneering scientific research, education and innovative patient care (care, cure and prevention) and collaborations with other faculties of the university and knowledge and care institutions. They consider the innovation of healthcare and prevention as an important contribution to society. This plan describes how the UMCs are going to shape their broader societal responsibility.

Collaborative roles for UMCs



The UMCs are taking the next step in a development that started with the formation of UMCs from the merger of university medical faculties and academic hospitals. By organising care, research and education under one roof of an UMC, the lines were kept short between all forms of biomedical research and application in the clinic (from lab to clinic). Now the UMCs are extending that development in a certain sense to include health of the entire population in their surrounding regions (from lab to life). They cover the entire range of research and innovation, from fundamental to applied and from international to regional, and strive for scientific excellence in all these aspects. This matches well the strategic research agenda formulated by the NFU in 2016.

Healthy, accessible, affordable and of good quality

Keeping people healthy for a reasonable cost and keeping the healthcare system accessible, affordable and of good quality is what sustainable care is all about. The interaction between strategic partners like healthcare organisations, insurers and governments, business community and users (professionals and citizens) is a critical success factor in this. The entire chain of fundamental research to a more personal approach to prevention and treatment, along with the financial implications, determine whether the objective in terms of sustainable health care will come closer. The current developments provide great opportunities to achieve major breakthroughs in the coming years. The Netherlands can make large contributions to this. (Research agenda into Sustainable Health, NFU 2016)

Stimulating regional role for UMCs

UMCs are strengthening their regional role. This will enhance their societal impact in the areas of prevention and public health, contributing to the solution of urgent societal health issues and to innovation in health and care. The UMCs will accomplish all this by applying their expertise more broadly and linking up with the knowledge from other institutions to promote care and health of a larger proportion of the population. This trend has already been initiated with developments

''The UMC is developing into the academic driver of research and innovation for care and prevention in the broadest sense, with a strong regional function, alongside the already well developed national and international orientation.''

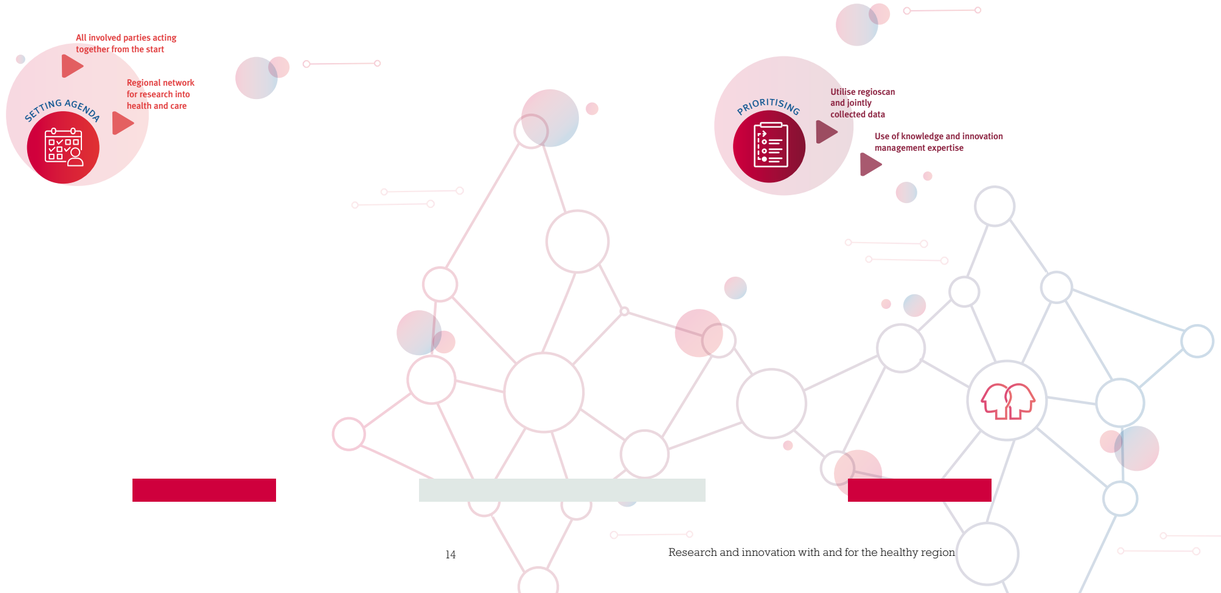
Research that makes you better,
Health Council, 2016

like the Academic Collaborative Centre on Care for the Elderly and Public Health, Primary and Mental Healthcare Networks, consortia of nursing homes, population management initiatives and the prevention consult. There is still much to gain by establishing sustainable networks in the region.

Strengthening the societal role of the UMCs in the region demands necessary changes in the required research methods, the policy concerning researchdata, the explicit appreciation of this type of research in academic career policy and the employment of researchers. There is a lot happening in this field as well, such as consortium formation for the National Science Agenda, national harmonization through the Health-Research Infrastructure initiative, Data4lifesciences, the NFU research agenda into Sustainable Health and the Statement about Rewards and Incentives .

