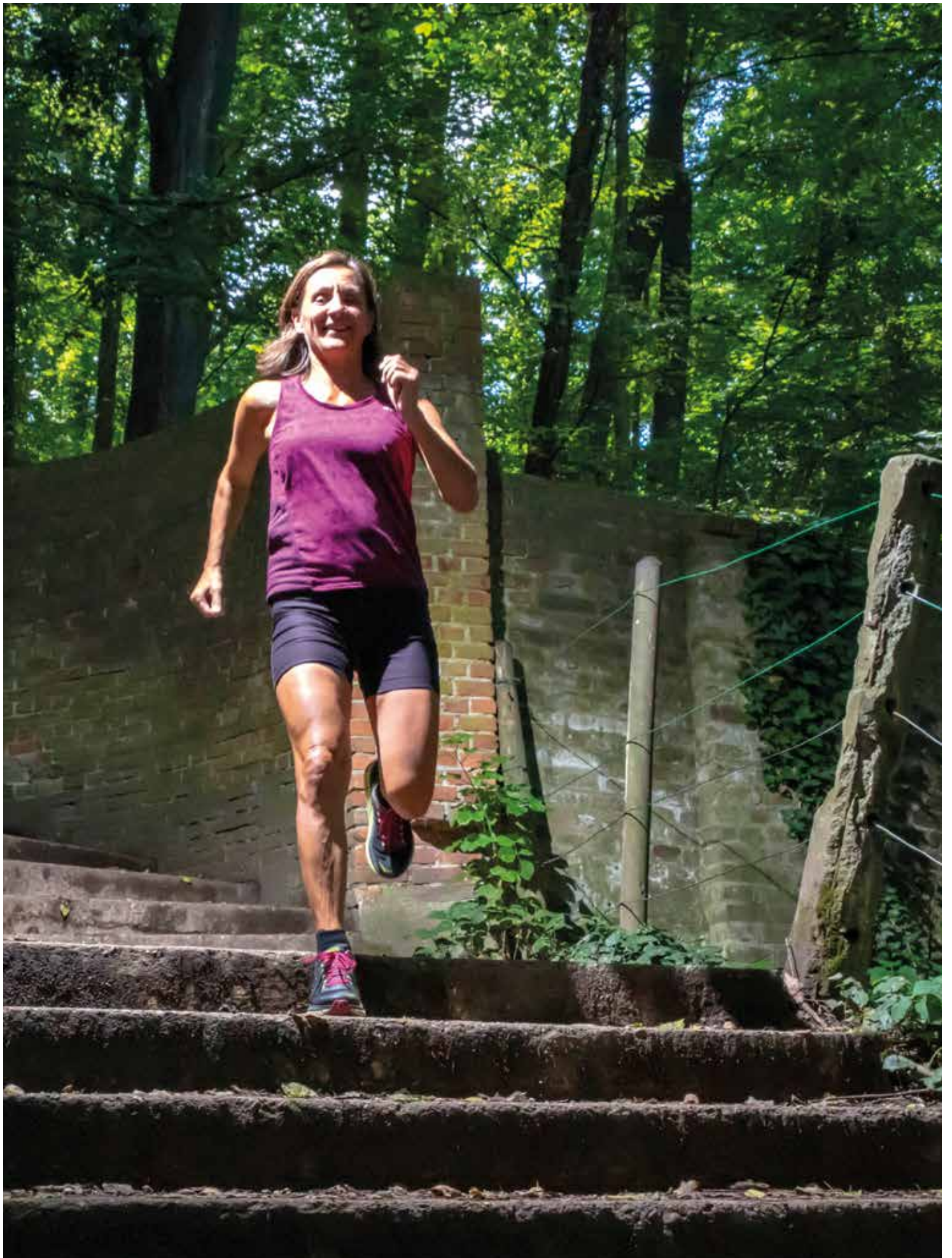


HEALTHY LIVING 2025





HEALTHY LIVING 2025



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READER'S GUIDE

On a number of pages, the running text is supplemented by a +column. This column underpins or illustrates the strategic direction or aim referred to.



FOREWORD

We have refined the course followed by Maastricht UMC+ and describe it in this document, Healthy Living 2025. In this way, we are building on our Healthy Living 2020 strategy of 2015. This does not represent a major change of course; instead we are deepening and further developing our existing strategy.

In Maastricht, we have been working for more than a decade on health in the broader sense. For example, in our vision document 'Care, Cure, Well-being & Health' [Heel de Mens] (2010), we explained that we were not focusing solely on curing people when they are sick, but also on developing knowledge and skills relating to factors that influence health. With great conviction, we are further consolidating our strong position in restoring people to health as well as maintaining and promoting people's health. We do so together with our staff, patients, students, the public and other stakeholders.

We look forward to engaging in discussions with staff and external stakeholders on making our vision a reality. We want to know what is necessary and desirable for successful cooperation on Healthy Living. For this reason, in addition to our vision, this document also contains the strategic frameworks that provide starting points for further dialogue and new initiatives. In the coming period, we will be inviting various collaborating parties to join in this dialogue, so as to work together on a healthy future for us all.

Together we know more. Together we get better thanks to greater knowledge.

EXECUTIVE BOARD OF MAASTRICHT UMC+

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Gabriel Zwart MAC

member of the Executive Board

Maastricht, September 2019

MAASTRICHT UMC+

Maastricht University Medical Centre+ is a partnership between Maastricht University Hospital and Maastricht University's Faculty of Health, Medicine and Life Sciences.

We distinguish ourselves nationally and internationally by focusing not only on restoring people to good health but also on helping them stay healthy and improve their health. In addition to tertiary referral care and top-level clinical patient care, our core tasks are research, education and training, and valorisation. Maastricht UMC+ also provides basic healthcare services for the city of Maastricht and surrounding area. This means that in cooperation with our network partners, we are uniquely equipped to deliver healthcare services from baseline to tertiary level and thus to offer the right care where it is needed. But we are also equipped to investigate the effects of new healthcare models. In our teaching, we take a multidisciplinary and problem-based approach that uses case histories to impart knowledge. Maastricht UMC+ is affiliated to the Netherlands Federation of University Medical Centres (NFU), and is co-founder and partner of the Brightlands Maastricht Health Campus.

We work with total dedication on our mission:

To provide the best possible care and improve health in the region by integrating patient care, research and education.

Our people:

At Maastricht UMC+ there are passionate people working together on heart-warming patient care, top-level scientific research and inspiring education.

Our values:

- **Leading the way** in healthcare, research and education
- **Driven** in our pursuit of excellence
- **Empathic** in our relationships
- **Unifying** for our environment

Our promise:

More knowledge, better life



STAFF
7,620

of whom 5,699 at the clinic
and 1,921 at the faculty



NEW
STUDENTS
2,061

of whom 1,036 Bachelor's
and 1,025 Master's



DOCTORATES
249

**OUTPATIENT
CONSULTATIONS**
EXCL. ACCIDENT
AND EMERGENCY



449,797

ADMISSIONS PER YEAR



26,305



TURNOVER
(TOTAL OPERATING
INCOME IN MLN)

CLINIC **€ 725**
FACULTY **€ 196**

2018 figures



VISION FOR HEALTHY LIVING

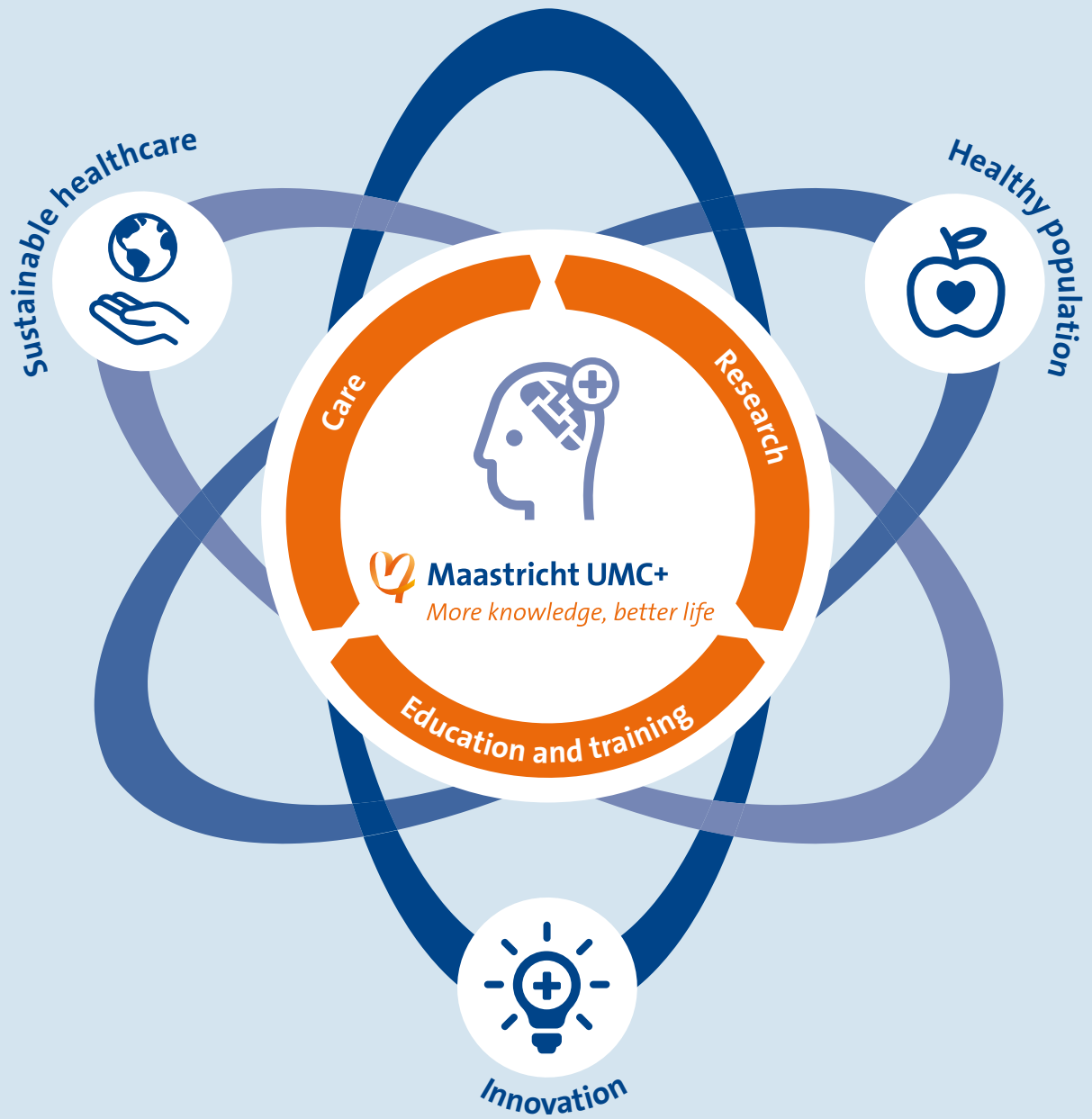
Maastricht UMC+ works continuously to innovate healthcare, research, education and training. We cooperate and forge alliances to achieve our shared aims: innovation for sustainable healthcare and a healthy population.

As a university medical centre, we focus on the treatment of patients with highly complex care needs that require university medical care, and we also provide basic healthcare for the patients in our region. We look beyond illness alone and take a broad view of health. Our position in prevention and health promotion is robust, with lifestyle and the physical and social environment playing an important part. We also keep sight of quality of life, sense of purpose and ethics. We carry out our core tasks of healthcare, research, education and training, and valorisation based on this comprehensive outlook. The needs and priorities of the public are paramount in this regard.

We keep healthcare accessible and affordable by organising it so that the right care is available in the right place, at the right time and provided by the right professional. The changing role and position of patients are of key importance. Our patients receive optimised and personalised care. Digitisation and technology continuously offer new possibilities. Sustainability is a primary consideration, focusing on the vitality of people and the environment.

