academion

UMC Utrecht
SEP evaluation 2019-2024

www.academion.nl
info@academion.nl

Project code P2501

Contents

1. Foreword by the committee chair

As chair of the Strategy Evaluation Protocol (SEP) committee, I had the privilege of leading the SEP evaluation of University Medical Center Utrecht (UMC Utrecht). This evaluation was conducted in accordance with the SEP 2021-2027 protocol of NWO, UMC-NL and KNAW, ensuring that the assessment covered scientific quality, societal relevance, and the long-term viability of the research environment.

I would first like to express my sincere gratitude to Dean Arno Hoes and to all those directly and indirectly involved in the evaluation process. Their hospitality, openness in sharing data, and strong commitment to the research activities of UMC-Utrecht in all their facets greatly contributed to the constructive and transparent atmosphere of the evaluation.

The work of the evaluation committee was further strengthened by the excellent preparation and active participation of its members, whose expertise and dedication ensured the quality and depth of the assessment. I also wish to thank Ms. Fiona Schouten of Academion for her outstanding guidance in the run-up to and during the three-day evaluation at UMC Utrecht, as well as for her invaluable support in the preparation of the SEP evaluation report.

May the combined efforts of UMC Utrecht and the SEP committee serve as a source of inspiration for the continuation and further development of the innovative, high-level research that is already taking place at the UMC Utrecht.

Prof. dr. Hans W. Nijman
Chair of SEP committee UMC Utrecht

2. Procedure

2.1 Scope of the review

UMC Utrecht asked a review committee of external peers to perform a research review over the period 2019-2024. In accordance with the Strategy Evaluation Protocol 2021-2027 (SEP) for research reviews in the Netherlands, the committee was asked to carry out the assessment according to a number of guidelines. The assessment was to include a backward-looking and a forward-looking component. The committee was asked to judge the performance of each of UMC Utrecht's six strategic research programs on the main assessment criteria specified in the SEP and to offer its written conclusions as well as recommendations based on considerations and arguments. The main assessment criteria are:

- Research Quality;
- Societal Relevance;
- Viability of the Unit.

During the evaluation of these criteria, the committee was asked to address at least four specific aspects relating to how UMC Utrecht organises and actually performs its research, its composition in terms of leadership and personnel, and how it is run on a daily basis. These aspects are:

- Open Science;
- PhD Policy and Training;
- Academic Culture;
- Human Resources Policy.

For more information on the criteria and categories of the Strategy Evaluation Protocol 2021-2027, see Appendix 1.

Furthermore, UMC Utrecht specifically asked the committee to consider the following questions:

- How do you assess the performance of the six UMC Utrecht strategic research programs in terms of research quality, societal relevance and viability, also taking into account Open Science, human resources policy; PhD policy?
- How competitive do you deem the six strategic research programs on a national and international level?
- How well developed is the support for UMC Utrecht's national and international research, particularly aimed at serving its international positioning, in terms of clinical trials; academic work culture; career perspectives; grant support; and communication? What recommendations can you provide on the support with regard to strategy and performance?

2.2 Composition of the committee

The composition of the committee was as follows:

- Prof. Hans Nijman, gynaecologic oncologist, Head of Department Obstetrics and Gynaecology, Head of Immuno-oncology at the University Medical Center in Groningen (chair);

- Prof. Kevin Talbot, Nuffield Department of Clinical Neurosciences, Head of Department and Professor of Motor Neuron Biology, University of Oxford;
- Prof. Eric Paulson, Chief, Professor Department of Radiation Oncology, Medical College of Wisconsin, Froedtert Specialty Clinics;
- Em. Prof. Christiane De Boeck, Paediatric pulmonologist, University Hospital Leuven;
- Em. Prof. Wiek van Gilst, Professor of Cardiovascular and Clinical Pharmacology, University Medical Center Groningen & Scientific Counselor of the Dutch CardioVascular Alliance;
- Prof. Sir Peter Horby, Director of the Pandemic Sciences Institute and Moh Family Foundation, and Professor of Emerging Infectious Diseases and Global Health, University of Oxford;
- Prof. Katja Schenke-Layland, Professor of Medical Technologies and Regenerative Medicine and Head of Department for Medical Technologies and Regenerative Medicine, Eberhard Karls University Tübingen, and Director NMI Reutlingen;
- Dr. Ir. Agustín Enciso-Martinez, postdoctoral researcher Department of Cell and Chemical Biology at Leiden UMC and Amsterdam UMC;
- Ilse Visser MSc, PhD candidate at Amsterdam UMC and Levvel (Academic Centre for Child and Adolescent Psychiatry) & vice-chair and secretary of Promovendi Netwerk Nederland;
- Prof. Wilco Peul, Professor of Neurosurgery and head of the Neurosurgery Department, Leiden UMC, & Board Member of ZonMW.