With the plan before you, this trend will be strengthened and accelerated, in response to the Health Council report 'Research that makes you better' . The urgent issues concerning health and care that are restated in this report make this plan an essential contribution to society . After a century in which public health in the Netherlands has improved strongly, new challenges await us in the coming decades, like the increasing number of people living with multiple chronic conditions and the need to control the cost of care. There are also opportunities, like the use of new technological devices.
Multidisciplinary collaboration is needed to advance the approach to these largely complex challenges. It concerns a transition, research, experimentation, bringing together parties that would not normally meet, it concerns decompartmentalisation. Only a cohesive and joint movement can address these issues succesfully.

The connections with existing partners will be strengthened and new ones initiated: citizens' initiatives, patients and their organisations, local authorities, other care providers (hospitals, mental health organisations, nursing homes, rehabilitation centres, GPs, district nurses, paramedics) and Municipal Health Services, and researchers from universities and universities of applied sciences and other disciplines (economics, social sciences, humanities, nursing science, paramedical science), knowledge institutions and other professionals like clinical technicians, data scientists and public administrators.



This plan describes how the regional collaboration around research and innovation will be deepened and revised in the coming years, utilizing the experiences from the past few years. The plan specifically focuses on the role of the UMC, its role in the regional care and knowledge chain and with its expertise in the widest range of research. The UMCs will facilitate research and innovation in the region with an emphasis on sustainable health care and prevention.

Guide

Chapter 1 describes the procedure in the region. Chapter 2 specifies the boundary conditions for regional collaboration. Chapter 3 describes which developments within the UMCs and universities and universities of applied sciences will be put into motion to stimulate this impulse and the associated methodological and infrastructural innovations and safeguard and monitor the scientific quality. Chapter 4 covers the financial implications.

Innovation cycle

The movement in which the UMCs actively exercise their societal role with and for their region has been going on for a while. Examples of regional partnerships are included in this plan. For more examples, see www.nfu.nl.

1. Academy with and for the region: towards regional co-creation for health

1.1 Regional networks in care, education and research

Health care and health research are shifting, partly in response to societal challenges like aging of the population and socioeconomic differences in health. The relationship between caregiver and patient and that between citizen and government is changing, with personal control and personal contribution being key phrases. With the healthcare transitions of the past years, municipal authorities have been given more responsibilities in the areas of prevention, care and welfare. To shape these changes, networks are being created that transcend the boundaries of institutions and have citizens and patients as important partners. The UMCs have also been focussing more in the recent past on their surrounding region, in terms of care and education and research.

A growing number of regional collaborations between UMCs and other care providers are targeting optimal care, like the regional oncology networks, the Regional Dialogue Acute Care Chain and other recent developments concerning ‘the right care in the right place’.
Since 2002 UMCs have collaborated in regional Education and Training Networks with partner hospitals regarding an optimal curriculum of the initial medical training, the medical specialist training and nursing programmes. In research as well, in the past years collaborations have been established regionally, like the Academic Collaborative Centres on Public Health and Care for Older People (stimulated by the National Care for the Elderly Programme of the Ministry of Public Health, Welfare and Sport) and GP and nursing home networks. The actions proposed in this plan aim to give the network formation in the field of research and innovation a powerful stimulus.

1.2 Practical collaboration: regional networks for health and care

We want to strengthen the collaboration in the region for the innovation of prevention, health and care. Appropriate structures are required in which regional practice and research can meet. These networks (it is up to the region to name these networks and structures) will soon work alongside and with the already existing general and more specific collaborations ('workplaces') in research and education.

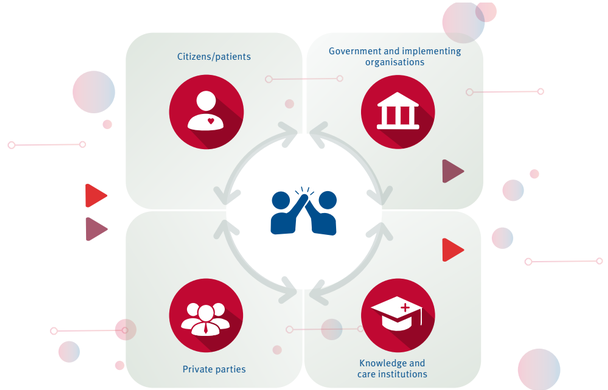
Action 1. In 2019 each region launches a regional network for research into and innovation of sustainable health care and prevention. The UMC will take the initiative and recruit partners from the region, including laypeople, patients, care institutions, government authorities, insurers, knowledge institutions and the business community.

Action 2. This regional network prepares an interactive and dynamic knowledge and innovation agenda, taking on board the necessary investments. At the end of 2019 the outline of each regional agenda is ready; in 2020 the knowledge and innovation agenda is available in detail.