We do all this in cooperation with our partners. We create networks within and outside the region, with Maastricht UMC+ as academic knowledge and intervention centre in collaboration with Maastricht University. Making connections is our strength and we take on an active and initiating role in this area. We encourage innovation, which leads to new applications that further improve people's health. A healthy population is an important basis for economic development and progress.

Students choose Maastricht because of our innovative and prestigious teaching. Researchers are attracted by our state-of-the-art infrastructure. For our staff, we are a caring employer that prioritises wellbeing, personal development and employability. Together, our healthcare professionals, researchers, educators and students connect our core tasks and thus contribute to a healthier region.





SOCIETAL CHALLENGES

Society and healthcare are changing increasingly rapidly. We are continually adapting our strategic course to reflect relevant new developments. Here are a few of the most important societal challenges:

COMPOSITION OF POPULATION

The proportion of older people in the population and average life expectancy are increasing. As a result, there is a rise in the number of people with age-related illnesses, chronic conditions, comorbidity, and social problems such as loneliness. There is greater diversity among older people as regards level of education and income. The role and the position of patients are changing, as they participate ever more in the care process and have greater autonomy and more choices.

NETWORK MEDICINE

Network medicine is essential for dealing with healthcare issues that go beyond individual institutions and disciplines, and to prevent fragmentation of care. This requires good coordination between healthcare providers and the social domain. University medical centres are undergoing major development as regional academic drivers of healthcare and prevention. This encourages an integrated approach, which is necessary to make the healthcare system sustainable. The borders between the public and private spheres are blurring, so that social and economic valorisation in cooperation with partners is a driving force behind innovation.

EFFICIENCY AND SUSTAINABILITY

Efficiency of care is important, based on the principle of the right care in the right place, provided by the right professional at the right time. The emphasis is on an individual's ability to adapt and to take control, and patients are called upon to exercise self-management. Healthcare providers work with their patients on promoting and maintaining quality of life. In addition, a sustainable healthcare system requires us to limit our ecological and social footprint.

TECHNOLOGY AND DIGITALISATION

This is a time of major technological breakthroughs. Robots are in use and regenerative medicine enables us to develop therapies for tissues and organs that do not function properly by harnessing the body's regenerating capacity. Gene technology is continuing to make progress, which means that particular care needs to be taken regarding risks and ethical questions. Data-driven technology opens up the possibility of customised healthcare, self-care and remote care. Artificial Intelligence has the potential to change healthcare provision.

LABOUR MARKET

The above-mentioned changes are affecting the labour market. The ageing population makes it more difficult to find suitable staff. The complexity of care and digitalisation require changes in deployment and different competences. Technological developments are creating new professions and can provide solutions in the event of labour shortages.

NO. OF PEOPLE AGED 65+
2015: 3.1 million
2040: 4.8 million

+55%

NO. OF PEOPLE AGED 90+
2015: 117,000
2040: 340,000

+191%

NO. OF PEOPLE AGED 65+ LIVING ALONE
2015: 920,000
2040: 1.73 million

+88%

NO. OF PEOPLE AGED 50-64 PER PERSON AGED 85+ (POSSIBLE INFORMAL CARERS)
2015: 10 / 2040: 4

-60%

REGIONAL DISTRIBUTION OF LONG-TERM ILLNESSES
One or more long-term illnesses or conditions 2016 per Municipal Health Service region, adults aged 19+



Percentage
31,0 - 32,4
32,4 - 33,9
33,9 - 35,6
35,6 - 38,7

Source: www.rivm.nl

OUR STRATEGIC DIRECTION

We are working on our strategic focus of Healthy Living through four programmes that offer everyone the opportunity to contribute to our shared aims within their own context.

Each strategic programme has specific objectives, a change strategy and targeted facilitation. Our strategy conferences give us an opportunity to talk, meet each other, share stories, exchange information and inspiration, learn from and with one another, and gain new insights. This enables us to align our challenges with the four programmes individually as well as with the coherent whole.

CONNECTING RESEARCH, EDUCATION AND HEALTHCARE

The programme focuses on creating added value by making the right connections between our core tasks of healthcare, research, education and training, and valorisation. The Maastricht UMC+ circle of innovation is a successful instrument for promoting and illustrating our academic working method. We are committed to a culture of cooperation and connection within and between the faculty and the clinic to strengthen the integrated approach and complex interaction. Examples are facilitating cooperation in targeted ways, removing obstacles, sharing infrastructure and standardising support.

OUR HEALTHCARE OF THE FUTURE

This programme focuses on the necessary healthcare transition, in which the place and time of care and the demand for it are changing: the right care in the right place. Of key importance here is to combine the power of innovation and to use tried and tested concepts when redesigning the care pathways. In this process, we see our patients as our partners and interprofessional collaboration is the standard. We are actively pursuing registration, the use and exchange of data, and digital innovation.

PARTNER IN NETWORKS

We are active at all levels in initiating and strengthening collaboration with regional, national and international partners. Collaborative ventures vary greatly in size and complexity, and this requires constant attention. A recognisable strategic programme has been established in order to achieve good coordination.

ORGANISATIONAL DEVELOPMENT

The transformation programme is aimed at working together to build an organisation and a culture that are in line with our goals and with the far-reaching, necessary changes in healthcare. To this end, we need to be more outward-looking and we need to innovate, find different ways of collaborating and organising, increase our agility and power to change, and tackle known sticking points. Step by step, we are creating a wide range of activities and projects based on this programme.

*Scan this QR code
for more information*



Connecting Research, Education and Healthcare



Objectives:

- Growth in tertiary referral care
- Strengthen active academic role for very complex care, research and expertise
- Increase, apply and share expertise in prevention and health promotion
- Intensify role in society and reputation of MUMC+
- Innovation in educational concepts

Our Healthcare of the Future



Objectives:

- Innovation in healthcare models
- Improve patient experience and increase active role of patient
- Reorganisation of door-to-door care pathways
- Digital innovation

Partner in Networks



Objectives:

- Consolidate role as regional academic driver
- Increase connecting function for networking in the region
- Intensify partnerships
- Draw up regional knowledge and innovation agenda

Organisational Development



Objectives:

- Develop human capital
- Promote collaborative culture
- Flexible organisation
- Sustainable operations and work environment

1. CONNECTING RESEARCH, EDUCATION AND HEALTHCARE

Maastricht UMC+ highlights the added value that comes from connecting its core tasks of healthcare, research, education and training, and valorisation. In committing ourselves to forging ever closer ties between these tasks, we are taking a broad, integrated approach. This has led to a number of strategic areas in which Maastricht UMC+ excels, both nationally and internationally.

We have been working for many years on linking our core tasks and it remains the cornerstone of our strategy. We encourage innovation and multidisciplinary initiatives. We explain this further below, addressing the following:

- Interpretation of all strategic themes, with examples
- Circle of innovation as strategic instrument
- Research based on unique research climate
- Education and training with a broad view of health and healthcare.

1.1. STRATEGIC THEMES

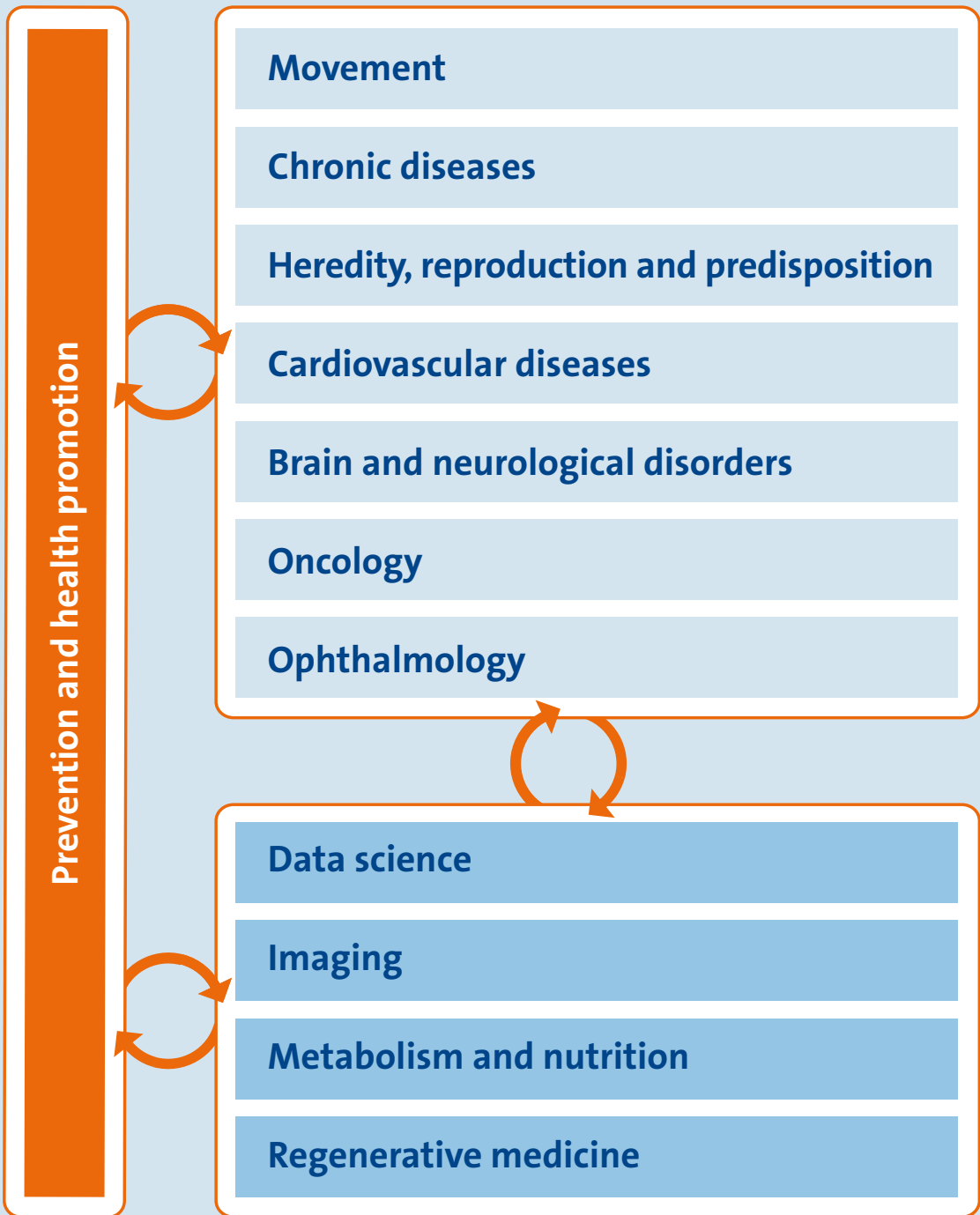
Subject specialisation and targeted innovation have a place within each strategic theme, as results of the interplay between core tasks, innovation programmes, knowledge and applications. The overview of this interaction between the themes is shown in the chart on the next page. The result is made visible in specific examples, some of which are listed in the +columns.

The medical and strategic themes are the result of years of collaboration between the research schools, the research institutes and the centres for patient care. The interaction between these themes and the research topics contributes to the further development of our tertiary referral function and our focus on that function. In our vision, we emphasise the importance of taking a broad, integrated approach to health and care. We therefore see the acquisition, sharing and application of knowledge relating to prevention and health promotion as an important area of expertise. Alignment with the region, the social domain and other disciplines is essential in this context.



SELF-LEARNING E-HEALTH APP

The CARRIER research project is an example of connecting the themes of cardiovascular diseases, prevention, and health promotion and data science. Researchers from Maastricht UMC+ and Maastricht University are looking to develop a self-learning eHealth app to prevent coronary heart disease. They are working in partnership with Statistics Netherlands, general practitioners (GPs) in Eastern South Limburg and Sananet (specialist in eHealth). Hospitals and GPs have a wealth of medical data at their disposal. Similarly, Statistics Netherlands collects socio-economic data. Data on patients who have a history of coronary heart disease is combined with data on lifestyle trends of the population and an individual user's physical living environment. The combined data makes it possible to estimate the risk of developing coronary heart disease. This information is aggregated into a predictive model. That can help to accurately identify those at risk, based on their individual traits. The personal risk profile provides guidance for intervention, with the aim of encouraging people to make real steps to improve their health. An eCoach yet to be developed will provide support.