The committee was supported by dr Fiona Schouten, who acted as project manager and secretary on behalf of Academion.

During the site visit, the committee was supported by a sub-committee that discussed patient participation in a parallel session (see Appendix 2). This sub-committee was composed of the following members:

- René Luigies (Dutch Patient Federation);
- Jamie Pullen (Patient representative, UMCU patient);
- Thijs de Neeve (Dutch Patient Federation).

From the committee, em. prof. Christiane De Boeck joined this sub-committee. At the end of the session, the sub-committee provided recommendations to the committee regarding patient participation.

2.3 Independence

All members of the committee and the secretary signed a statement of independence to guarantee an unbiased and independent assessment of the quality of the research performed by UMC Utrecht. Personal or professional relationships between committee members and the research unit under review were reported and discussed at the start of the site visit amongst the committee members. The committee concluded that no specific risk in terms of bias or undue influence existed and that all members were sufficiently independent.

2.4 Data provided to the committee

The committee received the self-evaluation report from the units under review, including all the information required by the SEP.

The committee also received the following documents:

- The Terms of Reference;
- The SEP 2021-2027.

2.5 Procedures followed by the committee

In its first online meeting, on 1 September 2025, the committee was briefed by Academion about research reviews according to the SEP 2021-2027. It agreed upon procedural matters and aspects of the review. Upon receiving the institute's documentation, all committee members independently formulated a preliminary evaluation based on the written information that was provided before the site visit. In a second online meeting, it discussed the preliminary evaluations and identified questions to be raised during the site visit.

The site visit took place on 12-14 November 2025 (see the schedule in Appendix 2). After the interviews, the committee discussed its findings and comments in order to allow the chair to present the preliminary findings and to provide the secretary with argumentation to draft a first version of the review report. The final review is based on both the documentation provided by UMC Utrecht and the information gathered during the interviews with management and representatives of the research unit during the site visit.

The draft report by the committee and secretary was presented to UMC Utrecht for factual corrections and comments. In close consultation with the chair, the comments received were reviewed to draft the final report. The final report was presented to the Board of UMC Utrecht.

3. Research review of UMC Utrecht

3.1 Introduction

With approximately 12,000 employees, the University Medical Center Utrecht (UMC Utrecht) is one of the largest public health care institutions in the Netherlands. Research at UMC Utrecht is organized in six multidisciplinary strategic programs, each with a limited number of disease targets: Brain, Cancer, Child Health, Circulatory Health, Infection & Immunity, and Regenerative Medicine & Stem Cells. In 2024, UMC Utrecht employed 2,682 researchers divided over these strategic programs. There is overlap in the research(ers) associated to each program.

The executive board of UMC Utrecht consists of four members, including the dean, who is responsible for all matters related to research and education. In 2024, a vice-dean of research was installed, who is primarily responsible for all internal and campus research policies. The leadership for each of the six strategic programs consists of a chair, additional board members (a so-called 'core team') and a program manager. The programs are linked to budget-holding divisions where (research) personnel are employed. Each division is led by a division management team consisting of two members, complemented by a leadership team that includes, amongst others, a research manager and an education manager. In addition, every division has several research supporting structures in place, such as policy officers, quality coordinators and trial bureaus.