The UMCs play a strongly initiating and facilitating role in the networks – at least at the start. They will actively search for links with parties in their region, so they will all contribute to improving health and care locally. The UMC Board of Directors is responsible for this and shall appoint one member as the sponser/manager. Each region determines its own structure, suitable to the regional culture and relationships. At very least, regional care and public health institutions (or a selection of them), the local authorities, knowledge institutions, laypeople, patients and the business community will participate in the network. Municipal authorities and provinces are tasked with safeguarding, protecting and promoting the health of their residents, and actively do so. Healthcare insurers will also join in – of course. Collaboration with the hospitals will be intensified.

The process will involve co-creation. Together the collaboration partners will focus on the regional tasks they consider urgent and look for the right response. They will set up research and care modernisation activities, customized to the problems of the region. They will develop innovative solutions in the fields of care, health and prevention.

The involvement of partners from the practice from the very beginning ('end users', thus also laypeople and patients) is crucial to define the right research questions. They can also contribute to upholding the relevance for the practical situation in the operationalization of the research question and the conduct of the research. Realising impact, implementation and innovation are key right from the start. Lessons are drawn from, for example, the Efficiency Studies of ZonMw.



Together for health

Suitable research

In interaction with care providers, patients' organisations and citizens' initiatives, the parties will determine which actions are required. Concerning the research questions, the parties will translate the practical questions into testable hypotheses for research (see box in chapter 2 for an innovation cycle that could be followed). They'll make use of the wide-ranging warehouse of methodological knowledge contained in the UMCs, universities and institutions, and of relevant disciplines, including social sciences, public administration, mathematics (data science) and economics. This will lead to suitable research in a suitable place. It is possible that the knowledge is already available, but not yet being used. The network will undertake preconditional, administrative, legal or other actions to get implementation started.

Sustainable network

Building up a research and innovation community with relationships based on mutual respect, the development of a common 'language' and a shared agenda demands the long-term and consistent input of all those involved. There is executive commitment needed from all parties, which is documented so it can be explicitly transferred when the executive changes. Together the partners will build up a sustainable network in this way. In many cases a cultural shift will be required: to truly join forces and work together to tackle the urgent issues found outside the walls of the hospitals, while utilizing all creativity, knowledge and expertise and bundling financial means. This demands leadership from each participating party and every participant. It requires thinking outside the known box and making room for experimentation.

1.3 The role of the citizen/patient

The input and the perspective of laypeople and patients are invaluable in these networks. The regional networks will look for ways to structurally involve laypeople and patients.
In each region an inventory will be made of existing and developing initiatives, like citizens' cooperatives, citizens' fora or initiatives concerning citizen science. There is no obvious patients' organisation for prevention and public health after all. Regarding care, patients' organisations have an important role contributing ideas about the problems they encounter, which innovations are wanted, and the associated research questions. It is expected that everyday (and common) health questions and prevention issues will be put forward. For the sustained involvement of laypeople and patients, support is required in the form of training and compensation.

1.4 Regioscan and infrastructure

To prepare a regional knowledge and innovation agenda, carry out this agenda and evaluate innovations, the networks must have access to as much relevant data from the region as possible (a regioscan, complete with trend analyses and scenarios). This concerns routine care data from nursing homes, district nurses, mental health care, public health, youth care, midwifery clinics, GPs (most GP information systems harbour over 15 years of follow-up of patients) and hospitals, as well as socioeconomic data, consumption patterns, environmental characteristics, indicators of lifestyle and behaviour and other data.

All of these data are often available but must be carefully combined (anonymised), prepared, checked for completeness and quality, and analysed.
Local authorities, Municipal Health Services and GPs play a crucial role; they have a lot of data and occasionally trend analyses. The available data are sometimes personal, sometimes local, sometimes regional and sometimes national (CBS, RIVM, insurers).

1.5 New forms of public-private partnership

Companies can be interesting partners for innovation and societally oriented health research in different ways. Often their interests run parallel, for example developers of e-Health applications and preventive activities within a company. Sometimes the relationship is more complex, for example collaborations with foodstuff companies in initiatives to combat overweight. The UMCs have experience with public-private collaboration (such as contract research and valorisation). The collaboration with companies in this context demands a new orientation to such partnerships. Common ambitions and joint ownership to address these issues are the intention, naturally each carrying out its own role, with clear agreements and a good contractual arrangement. Support from the private sector, Health Holland Topsector Life Sciences and Health, and the Knowledge Transfer Offices of the UMCs, the universities and the universities of applied sciences is essential here.

Data infrastructures

The NFU is a co-initiator of many national collaborations in the field of data, including Health-RI (Health Research Infrastructure) and the Citrien programme (in which work is done on e-Health and Registration at the source). By developing new methods to combine, check and analyse extensive and particularly wide-ranging datasets (including images and samples), many new possibilities (acceleration) for research and innovation in the entire field of prevention and health care will emerge. On the one hand, this concerns customized innovations and interventions (personalised medicine and personalised prevention), on the other adjustments in the physical environment and the social environment with a favourable effect on health. The Open Data Infrastructure for Social Science and Economic Innovations, which gives researchers in the social sciences access to large-scale and longitudinal data collections linked to CBS registrations, can also provide a stimulus.