MOVEMENT

We focus on providing care related to movement, function and participation, centred on the patient at various stages of life. An innovative approach enables us to offer the right care in the right place. We make our tertiary healthcare knowledge about common conditions available to patients and primary care professionals. Joint research by carers and researchers leads to a focused search for solutions to patients' day-to-day problems. The interdisciplinary approach within the Centrum voor Bewegen [Centre for Movement] enables us to take the quality of care, research and education to ever higher levels.

CHRONIC DISEASES

We are working on a broad, integrated care and research network for chronic diseases (non-communicable diseases, NCDs). The most developed programmes are those for diabetes and chronic obstructive pulmonary disease (COPD). NCDs frequently occur together (clustering). For this reason, we are also concentrating on chronic cardiac insufficiency (see under Cardiovascular diseases) and chronic kidney, liver, intestinal and rheumatic diseases. Common themes are a holistic and individualised approach, the influence of lifestyle, living environment and psychosocial factors, and rehabilitation tailored to the patient and the stage of the disease. We also focus on prevention and the identification of risk groups. Our research on the effects of the living environment, psychosocial aspects and lifestyle factors is of excellent quality. We can identify and monitor people who are at risk at an early stage. Based on the unique characteristics of each patient, we develop targeted therapies.



MOVING WITHOUT PAIN

Arthrosis is a major social problem, with no fewer than 1.5 million Dutch people currently suffering from the condition. Although the chance of having arthrosis increases with age, young people are also increasingly developing it. There is no real treatment for it – or is there? A Maastricht research team has discovered in the laboratory how the loss of healthy cartilage (the cause of arthrosis) can be prevented. In the project 'Moving without Pain', doctors and scientists are working on further developing a tiny piece of protein that has a particularly positive effect on affected cartilage.



CIRO

CIRO+ (a partnership between Maastricht UMC+ and the Proteion Thuis Foundation) specialises in treating people with chronic lung diseases such as COPD and asthma, as well as cardiac insufficiency and sleep-related respiratory disorders. CIRO+ works closely with medical specialists in secondary care and GPs. Specialised treatments at CIRO+ are customised, so that the complete programme matches the needs of the patient. The patient is part of the team of specialists, so that the best-possible results can be achieved. In this way, a patient once again becomes a specialist regarding his or her own life. The data centre of CIRO+ puts the care provider and the patient in a position to predict which treatment will be most effective. More than 3,000 patients are now included in the project and the more participants there are, the better the predictive value of the system will become. Because we collect more than 400 variables per person, it is possible to identify connections that were not noticed previously.

HEREDITY, REPRODUCTION AND PREDISPOSITION

We are leaders as regards knowledge of reproductive genetics and embryo research. Maastricht UMC+ is the only medical institution in the Netherlands that offers Pre-implantation Genetic Diagnosis (PGD) and it is also one of three centres in the country providing Non-Invasive Prenatal Testing (NIPT). Both patient care and scientific research call for a multidisciplinary approach.

Our knowledge of reproduction, heredity and predisposition gives us a head start in helping to ensure a 'good start' in life. In this work, we also take account of the mother's lifestyle and environmental factors. In this area of expertise in particular, we are especially aware of the importance of having a thorough discussion on medical ethics, and we also deploy our expertise for this purpose.

CARDIOVASCULAR DISEASES

We offer a top clinical and tertiary referral cardiovascular care package in the area of cardiac arrhythmia, cardiac insufficiency, thrombosis and aortic diseases. Our ground-breaking scientific research and education flourish within operationally excellent patient care, so that we can offer the newest treatments based on the latest medical-biological and technological knowledge. In consultation with the primary care level, there is a strong emphasis on lifestyle as a means of preventing cardiovascular diseases.



THE ETHICS OF PGD

The possibilities offered by genetics are growing exponentially. The discovery of the CRISPR-CAS technique means that in theory, any genetic defect can be repaired before birth. After Maastricht UMC+ was granted a licence in 1995 to carry out PGD (Pre-implantation Genetic Diagnosis), with which serious hereditary conditions can be prevented in people's offspring, the technique prompted heated ethical and political discussion. It is true that with PGD and other forms of genetic technology, we are involved in influencing the early stages of life and the selection of life, and this must be approached with extreme care. Our scientists and geneticists are involved in the early stages of a new technology and at the same time they are creating the basic ethical conditions for applying and using this technology.



CARDIAC ARRHYTHMIA

A technique developed in Maastricht is ablation, in which a cardiologist and a heart surgeon together carry out a procedure on the heart to correct an arrhythmia. Special catheters are inserted into the blood vessels in the groin and threaded through to the heart. An electrophysiological examination is then carried out, in which the arrhythmia is triggered and studied. Once the cause of the arrhythmia has been found, the area of heart tissue responsible is destroyed using energy in the form of heat or extreme cold. One of the developments is a small ECG device that is inserted under the skin to monitor the patient's cardiac rhythm.

BRAIN AND NEUROLOGICAL DISORDERS

In caring for people with disorders of the brain and the peripheral nervous system, we pay explicit attention to the patient's experiences and context. We consider a sense of purpose to be of central importance and we also emphasise resilience and being in control. Our care is accompanied by outstanding education and pioneering research, in which we cooperate closely with the Faculty of Health, Medicine and Life Sciences and also the Faculty of Psychology and Neuroscience. In addition to discovering new possibilities for effective prevention and intervention, we focus on applying our discoveries in the care we provide. We collaborate in networks with regional and national healthcare partners and knowledge institutions. This collaboration is based on the principles of improving health in the region as well as complementing and strengthening one another as regards content.

ONCOLOGY

We offer oncological care and carry out research projects that are closely interconnected. A central concern is to maintain the patient's physical and sensory functions as much as possible. The fundamental knowledge we gain about tumours contributes to innovations, which lead to diagnostic techniques and treatments, such as drug therapies, operative techniques or proton therapy. The personalised treatment of patients is strongly emphasised. Prevention and the promotion of a healthy lifestyle are key elements of our research and our healthcare. Together with partners in the region, we contribute to good healthcare in Southeast Netherlands.



DEEP BRAIN STIMULATION

In Deep Brain Stimulation (DBS), electrical impulses are applied to improve impaired brain activity. This kind of treatment is used for people with Parkinson's disease, Tourette syndrome or epilepsy, for example. Our research concentrates on optimising the effect of DBS on the individual patient, and we use high-quality imaging techniques in this work. For the future, we are researching whether it is possible to administer the electrical impulses through an operation that does not require any surgical incision.



MAINTAINING FUNCTIONAL CAPACITY

Our scientific efforts focus on survival with maintenance of functional capacity. Particularly in operations in the head and neck area, we are dealing with very vulnerable organs and with a person's appearance. Proton beam therapy can limit damage because only diseased tissue is irradiated, thus preventing damage to healthy tissue. In Maastricht, in partnership with the Maastricht proton centre, considerable research is being conducted based on 'big data', which is used to study the risk of side effects. On this basis, we can advise the individual patient in the best way possible.

OPHTHALMOLOGY

We have excellent infrastructure with advanced diagnostic and therapeutic technology. Our focus is on glaucoma, cataracts and corneal transplantation. Our researchers develop ground-breaking know-how and skills by applying the technology of regenerative medicine. Scientific research focuses on integrating new diagnostics and therapies.

DATA SCIENCE

Data-driven technology enables better customised healthcare, for example through clinical decision support and joint decision-making. We combine measurements made by the patient (e.g. using eHealth apps) with existing care. Healthcare and monitoring are becoming independent of time and place, which is altering the relationship between the person requesting care and the healthcare provider. This can be seen in our approach and vision relating to Our Healthcare of the Future (see 2 on page 38). Better use of data – including the availability of big data – requires adherence to the FAIR (Findable, Accessible, Interoperable, Reusable) data principle. It also requires an adjusted funding system, legislation, and digital skills among healthcare providers and patients. Finally, using data also means taking account of data protection, privacy and ethical issues. We have the knowledge and infrastructure at Maastricht UMC+ and Maastricht University to deal with these risks. In our educational and training programmes, we give attention to the wider implications of data-driven healthcare.



TECHNOLOGY IN OPHTHALMOLOGY

Here in Maastricht, we use a robotic laser in complex cases of cataracts. This is a technique that facilitates much more precise placement of the artificial lens. We use our results and experience of this procedure in academic research to further improve the technique. Artificial lenses are also constantly improving. We now have many types of artificial lenses, such as multifocal lenses, which can make reading glasses a thing of the past. We are currently working on reducing side-effects through more efficient use of medication, by investigating minuscule drug-releasing capsules that administer drugs locally in the eye. Regenerative medicine goes a step further. Examples are stem cells that can grow into clear lens cells to replace blurry cells.



DATA USE

DataHub was founded by Maastricht UMC+ and Maastricht University. It ensures the registration, storage and accessibility of data for the whole of Maastricht UMC+, so that clinicians and researchers have access to the same data. By combining data in the right way, we can arrive at 'smarter' predictive models. Such a model can indicate, for instance, that treating a tumour with radiation therapy will reduce the risk of recurrence to 70 percent, whereas adding chemotherapy will reduce that risk to 40 percent. However, the risk of side-effects is greater. Of course, the model cannot indicate whether treatment option A or B should be chosen. This is why patients have a major say in this decision. Models will improve over the years, because the more data are included, the more accurate the predictions will be. The Personal Health Train concept initiated partly by Maastricht UMC+, which has been applauded by the Ministry of Health, Welfare and Sport, plays an important role in this. We collaborate with numerous knowledge institutes in this area. The strength of the model is that we share our knowledge with colleagues all over the world.



IMAGING

Imaging techniques provide information on the form, structure, function and interaction of tissue. We have a wide variety of state-of-the-art imaging techniques at our disposal. Through our scientific research, these techniques directly benefit patient care at Maastricht UMC+. Medical specialists (radiologists and nuclear physicians), laboratory technicians, and clinical physicists work closely with researchers within Maastricht University. As well as unique scanner technology within the hospital (e.g. integrated PET-MRI; advanced CT and Angiography), with imaging centre Scannexus we are the only institution in Europe to have a scanner lab with human ultra-high field MRI scanners (7 and 9.4 Tesla). In collaboration with Maastricht, the proton therapy centre for Southeast Netherlands (Maastricht PTC) was set up, which offers a new type of radiation therapy for the treatment of cancer. The Maastricht Multimodal Molecular Imaging Institute (M4I) focuses on nanoscopy and imaging mass spectrometry. All these techniques and modalities are brought together, partly in a virtual form, in Maastricht Imaging Valley (MIV). MIV has the aim of using image acquisition, interpretation, data analysis and data management to arrive at a comprehensive answer to diagnostics, prevention and therapy.

METABOLISM & NUTRITION

From a holistic view of health and illness, we focus on metabolic changes during the various stages of life. We study the influence of lifestyle (smoking, physical activity and diet), age and loss of organ function due to acute and chronic diseases on the metabolism, body composition and interconnected functions. We translate a better understanding of the interplay between these factors into new diagnostics and the development of new interventions for prompt and customised treatment of metabolic disruptions. In this way, we are contributing towards preventing many chronic diseases, having a favourable influence on the course of an illness for the individual patient, and optimising oncological and other treatment processes.



IKNIFE: THE INTELLIGENT SCALPEL

When removing a tumour, it is not always easy for a surgeon to be sure of having removed all cancer cells. It is not desirable to cut out too much healthy tissue and saving organ tissue is actually a matter of life and death. The 'intelligent scalpel', known as the iKnife, could play an important role in such surgery in the future. Researchers at the M4I research institute and surgeons at Maastricht UMC+ are involved in the early stages of this innovative development. During an operation, the iKnife can distinguish healthy tissue from tumour tissue with the greatest precision, based on a molecular profile. Scientists conducting clinical and basic research are brought together in an integrated research laboratory to make this surgical innovation possible. We are on the way to the 'oncological operating theatre of the future'.



PATIENT, NUTRITION AND EXERCISE

A healthy nutrition and sufficient exercise for our patients helps them to recover more quickly and enjoy greater health benefits. In the Patient, Nutrition and Exercise programme, we combine and develop initiatives that contribute to these aspects. For example, we have developed a training module with which the patient and their informal carer learn how to manage nutrition and exercise properly before and after a hospital stay.

REGENERATIVE MEDICINE

Based on recent breakthroughs in biology, materials engineering and biomedical technology, we are working on restoring health and vitality instead of fighting symptoms or making repairs from the outside. Regenerative medicine focuses on developing therapies for tissues and organs that are damaged and do not function properly by supporting the body's healing capacity. Regenerative medicine thus constitutes a fundamentally different approach to healthcare. It can offer considerable relief from the burden of illness for people who are dependent on dialysis or need an organ donation.

PREVENTION AND HEALTH PROMOTION

Maastricht UMC+ has a long academic and scientific history with regard to knowledge and expertise in relation to health promotion. Within the faculty, a number of groups have incorporated prevention into their research. These groups do high-quality, multidisciplinary research over the whole care chain, from prevention and primary healthcare research to rehabilitation and care of the elderly. The knowledge obtained benefits both patient care and the regional population. Furthermore, researchers are developing knowledge about behaviour change and communication on the subject. The patient lives within a context that determines the course of his or her condition. For chronic patients, appropriate care involves not only treatment of the disease or condition, but also attention to the consequences of the disease for the patient, partner and family; physical and psychological aspects; ability to function in society; and participation in the labour market.



REGMED XB

The discipline of regenerative medicine focuses on restoring diseased or damaged tissues and organs with the help of innovative techniques. Examples are stem cell transplantation or gene therapy. Such techniques will enable us in the future to fight chronic diseases such as diabetes, arthrosis and kidney diseases; improve quality of life; and reduce healthcare costs. In order to achieve breakthroughs in the area of regenerative medicine, a number of collaborative partners have joined forces at the virtual institute RegMed XB, which stands for Regenerative Medicine Crossing Borders. Various teaching hospitals, universities, healthcare foundations and funds, regional and other authorities, and the business community are involved here. They share knowledge and skills in order to achieve new insights and to create new therapies.



HEALTHY PRIMARY SCHOOL OF THE FUTURE

The Healthy Primary School of the Future has the aim of studying whether children who play sports together and eat healthy food at primary school perform better and as a result have better physical, emotional and intellectual growth. The Province of Limburg and a large number of external partners, such as the Municipal Health Service, local authorities, companies and foundations are involved in this research. In addition to Maastricht UMC+, Maastricht University is a participant, together with the School of Business and Economics (SBE), Faculty of Psychology and Neuroscience (FPN), and the Faculty of Law.

1.2. CIRCLE OF INNOVATION

In recent years, we have increasingly based our thinking and working on connections. To explain the comprehensive approach and complex interaction between research, healthcare, education and training, and valorisation, we have developed the circle of innovation.

The circle of innovation shows how our researchers and specialists, looking at societal issues, acquire new knowledge and put it into practice, create value, and encourage healthy living. This raises new questions, which our researchers also go on to tackle – for healthy citizens and sustainable healthcare.

The circle of innovation has four components:



Healthy living: our tertiary referral care and health promotion enable patients and/or the public to enjoy vitality and live a healthy – or healthier – life.



Generating knowledge: scientific research provides us with new insights (basic research).



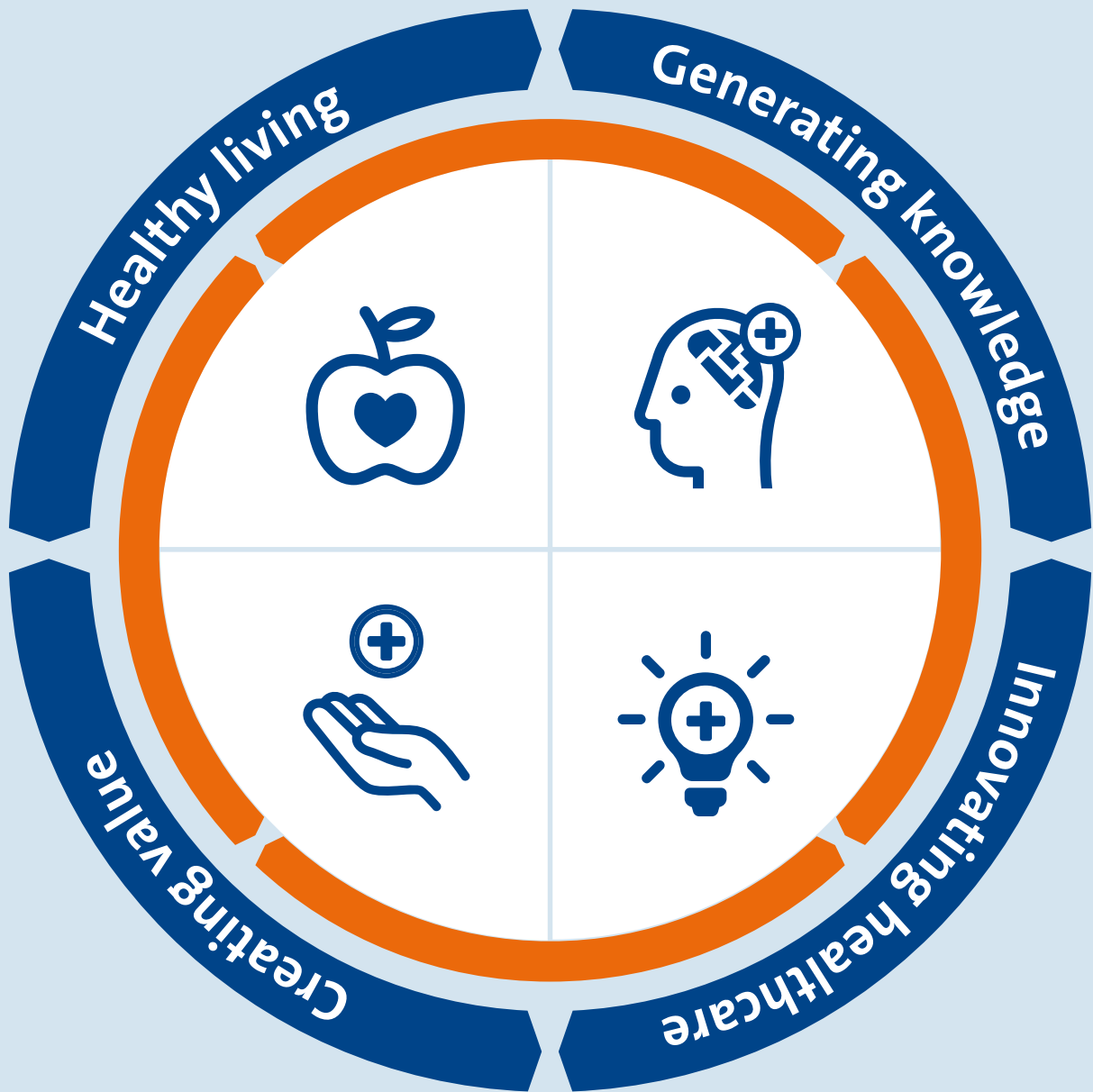
Innovating in healthcare: we translate research results into applications and innovations in healthcare or prevention (translational research).



Creating value: we convert our knowledge into value for society and economic return. This includes using our knowledge in education and training.

Within Maastricht UMC+ we use the circle of innovation to facilitate a dialogue between scientists and professionals, including care professionals, and encourage them to share their stories with one another. The circle of innovation helps us to determine which domains have sufficient critical mass and breadth to encompass the whole academic spectrum. The goal is to achieve, in the most effective way possible, innovations in healthcare and prevention that offer solutions for socially relevant issues.

In this way, we make good on our promise of ‘More knowledge, better life’.



© 2017 Maastricht UMC+ Circle of innovation



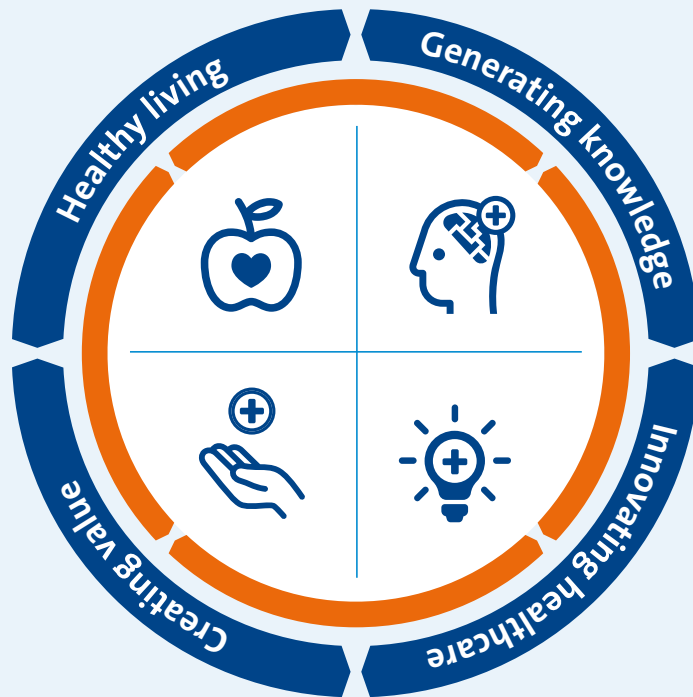
CIRCLE OF INNOVATION: VESTIBULAR DISORDERS

RAISING AWARENESS OF VESTIBULAR DISORDERS

- + One in five people will be affected by a vestibular disorder. These people fall frequently and often feel disoriented and unsafe.
- + These disorders are scarcely recognised by medical doctors and are often labelled as a psychological problem.
- + Maastricht UMC+ raises awareness of the impact of disorders of the vestibular system among national and international care professionals.
- + In the Netherlands, we have been recognised as a centre of expertise where these disorders can be diagnosed and treated.

FROM MODEL TO ARTIFICIAL VESTIBULAR SYSTEM

- + We generate new knowledge about the vestibular system using advanced technology in a specially designed laboratory.
- + We conduct basic research to increase our insights into the complex interaction between the vestibular system, the organs of hearing and the brain.
- + Together with Geneva University Hospital, we have developed the first artificial vestibular system in the world, based on the physiological knowledge of the functioning of the vestibular system.



A FUTURE IN BALANCE

- + Maastricht UMC+ is world leader in research into the knowledge and treatment of disorders of the vestibular system.
- + We do not keep our knowledge to ourselves, but are training care professionals and researchers around the globe.
- + Thanks to our highly specialised knowledge, the artificial vestibular system is optimised continuously.
- + Maastricht UMC+ has initiated the development of a global standard for the diagnostics of vestibular disorders.

EFFECTIVE TREATMENT OF VESTIBULAR DISORDERS

- + Artificial vestibular systems were implanted in patients at Maastricht UMC+ and Geneva University Hospital for the first time in 2012.
- + These artificial vestibular systems enable more effective treatment of patients with vestibular dysfunction, because the symptoms of functional loss of the vestibular system are greatly reduced.
- + Maastricht UMC+ provides a unique integrated care pathway for patients with vestibular disorders.



1.3. RESEARCH

Maastricht UMC+ has a unique research climate: our care professionals, patients and researchers are in close contact with one another. There is a physical connection between the university hospital and the Faculty of Health, Medicine and Life Sciences (FHML).

Thanks to the direct link between research and healthcare, innovation quickly finds its way into society. This puts us in a position to provide high-quality academic care. Furthermore, with Health Sciences, the faculty has substantial expertise in the area of health promotion.