To make the new developments possible, it is essential for data to be Findable, Accessible, Interoperable and Reusable (FAIR). Naturally, the handling of data must be done responsibly, taking into account the ethical aspects like privacy.

One noteworthy initiative is the platform of Health-RI, on which many parties have organized themselves with a joint offering of services and close collaboration on the conditions to smoothe the path for researchers and other professionals. Health-RI facilitates and stimulates the optimal use of health data, images and samples. It supplies the knowledge, tools and support to share information efficiently and responsibly, even outside the walls of one's own organisation and despite variations in the systems. This allows laypeople, care providers and researchers to take the best decisions about disease and health.

An important contribution to privacy is made by the concept of the Personal Health Train, which was initiated by the Dutch Techcentre for Life Sciences, which brings the analysis to the data instead of vice versa. The data remain with the source, the 'train' of the analysis passes by the different data sources ('stations'), and the researcher obtains the conclusion without access to the personal data. The owner of the data retains control over the data as it determines its own rules for the 'station'.

2. Boundary conditions for regional networks

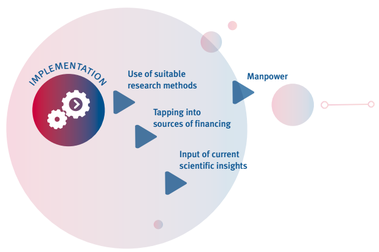
Throughout the country experience has already been gained with regional network formation and with bilateral and multilateral research collaborations between UMCs and parties in the region (see the examples included in this plan). It is important to continue building on these experiences gathered over the years. They have revealed a number of important boundary conditions for successful regional collaboration. We distinguish three clusters: general boundary conditions, conditions concerning the parties involved, and conditions concerning content and conduct.

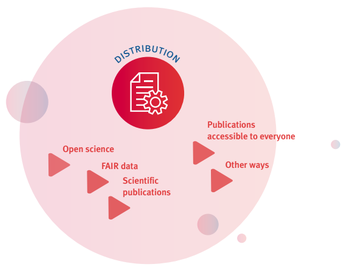
General

- All involved parties realise the necessity for innovation, prevention and efficacy research and trust that the coalition can contribute to that.
- Within the context of the overarching objectives, the collaboration has benefits for all those involved. The size of the region depends on the issue to be addressed. The idea behind working in the region is meeting each other.
- The regions differ in terms of problems, starting position, opportunities and culture. A 'one size fits all' approach is therefore unacceptable.

Parties

- Laypeople and patients are sitting at the table from the start and are equipped to assist (training, financing).
- An UMC has several roles: initiator, regional supporter with knowledge, and participant in the network.
- There are structural collaborations with intra- and extramural care providers, universities and other knowledge institutions, local authorities, insurers, etc.
- The collaboration has enough expertise, persistence and financing for the successful and sustainable implementation of research.
- Parties are jointly responsible for the financing.





- Participating care providers and other stakeholders at all levels of care provision must receive sufficient space and means from their organisation for personal and financial investments outside their own walls.
- The collaboration has sufficient methodological expertise, manpower and means to address the relevant research questions and realise innovative goals.

Content and conduct

- SMART agreements have been made about ambition and goals, approach, structure, timelines and governance. There is a good coordinator present.
- There is easy access to methodological and other scientific support.
- Work is being done on the structurally present infrastructure (FAIR) for the storage and sharing of data and research results in conformance with the applicable legislation, in a way that keeps the burden of registration low. Research results are rapidly shared within the collaboration and implemented and scaled up in the region, and outside of it (if relevant). This is a shared responsibility of all parties in the regional network.
- The implementation of research results and innovations proven to be efficient in the region and outside it (if relevant).
- Good monitoring will be done, which will clarify the potential bottlenecks.
- Each region is unique. But there will still be some overlap in the knowledge and innovation agendas. That is why it is important to meet once a year to exchange experiences, to learn from each other, and to implement innovation and lessons learned in other regions. The regions 'feed' each other. Research and research data can be bundled.

The innovation cycle

The start

The cycle starts with the parties involved getting to know each other, formulating their common ambitions, clarifying any conflicts of interest, specifying the context, organizing the boundary conditions (in terms of manpower, financial means, rules) and specifying the required innovation expertise. Then the parties will prepare an inventory of the urgent societal, primarily multidisciplinary, regional issues.