High-quality scientific research requires good scientists and good infrastructure, but the talented researchers of the future also have to be trained. For this reason, research and PhD programmes are carried out in six research schools and two research institutes within the faculty. Theme-oriented teaching is given within the Schools and Institutes. The Schools and Institutes collaborate with the patient centres, faculties of Maastricht University and network partners to increase understanding and to make a contribution to socially relevant issues along the whole care chain, from prevention to aftercare.

The wide range of research, from generating knowledge to its application in healthcare and society, puts us in a leading position.



CAPHRI

CARE AND PUBLIC HEALTH RESEARCH INSTITUTE

Improving the individual's quality of life and improving general public health and healthcare form the common thread that runs through our research. We work together with and for the region. Our focus is on interventions throughout the care spectrum, from prevention and primary care to aftercare and rehabilitation. Our aim is to gain insight into the effectiveness of the various interventions, with their relevance to society being of prime importance. We take account of inequality, participation and globalisation.

NUTRIM

SCHOOL OF NUTRITION AND TRANSLATIONAL RESEARCH IN METABOLISM

We contribute to the full range of general and personalised promotion of human physical and mental health. This includes research on the underlying mechanisms of age, acute and chronic organ failure, lifestyle and other environmental factors, and their influence on the metabolism. We study the effectiveness of, among other things, new diet and exercise interventions in test subjects in a controlled laboratory environment. In addition, we develop and evaluate metabolic interventions as an integral part of the treatment of chronic diseases and in the oncological treatment process. Our research is characterised by a translational approach in multidisciplinary teams.

CARIM

SCHOOL FOR CARDIOVASCULAR DISEASES

Driven by curiosity and clinical need, we do research on cardiovascular diseases and apply the results of this research in the clinic. We focus on the complete cardiovascular spectrum of blood, blood vessels and the heart. We want to understand molecular mechanisms and the disruption of those mechanisms. To this end, we use cutting-edge cellular and physical models, molecular designs, synthesis and imaging. We are working on the prevention of cardiovascular diseases and on early diagnosis and treatment.

MHeNS

SCHOOL FOR MENTAL HEALTH AND NEUROSCIENCE

We do neuroscientific research on neurological and psychiatric conditions, and mental health in general. In this way, we develop a better understanding of the relationship between the brain and human behaviour. For this purpose, we conduct research on the electrical activity of brain tissue and imaging techniques, as well as the influence of diet, for example, on brain function. We do this work not only for the patients of Maastricht UMC+, but we also focus on the general population.

GROW

SCHOOL FOR ONCOLOGY AND DEVELOPMENTAL BIOLOGY

Our focus is on research on malignant diseases and hereditary conditions, within an ethical framework. We are developing know-how in the area of genetic and cellular processes that underlie human development: not only looking at the normal development of an embryo and foetus, but also unravelling the mechanisms responsible for the development of cancer. In this research, we take into account environmental and lifestyle factors. We focus on issues from prevention, through diagnostics, to therapy.

M4I

MAASTRICHT MULTIMODAL MOLECULAR IMAGING INSTITUTE

With the help of nanoscopy, we do research on developing technologies for making molecular processes in tissues and biomaterials visible. In the first instance, we are focusing on the mycobacterium tuberculosis (the bacterium that causes tuberculosis) and the interaction with the host membrane. Imaging mass spectrometry gives us the opportunity to look at large biomolecules for nanomedicine and biomedical research. We develop innovative instruments and methods for generating molecular images at ultra-high resolution.

SHE

SCHOOL OF HEALTH PROFESSIONS EDUCATION

We do high-quality, multidisciplinary research on optimising the education and training of healthcare professionals. We optimise educational evaluation based on research on setting the right goals, values and approaches. And we support our professionals through approaches to instructions, assessments, and educational implementation. The office for international cooperation within SHE – SHE Collaborates – offers a tailor-made programme for innovative training in the areas of education, management and research around the world.

MERLN

INSTITUTE FOR TECHNOLOGY INSPIRED REGENERATIVE MEDICINE

MERLN focuses on developing new and groundbreaking technologies to stimulate the restoration and regeneration of damaged and dysfunctional tissues and organs. We develop instructive biomaterials that the patient's own cells can use for tissue restoration. In this process, the behaviour of a cell is influenced at the macro, micro and nano scale. Furthermore, we focus on 3D printing of various tissues. On our computational platforms, we develop algorithms for modelling cells, tissues and systems, and predicting outcomes.

OUR DISTINCTIVE INFRASTRUCTURE

Good research facilities are crucial for innovative care, research and education. Such facilities enable researchers and care professionals to generate new know-how using the latest technologies and to respond to needs from the healthcare sector and society. The shared use of this infrastructure by researchers, care professionals and students links care with research and education. Parts of our infrastructure are included in the National Roadmap for Large-Scale Research Facilities.

RESEARCH PLATFORMS

We raise the quality of our research by physically or virtually consolidating research equipment. This consolidation is carried out on the basis of technology and expertise on research platforms. We encourage collaboration and cross-disciplinary research, and make the research platforms available to all research groups. This demands a new organisational structure in which room is created for new career prospects, for both scientific and support staff. By setting up research platforms, we can guarantee the continuity of infrastructure.

COHORTS

At Maastricht UMC+ there are various longitudinal cohort studies in progress, which enable us to distinguish cause from effect and to analyse trends. Thanks to our excellent scientific knowledge in the area of data science, we are in a position to link new data sources to regular research data, while taking proper account of privacy and ethical and legal consequences. For example, we link biometric, physiological and psychological data to data relating to the societal and individual context. Using big data in this way offers unique new opportunities for health promotion and creating a healthier society.

THE MAASTRICHT STUDY

The Maastricht Study is a cohort study among the population of the province of South Limburg, focusing on the prevalence, causes and treatment of type 2 diabetes, cardiovascular diseases and other chronic conditions. Extensive knowledge infrastructure has been created: a large data collection that lends itself to studying the emergence and development of chronic diseases, and offers myriad opportunities for collaboration with the business community (technological platform) and knowledge institutions (national and international).

We document in great detail the health of every participant in the search for what is called the Limburg factor – the less positive health experiences in this region. The Maastricht Study is a genuine data gold mine, which has given us countless valuable insights. This is information that is important to science and to society. We have seen considerable interest in our results from around the world. This will appeal to talented researchers and contribute to the development of the knowledge-based economy in our region. Ultimately, nutrition and exercise are not the only things that matter: the entire social environment of individuals plays an important role.

1.4. EDUCATION AND TRAINING

Maastricht UMC+ trains professionals with a broad outlook on health and care. Education at Maastricht UMC+ encompasses the full range of educational programmes and training courses, from initial Bachelor's and Master's programmes, through advanced medical and nursing courses, to refresher courses and further training as part of 'lifelong learning'.

BACHELOR'S AND MASTER'S DEGREE PROGRAMMES

The Faculty of Health, Medicine and Life Sciences offers a variety of Bachelor's and Master's programmes in Medicine, Health Sciences and Life Sciences. Our comprehensive approach, from prevention to care and from social issues to molecular analysis, is reflected in this range of programmes. Students are prepared for a future in which they can work successfully in practice and/or academia in the area of illness, care and health.

Maastricht University is known nationally and internationally for its 'problem-based learning' (PBL) and innovation in educational concepts. The teaching puts the student centre-stage and is small in scale. The subject matter is based on cases. In order to meet the demands of a changing society, all programmes focus on the development of generic competences, such as academic methods of thinking and working, professional conduct, communication and collaboration in an international context. In all Bachelor's degree programmes, in addition to the educational content, there are parallel learning pathways that focus on developing these competences. Students are guided by a mentor, their progress is monitored, and self-reflection is encouraged through the use of a portfolio. This approach contributes to the sustainable employability of our graduates. In this regard, resilience and preventing burn-out, among other things, are increasingly important. Students are very closely involved in developing educational programmes. The results of the educational study by the School for Health Professions Education (SHE) will be applied, so as to continue innovating and updating our educational concepts. One example of this is the internationally prominent position held by Maastricht UMC+ in the area of programmatic testing. The complete body of tests within a programme forms part of the educational and learning processes. Knowledge valorisation is achieved by marketing both educational know-how and study programmes, or parts of programmes.

EFFICIENCY OF HEALTHCARE

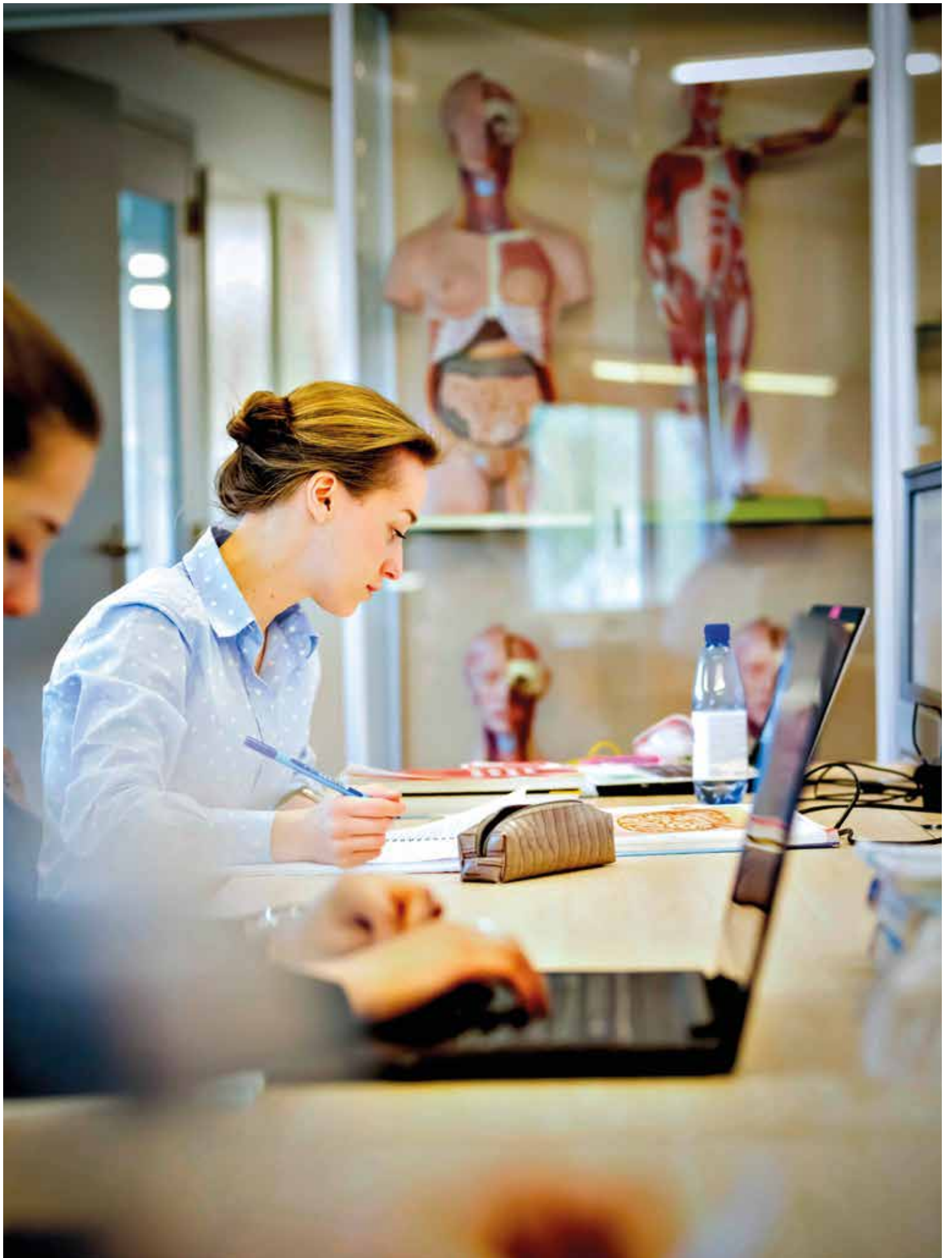
This is a distinguishing competence of the future medical specialist. Changes in care take place through the application of new concepts, such as Positive Health and network medicine, within Our Healthcare of the Future. Over the coming years, we will be studying the impact that embedding various themes in the study programme has on the 'effective action' of students, specialists in training and medical specialists in practice, both in the hospital and the region.