Setting the agenda

Relevant research questions (both large and small) are formulated according to the societal issues. Questions can derive from the prevention and care practice in the region and from data supplied by laypeople, care providers, local authorities, Municipal Health Services, youth care institutions and company doctors. Various national professional organisations (GPs, paramedics, forensic medicine, rehabilitation medicine, midwives) have prepared knowledge agendas that could be combined in the region. This also applies to knowledge agendas prepared by scientific associations, patients' organisations and the knowledge agendas in the context of the National Science Agenda, especially the 'Prevention' knowledge agenda. Discerning the relevant themes will mostly happen naturally; having input from laypeople and patients demands new, partly unknown methods.

Prioritising

The regional community must then impose priorities on the set of research questions. That will not be easy, given the parties' widely varying interests. The trick will be to put the interest of the collective, and the most urgent societal challenges, before the interest of a single stakeholder. Important applicable criteria are keeping care affordable and feasible, striving for sustainable health care and effective, broad-based prevention, and accommodating the user's wishes as far as possible. The analysis of the jointly collected data (Regioscan, see 1.4) can support the discussions on setting priorities. UMCs, universities and universities of applied sciences will apply their expertise, including their knowhow in the field of network development and knowledge and innovation management.

Conducting

Once a regional knowledge and innovation agenda has been created through the inventory and prioritization process and harmonized with national developments, the network will determine the approach to the issues, which data and data sources are required, which methods of data collection, processing and analysis are needed, and who will ensure that the outcomes of the research will actually lead to innovations and applications. Sometimes the UMC will be responsible for a large number of these tasks, while for other research questions the UMC may have a primarily facilitating role, for example in terms of methodology, composing a subsidy application and/or contacting researchers in other knowledge institutions. In addition, research will probably be regularly carried out by professionals from the practice who realise the innovation, together with a research group from the UMC, for example as part of a scientific PhD programme. Patients and laypeople can of course also produce innovations themselves through citizen science.

Distribution

The aim is to achieve sustainable care systems that continuously improve. To realise that aim, it is very important indeed that interested parties profit optimally from the outcomes. This could involve different types of publications, or many other methods such as refresher training, meetings, guidelines and agreements (regional or otherwise). Scientific publications about the research results must be accessible to everyone without restrictions (FAIR and Open Access/ Open Science). A publication in a Dutch journal, or even in the free local newspapers or regional newspapers can produce a societal impact in the region with more value than an article in an international specialist journal. Other forms of communication are necessary, like the digital media of patients' organisations, public meetings, stands at festivals, and various social media strategies. Naturally, these options are not at all exclusive, and it remains important for a scientist and/or a research team to share research results nationally and internationally and excel in doing so.

Implementation

Implementation will not happen without help. ZonMw has gained considerable experience with implementing efficiency interventions in practice in the Efficiency Studies programme. It demands, for example, active attention from all those involved, each fulfilling their own role, as well as – from the start – systematic attention to the practice in which the innovation will be implemented. Implementation demands a series of planned, deliberate activities designed to bring evidence-informed policy and actions into daily practice.

Monitoring and evaluating

To 'close' the cycle, it is crucial to carry out monitoring of the effects and evaluation, leading to new questions. The end user (usually patients, laypeople but also care professionals, etc.) are actively involved in all of the phases, so that enough feedback is available for this phase. It is not unusual for the cycle to begin again at that point.

"The UMC comes to you. It demands of UMCs that they be willing to serve. The organizational power of an UMC is required."

"Include a mandatory course on participation in the training of researchers (graduate school)."

"Young generations have a lot of societal focus, use that potential."

"Make a national institute for complex system innovations."

"It is crucial that insurers and funds exert co-ownership from the beginning."

3. Policy Choices in Sience and Education

As the Health Council argues in its advisory report, 'Research that makes you better', the UMCs are choosing to expand the scientific palette, by providing a stimulus for at research into societally relevant issues of significance in the region, in addition to their current fundamental and innovative research into diagnostics and treatment, and realising innovations in prevention and care (cure and care). This chapter describes which developments within the UMCs, universities and universities of applied sciences will be initiated to give this stimulus, encourage the associated methodological and infrastructural innovations, and safeguard and monitor the scientific quality.

3.1 Evaluation: incentives and rewards

The way in which the UMCs evaluate, incentivize and reward the performance of individual researchers and research groups has a strong guiding effect. After all, researchers are constantly making strategic choices for their research that are often only partly determined by the questions that they think should be addressed. Often opportunities for funding and high level publishing of possible results are crucial scince that are indicators that influence their career prospects in the currently dominant system. Attracting talented researchers to more societal, applied and sometimes qualitative health research is only possible when this is actively promoted by programming and evaluation of the research by knowledge institutions and subsidy providers. Excellence in this research field and of its researchers must be properly rewarded. That is why new inclusive evaluation criteria are required that are based on a mix of quantitative and qualitative measures, which support this change.

This trend to a more inclusive content of the evaluation system is gaining strength nationally and internationally, for example through the support for Open Science from the European Union, which is fully supported by the Dutch government. The joint declaration of VSNU, NWO, NFU and ZonMw about renewing the incentives and reward system for research and researchers is an important step towards more concrete implementation of these principles by funders and universities. This declaration specifies three domains for revision: the creation of various career paths, revising the system for research evaluation (with new ways to evaluate the quality and societal impact of research) and team science (ways to weigh team performance and the collaboration in the team alongside the individual performance).