LEARNING IN THE WORKPLACE

Through learning in the workplace, the Maastricht UMC+ Academy wishes to 'reach' employees in relation to the qualities that make them indispensable. Human relationships and professional skills are of central importance, but above all there is the real, sometimes chaotic, emotional, and at the same time splendid world of healthcare. Patients are themselves part of the learning process in the workplace and they learn, too, during conversations with care professional at the bedside.

MASTER'S IN GLOBAL HEALTH

This Master's Programme focuses on issues surrounding globalisation and health, with participants studying the complex relationships between health, healthcare, technology, economic developments and politics. Students develop a solid knowledge base and skills that they need in order to work effectively in this challenging interdisciplinary and intercultural field as a policymaker, a doctor working internationally or a socially responsible entrepreneur.



MEDICAL CARE PROGRAMMES

The Maastricht UMC+ Academy provides the medical care programmes: nursing programmes, technical care programmes, training of medical specialists, and further or refresher training programmes for nursing specialists. In addition to teaching and testing in the workplace, we also make use of practical training, including team training, at the simulation centre. Through 'working = learning = working', learning has a supporting role in day-to-day professional practice: 'ensure that learning works for you'. Characteristic of our education and training activities is that they are closely aligned to current and future needs in the workplace. This increasingly involves education and training for new professions that support transitions in healthcare, as medical and paramedical knowledge and skills alone no longer suffice. In this way, we encourage the development of generic competences, including efficiency, medical leadership, flexibility, creativity and adaptability. In addition, professional identity formation and collaboration between groups of care professionals (interprofessional learning) are part of preparing future care professionals optimally for the labour market. We are striving to create an environment of maximum 'psychological security' and social cohesion, which requires a culture based on trust. We continue to be attentive to the work engagement and resilience of our staff, in the interests of sustainable employability as well as sustainable business operations.

We believe that it is important for our high-quality care to be cost-effective. We teach specialist doctors in training to consider the added value of their actions. Especially in the area of efficiency, Maastricht UMC+ wants to continue to distinguish itself as national leader. The shift to more home-based care and the development of supporting technology are creating a need for greater emphasis on instructing and training patients and informal carers. For this purpose, a centre of expertise has been set up for patients and informal carers.

Maastricht UMC+ plays a key role in regional cooperation on curriculum development. The medical care programmes are continually being updated to anticipate future requirements of specialised care professionals, both in relation to medical content and personal skills.



MUTHONI MWAURA, KENYA

Master's student in
Global Health

"I plan to return to Kenya in order to work there for a non-governmental organisation (NGO). There, I want to help implement health-related projects. I did my Bachelor's degree course in Health Science in Canada, with a specialisation in health promotion. After my studies, I took part in a project for the Red Cross in Kenya on health promotion. Ultimately, I decided to do the Master's in Global Health in Maastricht, so as to gain a broader view of healthcare in a local context in a global world. The course here gives me great fulfilment for continuing my work with an NGO or a citizens' rights organisation."

2. OUR HEALTHCARE OF THE FUTURE

Society and Maastricht UMC+ face the great challenge of organising care in a more sustainable way, so that it remains affordable and accessible. The place and time of healthcare and the demand for care are changing, as people want care near to home if possible, but in hospital if necessary. Improving the outcomes of care and how patients experience it are central to Our Healthcare of the Future.

We redesign our care pathways together with our patients and from their point of view. We take responsibility for the whole care chain, from home to hospital to returning home. Personal attention makes the difference: we are working on personalised care, patient participation and a service model that gives patients more time and attention. We are interested in lifestyle, nutrition and exercise. We decide on treatment advices as an interdisciplinary group and in consultation with the patient.

We apply new technological developments and scientific understanding. We seize the opportunities for digital innovation, such as digital coaches for measuring and monitoring, dashboards and good information provision for the patient and care partners in the whole care chain. Together with our partners, we choose good data registration and the use and sharing of relevant data. At the same time, we are working to reduce the burden of registration.

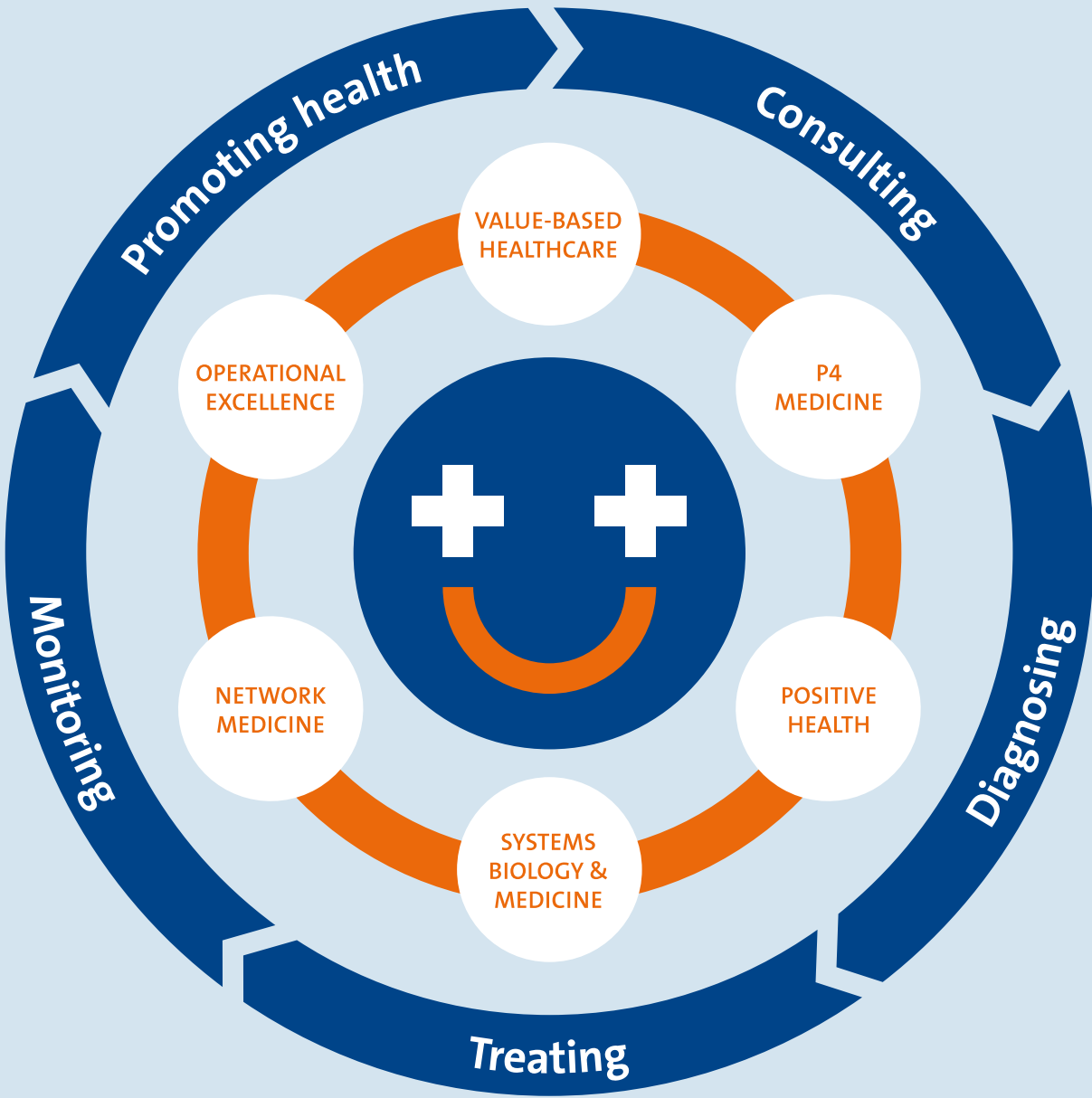
We organise our care using tried and tested concepts and care innovation. In doing this, we make use of continuous improvement programmes and projects in the areas of quality, safety, value-based healthcare, operational excellence and the patient's personal experience. The aim is to strengthen our improvement culture, the continuity of quality and the safety of care. To this end, we build on ideas from various knowledge areas and programmes, including Positive Health.

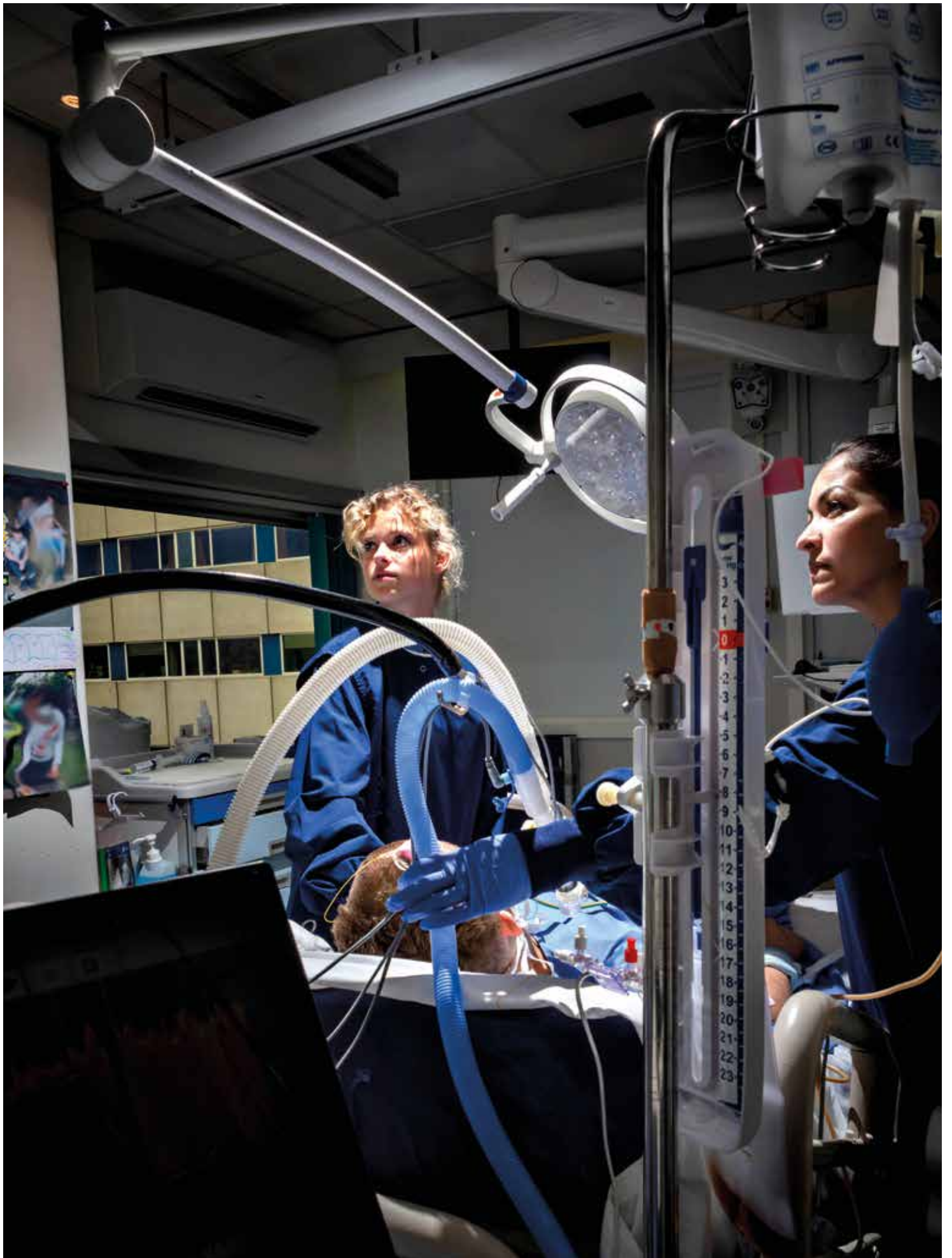
In addition, we search for more sustainable models for continuity of care, using task reallocation and job differentiation. Sharing expertise helps us to achieve optimum care and an excellent patient experience. We also encourage the provision of care outside the hospital where possible. The patient's perspective, based on his or her changing role, possibilities and context, is paramount here. The patient decides and has control over his or her own medical file. Through our continuous collaboration with the faculty's researchers, we are able to offer innovative concepts.

This all requires that care professionals and other professionals take on a changed role, different competences and a new position. For example, we invest in 'verpleegkundiger worden' ('becoming more of a nurse'), through which a nurse can direct care together with the doctor. Investing in and developing new competences, systems, processes, planning and logistics are activities that we carry out step by step, naturally in conjunction with our other strategic programmes.

MOLLY, THE VIRTUAL NURSE

Remote monitoring of patients with chronic cardiac insufficiency can be more effective and more user-friendly through the use of a virtual nurse. The 'smart care avatar', which has been named 'Molly', helps patients to keep their condition under control in their daily life. Research at Maastricht UMC+ has shown that digital self-help produces a number of benefits in the case of cardiac insufficiency. For example, using this form of eHealth results in greater disease-specific knowledge and self-care, reduces hospital admissions and lightens the load for cardiac insufficiency nurses. In the coming years, Maastricht researchers will continue to develop Molly. In order to tackle future challenges, researchers want to go one step further and put patients in a position to treat themselves.





When providing care, we take account of a patient's social and individual context. Our research has shown us that the environment and disposition of the individual patient play an important role. A broad approach is essential for dealing with rising life expectancy and the number of people with chronic conditions. Developments and solutions are not the same for all population groups. Each socio-economic status has its own challenges.

COACH AND YOUR COACH NEXT DOOR

The academic centre of expertise COACH (Centre for Overweight Adolescent and Children's Healthcare) has been established for the treatment of children and adolescents who are seriously overweight or obese. A comprehensive approach provides appropriate support for the child and its family: medical causes are diagnosed and treated at the hospital and in the COACH network. In this network, professionals from the medical and social sectors work together and offer guidance for lifestyle improvements. The scientific research carried out within COACH/Maastricht UMC+ has shown that the COACH programme delivers health benefits and a healthier weight.

In cooperation with JOGG (Jongeren op Gezond Gewicht) [Young People at a Healthy Weight], the Province of Limburg, Municipal Health Services (GGD) of South Limburg and North Limburg, the municipality of Maastricht, Limburg hospitals, and social services, COACH has been translated into the prevention of health problems. This programme is called 'Your COACH Next Door' and it is mainly active at the neighbourhood level. In this way, we keep care close to home and out of the hospital wherever possible.

MAMMACARE CARE PATHWAY

Chemotherapy, radiation therapy, surgery, immunotherapy and hormone therapy: breast cancer patients currently have a wide range of treatment options. But when do we use which therapy? Every tumour is unique and not everyone benefits from the same treatment. Each specific type of tumour can be characterised increasingly precisely thanks to advanced techniques, for example by drawing up a DNA profile and using ever more precise imaging. This knowledge subsequently allows us to determine the most effective treatment method. Patient choice is a leading factor in this process, which we refer to as shared decision-making. One patient will seize every option for remaining tumour-free, while another might come to terms with their shortened life expectancy and seek the best possible quality of life for the time they have left. If a woman with breast cancer wishes to have children, this will be accommodated, for example by freezing eggs or embryos. To assist our patients during their illness, we are developing decision aids based on scientific evidence. This allows people to make a well-informed and well-considered choice on whether or not to go down a certain treatment route. We are by our patients' side to help them choose the best possible path.

3. PARTNER IN NETWORKS

To achieve our aims with regard to specialisation and targeted innovation, we cooperate with prominent partners in the Netherlands and internationally. Such alliances support our ongoing development in the area of tertiary referral care. We take the lead as an academic driver in regional cooperation and networking, leading to social and economic valorisation.

Healthcare is shifting more to the patient's immediate surroundings, making it a shared responsibility. We increasingly participate in transmural and regional networks and take steps to set them up, so that every patient can count on having the right care in the right place, provided by the right professional at the right time. Patients see different healthcare professionals for different aspects of their treatment. Maastricht UMC+ is concentrating more than ever on its role in academia and tertiary referral care. It serves as a regional knowledge hub in a network whose membership is based on the complementarity, diversity and interdependence of the participants.

In spring 2019, the Netherlands Federation of University Medical Centres (NFU) drew up a plan entitled 'Research and innovation with and for the healthy region'. Its aim is to ensure that university medical centres, as regional academic drivers, set up networks for a healthy region. In these networks, they cooperate with the public, patients, private parties and healthcare and knowledge institutions on innovation. The first step is to explore the most urgent issues facing the region and then develop a regional knowledge and innovation agenda for healthy living and healthcare.

Maastricht UMC+ conducts research on new care models and for years it has been actively involved in collaboration and network building. A brief explanation of each type of collaboration is given below.

COOPERATION IN THE CITY AND THE REGION

Maastricht UMC+ is the only university hospital that also operates as a hospital for the city and the region. In Maastricht Heuvelland, there is also close cooperation with GPs (Care in Development; Dutch abbreviation ZIO), as a result of which an intensive intermediate care network has been created at the interface between primary and secondary care. For decades we have been working on improving patient care and creating relationships between the primary and secondary care partners who make this possible. This cooperation has taken many different forms (Diagnostic Centre, carousel of shared consultations, 'short loop' outpatient clinics, etc.) and it is also the breeding ground for the 'Blauwe Zorg' project, one of the initiatives of the Ministry of Health, Welfare and Sport to promote sustainability within the Dutch healthcare system. Maastricht UMC+ and ZIO collaborate in the Stichting Beter Samen [Better Together Foundation], which aims to develop activities to ensure the sustainability of the range of care options offered in the region, with partners providing intermediate healthcare at the 'Stadspoli' outpatient clinics.



INTERMEDIATE CARE HAS POSITIVE RESULTS

A fall in the costs of care per patient, shorter waiting times and an increase in patient satisfaction – all without negative consequences for health. These are the key results of a multi-year trial in South Limburg of an alternative to normal hospital care called intermediate care. In this case an intensive collaboration between GPs and medical specialists in special centres outside the walls of the hospital. Examples are the two 'Stadspoli's' in Maastricht, where medical specialists of Maastricht UMC+ see the patient and give advice on treatment to the GP who is in charge of the patient's care. However, the research does not shed light on the effect this has on the number of patients in the hospital.

-  General hospitals
-  Specialised tertiary care centres
-  Universities and University Medical Centres
-  Maastricht UMC+ and intermediate care



COOPERATION IN SOUTHEAST NETHERLANDS

Maastricht UMC+ cooperates with secondary care centres in Limburg and Southeast Brabant to strengthen tertiary referral care in this area, in order to make this available long-term for the patient and contribute to the health of the region. These aims necessitate strategic cooperation and a sustainable organisation of the care landscape is indispensable. For example, there is cooperation with Zuyderland Medical Centre, with the aim of guaranteeing the quality and accessibility of specialist care in Central and South Limburg. Both partners develop care pathways that are linked to joint research and education. The Intensive Care Units of hospitals in the Southeast Netherlands have also been working together closely for years under the name ICUZON. In the same region, Maastricht UMC+ has created an oncology network (OncoZON). This is a collaboration between nine hospitals and a radiotherapy centre. Within this network, care providers exchange knowledge and harmonise procedures and working methods. The result is optimal oncological care and a more efficiently aligned treatment plan for the patient.

COOPERATION IN LIVING LABS

Maastricht UMC+ initiates and participates in five living labs for: Public Health, Ageing and Long-Term Care, Sustainable Care, General Practice, and Rehabilitation. These living labs have been arranged in order to deal properly with issues arising from the environment. In an academic workplace, practice, policy, research and education go hand-in-hand. Ideas are raised and plans and policy are formed in close cooperation between researchers, students, municipal officials and policy officers. Projects focusing on specific solutions for specific problems are started in cooperation with – and in the context of – the environment. Non-medical data, for example data available at organisations such as Statistics Netherlands on the Brightlands Smart Services Campus in Heerlen, is combined with medical data to enable new research on optimal care and monitoring.

COOPERATION AT TERTIARY CARE CENTRES

Maastricht UMC+ also fulfils its role and position as an academic institute in cooperation with tertiary centres of expertise. For example, the Academic Centre for Epileptology (ACE) brings together knowledge and skills relating to epilepsy, from the Kempenhaeghe tertiary referral centre of expertise and Maastricht UMC+. The catchment area of the ACE covers the whole of the Southern Netherlands. Cooperation between institute for mental healthcare Mondriaan and Maastricht UMC+ focuses on academic care development, scientific research and education and training in the area of mental health. CIRO+ is a partnership between Maastricht UMC+ and the Proteion Thuis Foundation. This centre specialises in treating people with chronic lung diseases such as COPD and asthma, cardiac insufficiency or sleep-related respiratory disorders (see also 1.1 on page 16).

LIVING LAB IN AGEING AND LONG-TERM CARE

The Living Lab in Ageing and Long-Term Care is a structural partnership between care organisations and knowledge institutions (vocational education (mbo), higher professional education (hbo) and university education (wo)). The goal is to contribute, through multidisciplinary scientific research, to the improvement of 1) quality of life of the elderly, 2) quality of care and 3) quality of work in long-term care for the elderly. This is done through job sharing and projects in which researchers and teachers work together with elderly people, their families and care professionals, among others. They exchange information and experiences, and test and evaluate innovations in the daily care.

COOPERATION WITH UNIVERSITY MEDICAL CENTRES IN THE NETHERLANDS

Maastricht UMC+ has entered into a special partnership with university medical centre Radboudumc in Nijmegen: the Academic Alliance. Through this alliance, Radboudumc en Maastricht UMC+ guarantee a wide range of academic care for Southeast Netherlands. Together they form an important part of existing and new care and research networks. The alliance has now been fleshed out with a large number of initiatives across the whole breadth of academic hospital care and in the area of scientific research.

COOPERATION IN MEUSE-RHINE EUROREGION

MUMC+ collaborates with University Hospital Aachen (Uniklinik RWTH Aachen) in Germany in several disciplines in healthcare and scientific research. Over recent years, this has resulted in strong growth in the number of publications, among other things. The departments of Vascular Surgery, General Surgery and Nuclear Medicine have a shared management. Cross-border centres of expertise and treatment centres have been set up in the area of vascular surgery (in close connection with clinical neurophysiology for remote neuromonitoring of major aorta operations), hepato-pancreato-biliary surgery and paediatric surgery. We are working to create a joint Euroregional Centre for Paediatric Surgery, in which one single surgical team would work at the three locations of Maastricht, Aachen and Liège. With Hasselt University in Belgium, there has been long-term cooperation in the area of life sciences. This has produced joint curricula and research projects, linked to combined appointments of PhD students and tenure track teaching staff. The University of Liège in Belgium and Maastricht UMC+ cooperate in the area of imaging, focusing on basic scientific research. In this work we emphasise valorisation and rapid translation of research results to clinical practice. PhD students work in joint cross-border doctoral teams.