The system for evaluation, recognition and appreciation in the UMCs will thus change in the coming years. The Minister of Education, Culture and Science announced in the Science letter, 'Curious and engaged' that she is committed to "a change in the way of the quality of researchers in academia will be evaluated ."

In the current National Standard Evaluation Protocol (SEP), which runs until 2021, societal relevance has already received more attention than before. In the run-up to the next revision of this protocol, the committee, which includes the NFU, is examining how the SEP can further support the many different types of research and their corresponding excellence, an example of which in biomedial research is described in this NFU plan. This matches the trend exhibited by the collaborating health funds (SGF): they attach great value to making the societal impact visible. Furthermore, the ZonMw recommendations about this are relevant, as are the criteria for excellence and impact incorporated in the coming European Framework Programme Horizon Europe.

Action 3. The NFU joins the initiatives of VSNU, NWO and KNAW to improve the appreciation of researchers, also as a means to stimulate research in and with the region that focuses on health, prevention and improvement of care.

3.2 Academic career advancement and research funding policy

The GR advisory report suggested that employment of graduate students (PhD's) in 'curative health care and currently disadvantaged fields, like long-term care, prevention and primary care' can be promoted. Although we confirmed that some of these fields are well supported in a number of UMCs, we recognize that nation wide the possibilities of ensuring a more balanced distribution of researchers across the entire spectrum of research. This could be promoted, for example, by actively adjusting the academic promotion policy for (associate-) professorships in these fields. It is after all the professors who are responsible for direction and quality in their department's research policy. The NFU is carrying out a national inventory of all professorships (including special professorships) to use as a baseline for the current state of affairs. Its aim is to have more professorships focusing on public health, long-term care, prevention, primary care and other non-cure professorships in the next three to five years.

Action 4. The UMCs reassess their academic promotion policy, keeping societal relevance in mind, to achieve a significantly higher percentage of these types of professorships. The NFU will carry out a baseline measurement, and then monitor and report the results achieved every five years.

Through this expansion and another system of research evaluation, the number of PhD students and other researchers (university lecturers, senior lecturers) in these fields should increase. A considerable number of these doctoral students and other researchers will work (at least part-time) in practical institutions in the region, often in multidisciplinary teams, and preferably in a 'workplace' construction. In the field of HRM, the UMCs are exploring and developing possibilities to allow for working outside the UMC in combination with doing research within the UMC.

Action 5. The UMCs and their partners will develop constructions to facilitate this proposed combination of working 'outside' and doing research 'within' the UMC (and vice versa) for the primarily multidisciplinary specialist fields mentioned here.

The academic promotion policy will also be employed to strengthen the regional collaboration in terms of research. This could concern dual appointments and special professorships, and involve collaboration partners in policy formation and making appointment recommendations. In a comparable manner the collaboration with universities of applied sciences can be strengthened. With all these strategic choices, the training of doctoral students (and also the basic training of health professionals and researchers) will be expanded.

3.3 Education and training

The UMCs' responsibility for the basic training in medicine, biomedical sciences and various other health professionals and researchers cannot be separated from the attention being paid to prevention and societal and applied research and the input of patients described here. This coherence follows from the Canadian Medical Education Directives competences. The General Plan for training doctors currently being developed will focus attention on the importance of these themes, as does the Basic course Regulation and Organization for Clinical researchers/Good Clinical Practice training.

The recently signed National Prevention Agreement specifies the importance of well-trained doctors and other care professionals, with sufficient knowledge of prevention. The power of education in the UMCs is that lecturers have knowledge themselves about the practice and actively participate in scientific research. The expansion of scientific research and the establishment of regional networks sketched in this plan will enable more attention to be paid in basic training to societally relevant themes and to bringing students into contact with practice-oriented professionals, citizens' initiatives and patients' organisations from the region. Naturally, it is important for the lecturers concerned to act as role models for future colleagues.

In the course offerings for doctoral students and other researchers, more attention must be paid to regional collaboration. In them, researchers can gain knowledge about the specified methodological challenges, the challenges concerning regional collaboration, the involvement of laypeople/patients and other aspects. By opening

these courses to researchers from various institutions in the region, the exchange and becoming acquainted with researchers, students and trainee assistants from other care programmes can also be promoted.
It is possible that these developments will lead to the establishment of new (public health) training courses or interdisciplinary modules within existing training courses.

Action 6. The UMCs incorporate the expansion and regional collaboration specified in this plan in the curricula for doctoral students and other researchers.

3.4 Methodology and medical ethical assessment

Health research in the region, with a focus on commonly occurring conditions, care, public health, function retention and prevention, demands in many cases another approach than the traditional fundamental, clinical and translational research. For example, in therapeutic intervention studies, the Randomised Clinical Trial (RCT) is the golden standard, while this method in research into other forms of innovations (for example, e-Health, monitoring) and public health is often unnecessary, undesirable or impractical.

Again the question must be, which methods are most suitable for answering a specific question for a specific problem and its innovation, while also generating generalisable knowledge where possible. This trend is already evident, for example in the field of research with care data (diverse and big data) and through the use of methods from other science fields in the scientific research on prevention and care. Research methods that are not as well known in a clinical setting must be judged on their merits. Space and time is also needed for process and implementation studies that show why certain interventions do or do not work, and where attention should be paid to substitution of care (less relevant or unnecessary).

Along with innovation, implementation, validation and replication also deserve more attention in the science in the UMCs and in the regional collaboration. The familiar replication problem has consequences after all for the application of science in prevention and care innovation. Paying attention to sound methodology means focus and space (and budget) must be freed up for other forms of data collection, the quality of the database and the optimal facilitation of data reuse and of validation and replication studies.

The expansion of research from the UMCs will also have consequences for the medical-ethical testing in the MECs (and probably also the CCMO). When other methods are employed, for example, the MEC must have sufficient expertise to evaluate their scientific value and the burden for study subjects.

3.5 Open Access and Open Science

The policy stimulus proposed by this plan aligns in different ways with the changes already initiated by the universities and UMCs under the broad umbrella of the Open Science movement. This concerns particularly Open Access, FAIR data, promoting relevant research and another system of evaluating researchers and research groups. Open Access, the free access to research data and results, is essential for the above-mentioned new forms of innovation research and regional collaboration. Results must be accessibly published for everyone (also for laypeople and patients), in a way that serves implementation and scaling up, while of course taking the applicable legislation into account. The FAIR system strengthens the sharing of data in the region and enables collaboration with other regions and foreign institutions. An important aspect of Open Science is so-called citizen science. This concerns opening up of the chain of knowledge production at the very start. Consulting stakeholders inside and out side academia regarding proper agenda setting of our research. Initiatives that involve laypeople and patients in scientific research, or initiatives of laypeople and patients that help determine the scientists' knowledge agenda are already ongoing, as indicated in chapter 1.

3.6 Research Evaluation

The minister remarked in the letter to the Lower House of Parliament (May 2018), "In addition, I consider it important to make the impact of research on the practice more evident, and the plan should indicate how to determine whether its implementation will produce the desired results. In what way can this be independently monitored in the coming years and how will the experiences of other parties than the UMCs be involved?" That is why the following action was carried out. The work group which contributed to the elaboration of this plan aims to meet in 2020 to follow the developments. In addition, monitoring and evaluation at the project level form part of the described regional approach (see box: 'The innovation cycle').

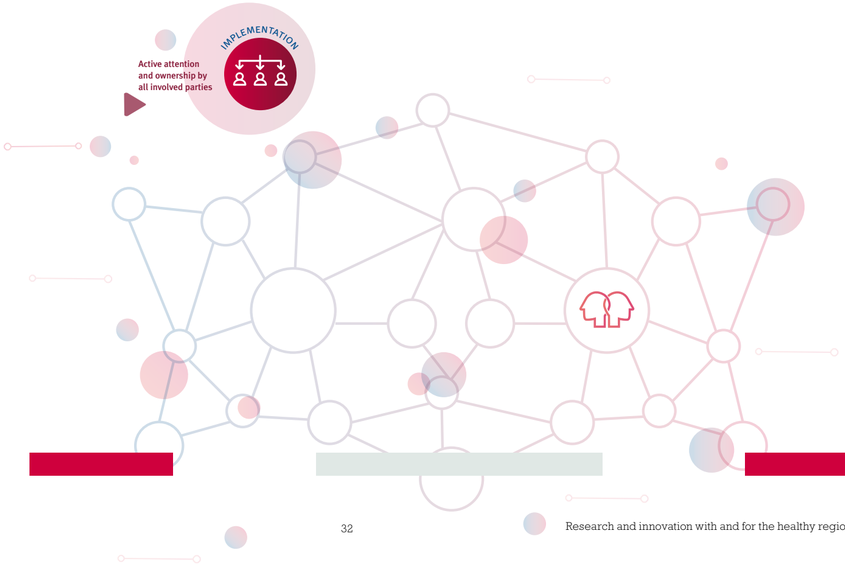
Action 7. Each year the NFU organises a national meeting of the networks to monitor the impact, as a 'follow-up' to the first work meeting on 28 January 2019. All of the UMCs will make an annual presentation of how they carried out the regional plan in the past year, and what plans have been made for the future. In consultation with the Ministry of Public Health, Welfare and Sport, monitoring and accountability will be pursued.