CONNECTING WITH OTHER FACULTIES OF MAASTRICHT UNIVERSITY

Supplementary knowledge from other disciplines is important for achieving a comprehensive approach to health. To this end, there are connections with other faculties of Maastricht University. We participate in projects and programmes that contribute towards achieving the ambitions of Healthy Living. In some cases, interfaculty institutes are established for this purpose and two examples are described below. The Faculty of Psychology and Neuroscience (FPN) and the School for Mental Health and Neuroscience (MHeNs) collaborate in the Center for Integrative Neuroscience. This centre brings together under one umbrella the relevant expertise in neurosciences, infrastructure and lines of research in order to strengthen interfaculty cooperation. In Eatwell (Maastricht Interfaculty Programme on nutrition and health), the faculties FHML, FPN, the Faculty of Law and the School of Business and Economics (SBE). With expertise in medical, biological, psychological and socioeconomic sciences, and law, Maastricht is in a unique position to design a modern research programme on nutrition and health. The aim is to promote health and reduce chronic diseases by means of a healthy lifestyle and personalised nutrition.

MOSAE VITA

Mosae Vita is an innovative platform that focuses on the cornerstones of lifestyle, healthy nutrition and exercise. The initiative brings together entrepreneurs, scientists, clinicians and the public to work on new products and services that contribute to 'healthy living'. This makes Mosae Vita a unique place for all parties concerned with healthy living. Mosae Vita strives for healthy living through an informed and aware lifestyle based on healthy nutrition and exercise in a social context. For this purpose, we are creating a dynamic environment in which the public and care providers experience health in a real sense.

CONNECTING WITH THE BUSINESS COMMUNITY AND GOVERNMENT

By connecting the knowledge and education of Maastricht UMC+ with public authorities and the business community, we give shape to health promotion through economic valorisation. This is given specific shape in connection with the Knowledge axis, on the Brightlands Maastricht Health Campus and in cross-overs with other Brightlands campuses. Here, we make our knowledge accessible and broadly applicable. Spurred by societal issues, we set up regional projects, programmes and institutes. Fontys University of Applied Sciences, Maastricht University, Zuyd University of Applied Sciences, Maastricht UMC+ and the Province of Limburg cooperate in the Knowledge axis. This cooperation results in the creation of a high-quality knowledge infrastructure that enables innovative research and developments. In turn, this has the effect of attracting companies, new branches and leading academics. One of the cornerstones is a healthy population, that is to say a population that is healthy, mobile and well-educated, and which has a balanced demographic composition with sufficient knowledge workers. Brightlands is a community of ambitious entrepreneurs, researchers and students. Together, we work on open innovation. We share knowledge and experiences, and focus on worldwide challenges in the area of health, sustainability, nutrition and digitalisation.

The Brightlands campuses are:

- Maastricht Health Campus
- Chemelot Campus (in Sittard-Geleen)
- Smart Services Campus (in Heerlen)
- Campus Greenport (in Venlo)

CONNECTING INTERNATIONAL ACTIVITIES

Maastricht UMC+ has a strong international profile, which includes researchers, doctors and students. Our Problem-Based Learning (PBL) system is a popular export product and leads to collaboration with foreign partners. To achieve our aims in relation to the continuum of outstanding patient care and top-flight research, we collaborate with other knowledge institutions worldwide. Foreign PhD students gain their doctorates in Maastricht. Researchers have international contacts and publish scientific papers with colleagues around the world. Maastricht UMC+ encourages international orientation and collaboration.

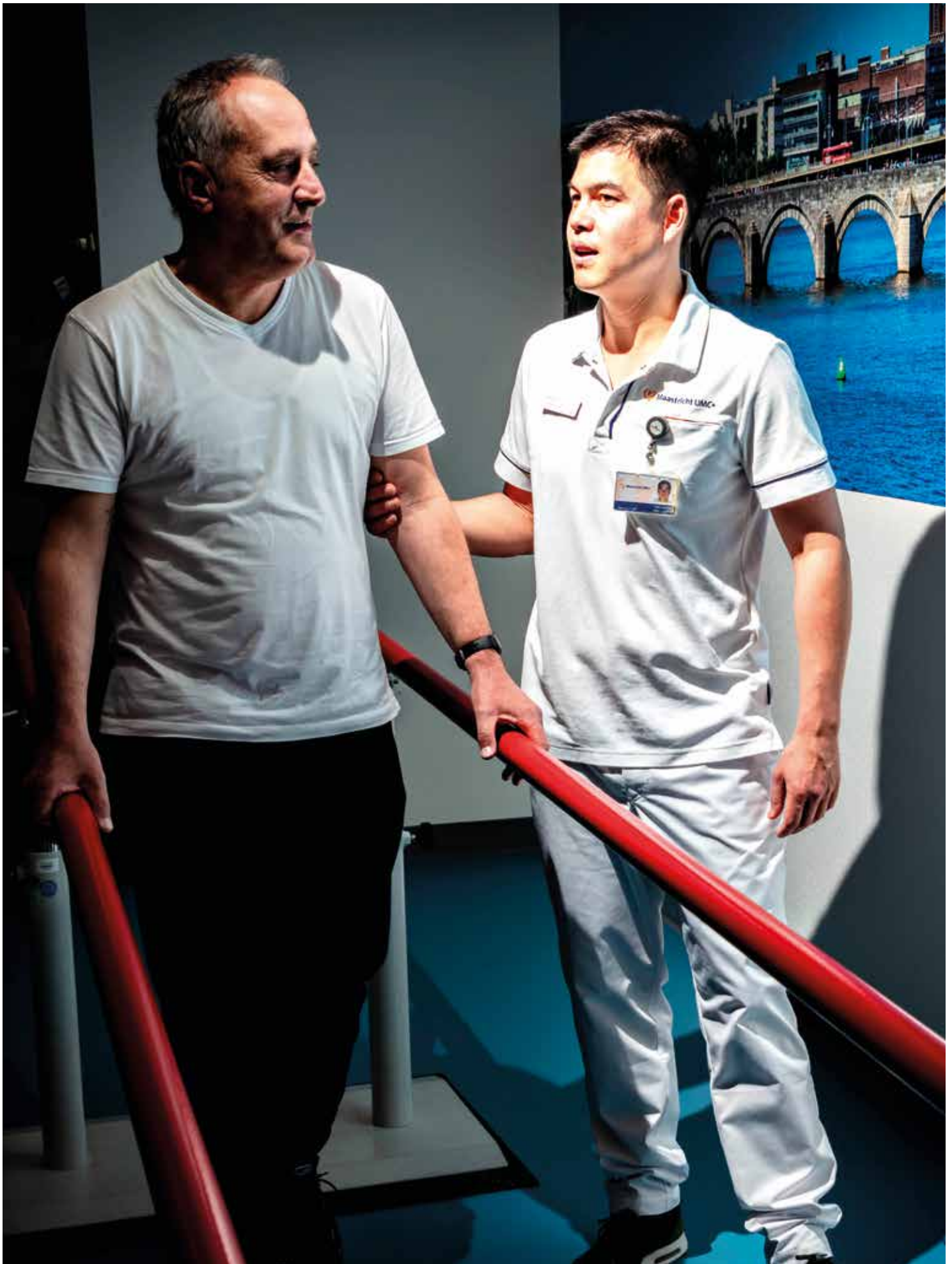


COOPERATION WITH INDIA

In addition to the liaisons in our neighbouring countries, Maastricht UMC+ also has partnerships elsewhere in the world. For example, we have already been cooperating for more than a decade with recognised institutes and hospitals in India. This cooperation is based specifically on the connection with our research profile and complementarity to it, which are expressed in research projects. Within education, India is a partner in various curricula.

Our Ophthalmology department collaborates closely with eye clinics in Bangalore and Madurai, both as regards specialist content and the logistics of patient flows. In the area of Neurosciences, there is a productive relationship between our School for Mental Health and Neuroscience (MHeNS) and NIMHANS (National Institute for Mental Health and Neuroscience), an institute of national importance in India.

Based on Maastricht's expertise in clinical data sciences, the concept of the Personal Health Train is being rolled out at a number of partners, including TATA Memorial – one of India's largest oncological institutes. Students also do work placements and rotations, and take optional subjects in India. In the Master's in Global Health, Manipal Academy for Higher Education is an important partner.



4. ORGANISATIONAL DEVELOPMENT

Our Healthy Living aims and the far-reaching changes affecting society call for new forms of cooperation and organisation. Maastricht UMC+ wants to build an organisation and a culture that will keep pace.

We want to pursue 'lifelong learning' and continue to explore opportunities for improvement, new therapeutic methods, technologies and service models, to conduct innovative research, and to involve ourselves actively in innovative forms of teaching and training.

The first outlines of a new organisational structure are already visible. We are working together to assemble the building blocks, one step at a time, without losing sight of the unified whole or the complex interaction between behaviour and changes in processes, systems and structures.

OUR PEOPLE

Our future employees will require a different work environment and different behavioural conventions. They are aware that they themselves incorporate leadership, but they also benefit from the vision of leadership propounded by Maastricht UMC+. Real leadership is characterised by connection, trust and freedom. We need leaders who, in addition to having excellent academic skills, can play a pioneering role in order to achieve the healthcare transition. These are leaders who have the competences needed to make changes to culture and conduct, and who share responsibility for the transition.

The challenge of working together to achieve our goals and an organisation that contributes to this work require a culture of openness, cooperation and commitment to reaching ambitious and achievable results. Teams and care professionals, researchers and teachers are given space to pursue their personal ambitions and achieve common goals.

SUSTAINABILITY

Based on the sustainability, accessibility and affordability of the healthcare system, our activities in care, research, education and training should bring about sustainable innovation. Sustainability also sets the standard for the manner in which we perform our tasks, ranging from a healthy approach to education and training, through the employability of staff members, to diet and the use of medical resources. Finally, it also guides operations in relation to materials, construction and our contribution to the energy transition.

OUR ORGANISATION

Central to the organisation of patient care are patient groups with specific characteristics. The centres for patient care that are to be established will consist of a clustering of care pathways for such specific patient groups. The choice of these centres is closely allied to our strategic themes, in which care, research and education have already been active and specifically linked for some time (see also 1.1. p. 17). In academic teams, care professionals, researchers, supporters and patients collaborate to maintain care at a high level. In this way, we optimise treatment in complex patient groups, traumas and rare conditions, and we develop diagnostics and treatment for patients for whom there is as yet no treatment available.

There is an intrinsic motivation to collaborate in relation to patient groups and care pathways. The medical specialists and other care professionals engage in multidisciplinary and interdisciplinary collaboration on care pathways, in order to meet the needs of the specific patient group in the best way possible. Harmonisation of care processes is also desirable, both for the organisation of information systems and for a more flexible deployment of staff. This harmonisation makes a large source of data available, with which we can further enhance value for our patients and healthcare.



IN CONCLUSION: WORKING TOGETHER FOR HEALTHY LIVING

We invite our stakeholders, such as patients, GPs, representatives of the general public, municipalities and the provincial authorities, students, and our managers and employees, to enter into a dialogue with us on achieving our ambitions: innovating for a healthy population and sustainable healthcare.

Our strategic focus includes objectives and guiding frameworks as springboards for further dialogue. We hope that at the various round-table discussions, both internal and with a variety of partners, we will be bold enough and able to formulate new initiatives and plans that actually spur people on to participate and take action.

We continue to seek connections beyond the obvious, because we are curious about exploring different perspectives. Meetings between people inspire them to explore opportunities and new possibilities.

This is ambitious, but for this reason we provide focus in the agenda by breaking down the various routes and programme lines into stages. We continue to evaluate the effects of our innovations, knowledge, programmes and activities, in order to update and adjust them where necessary. In this way, we periodically calibrate our strategic compass on the various routes and in different encounters.

We pursue the dialogue further, based on our four strategic programmes:

1. Creating added value in our academic ambitions by linking our core tasks and through the interplay between our strategic themes – *Connecting Research, Education and Healthcare*
2. Developing, applying and sharing innovations in care in our clinic and along the whole care chain – *Our Healthcare of the Future*
3. Actively connecting partners in care and knowledge networks – *Partner in Networks*
4. Developing our people and our organisation in line with our ambitions and the challenges of the future – *Organisational Development*.

We would like to invite you to work with us on a healthy future for all of us.

Together we know more. Together we get better thanks to greater knowledge.