4. Financing

The cost of the plans outlined here fall into three parts: first, the structural cost of the networks; second, the cost of the research and its conduct; and third, the cost of the implementation in practice and scaling up. Within the current budgets of the UMCs there is hardly any room, if at all, for extra investments. Financing the setting up and maintenance of the necessary infrastructure will thus have to be collected from different sources and must derive from internal shifting of budgets. Especially in the start-up phase, an investment will be required. The NFU will be responsible for the start-up phase and monitoring. It will start consulting subsidy providers like NWO and ZonMw about their agendas, programmes and choices. For example, special grants could be established, comparable to the Comenius grants, to give the intended research staff an opportunity.

To a significant extent, the research outlined in this plan will be carried out by staff of the UMCs and other knowledge institutions, which is financed by public funds, supplemented by contributions from research grants and contract research. Research will also be carried out by staff of non-academic collaboration partners or by laypeople and patients themselves, with methodological and other scientific support from the UMC and the university. In such cases, financing will be sought jointly, for example with the UMC helping to submit a project application to a subsidy provider like ZonMw or a health fund.

Care providers, the provinces, local authorities, insurers, companies and others in the region who benefit from research (specific kinds) will also have to contribute to its conduct. This could take the form of a financial contribution, or making manpower, space or facilities available. Such contributions help make the collaboration possible and strengthen the mutual commitment.



Third, implementation and scaling up demand investments. Innovators often require more means than they have available for the actual implementation and scaling up of innovations, regardless of the type. UMCs can play an important role in this respect with their authority and administrative and scientific weight. Innovative healthcare insurers and local authorities can make major contributions, as can public-private partnerships. This demands a clear strategy from the start of the regional collaboration, supplemented with clear implementation plans for each innovative project.

To the extent that the innovation targets care, its financing should not present a problem in the long run. One of the most important arguments for paying more attention to health in the regions is that innovation will contribute to the substitution of care (where less relevant) and reducing the cost by improving the efficacy of care. NB: efficacy only improves when numerous parties actively commit. This demands action and will not arise spontaneously. In the regional context, experiments can be conducted with insurers about ‘health gains’ and the strategic dealing with the ‘yields’ of substitution and improved efficacy.

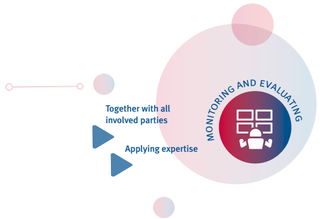
In the current healthcare system, which basically only reimburses medical treatments, there are hardly any financial stimuli to work on prevention, and certainly not primary prevention. Investments in non-primary medical research, public health and prevention are therefore considered by the healthcare system as additional expenses, and traditionally even no financing (practically) is available for monitoring and data collection in the context of the quality cycle. The financing of providing of care and prevention activities falls outside the framework of this plan, but this means that research on these healthcare services is even less likely to be financially suppoprted. This is an issue already presented by the Health Council to Government and UMCs: “The committee advises the Minister of Public Health, Welfare and Sport to invest in a sustainable R&D-fund meant for the desired research, and convince all parties at the table to contribute financially”. One option involves the joint parties (Dutch Ministries of VWS, EZK, OCW and SZW, ZonMw, NWO, NWA, care insurers, SGF, top sectors) taking the initiative to create a new Prevention Fund.

"Create a 'marketplace' for research supply and demand."

"What a region is will be defined by the question."

"Start by making a regional urgency agenda with regional research budgets as a structural basis for multipliers (including project subsidies, government financing, insurers, European funds)."

"Link bottom-up ideas and top-down strategy."



Conclusion

With this plan the UMCs will strengthen their role as catalysts of research and innovation with and for the healthy region. UMCs and their scientific research play a prominent role on the world stage in the field of care, cure and health. From this knowledge and care and cure function they can strongly stimulate the creation of a healthy region. They will accomplish this by applying their expertise more widely and incorporating the knowledge of laypeople and other care and knowledge institutions for the sake of improving the care provided to and of the health of the general population. The UMCs are happy to take the initiative in this, but are also willing to serve the general purpose. The huge challenges in health care and prevention in the coming decades demand for a joint approach, that transcends the limits and interests of individual institutions.

Colophon

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Frank Miedema and Albert Scherpbier

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Lode Wigersma (VAV)
Jos Zandvliet (ZonMw)

Input was obtained from:
Rebecca Abma-Schouten (Hartstichting)
Frank Baaijens (TU/e)
Allard van der Beek (Amsterdam UMC/VUmc)
Babs van den Bergh (VSNU)
Pauline Bongers (TNO Healthy Living)
Joke Boonstra (Erasmus MC)
Koop Bosscha (STZ)
Fons Bovens (Municipal Health Services Zuid Limburg)
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Mariëtte Driessen (VSOP)
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Fanny Vuik (Doctoral studentsnetwork)
Margriet Weide (Longfonds)
Marja Westhoff (ZonMw)
Niek de Wit (UMC Utrecht)

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Kjell Postema, Utrecht

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Terralemon, Amsterdam

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NFU Netherlands Federation of University Medical Centra

nfu@nfu.nl
www.nfu.nl

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