3.2 Mission, Strategy and Governance

The mission of UMC Utrecht is to improve people's health and create tomorrow's healthcare. The six multidisciplinary strategic programs integrate the four mandated, interdependent functions of UMC Utrecht: patient care, research, teaching, and valorization. Interaction with patients and society creates an 'innovation loop', where societal issues guide scientific research and where scientific results quickly move from bench to bedside. UMC Utrecht's strategy 'Connecting Worlds 2020-2025' describes the realization of this mission. Key elements of this strategy include multidisciplinary collaboration with network partners, innovation at the intersection of research themes, and a focused approach to activities.

A new organizational governance structure will be implemented as of January 1, 2026, that should support the research strategy of the UMC Utrecht by combining financial means with scientific strategic execution. In view of this organizational change, and since it was felt to be a good fit, the UMC Utrecht chooses not to abandon its mission and strategy and to remain focused on 'connecting worlds' in the upcoming period.

During the site visit, the committee and UMC Utrecht management discussed the new governance structure in detail. The committee also discussed the transformation, as the change is referred to, with junior and senior staff members. The committee learned that UMC Utrecht aims for more efficiency and clarity through the new governance structure. The divisions will be removed as a management layer. This will increase the strategic and budgetary mandate of the research programs, which until now had a small, dedicated budget and referred to the divisions as budget-holding entities. Moreover, financial transparency is expected to improve, especially in larger programs linked to multiple divisions. In addition, support structures that are currently scattered across the various strategic themes and divisions will be centralized in the new governance structure. At the moment of the site visit, the preparations for this transformation were in full swing.

The committee considers the expected change to be necessary, as the current structure is complex and would benefit from greater simplicity and transparency. Also, the change is set to lead to greater mandate and financial decision power for the strategic programs. The committee feels that this will benefit research, as is further clarified in the program-specific sections in this report. At the same time, the committee realizes that the change in structure goes hand in hand with budget restrictions due to government policies and with a plan to update and rebuild the UMC Utrecht – a plan that has been under development for many years. The resulting financial restraints pose challenges to the new governance of the strategic programs. The committee applauds the UMC Utrecht for its ambitions and plans, yet points out that such changes require the entire UMC Utrecht community to adapt. UMC leadership should be fully sensitive to the people that make the change happen and experience its consequences.

From the documentation and the conversations during the site visit, the committee learned that the six strategic programs had not yet formulated clear strategies for the upcoming period. Since the new governance structure had only just been communicated at the time of the site visit, the programs had only just gained clarity on the changes. Now that the new structure is known, the committee thinks that each of the programs should formulate a vision and strategy. The programs will have a larger (budgetary) mandate and should proactively determine what to aim for and how to work towards that aim.

The committee also points out that a period of internal changes, no matter how well-chosen or necessary, will lead to a strong focus on the organization itself. This internal focus is somewhat at odds with the outward focus of the UMC Utrecht's strategy 'Connecting Worlds'. The committee therefore advises the UMC Utrecht, its management and researchers to keep looking for external partners, partnerships, and impulses. It considers this outward view crucial to maintaining high quality of research and a vibrant and innovative organization.

3.3 Support and Facilities

Research support
Currently, the UMC's central research policy and support services are organized through the Research Office. This office focuses on strategic advice, science policy, and the local, regional, national and international positioning of UMC Utrecht in the field of research. Further, it advises and supports researchers in finding valorization opportunities and supporting them with research and innovation grants. Since the last SEP research evaluation, the Research Office's Funding and Support team has significantly developed its services, growing into an established in-house team that provides full-cycle and all-round support for externally funded research projects. It now consists of 25 professionals led by three coordinators and a cluster lead. This growth was made possible using specific Dutch governmental funding for universities and university medical centers aimed at increasing support for EU grants. Within the Funding and Support team there are specific pre-award and post-award teams. The pre-award team focuses on the development of personal grants and grant writing services. Each of the strategic programs is linked to two grant writers from the pre-award team: one for nationally funded projects and one for internationally funded projects. The post-award service ensures high-quality project delivery and reduces risks in the externally funded portfolio. The teams work closely together. When capacity limits are reached or in cases where external consultants can provide more specialized expertise (e.g. in the case of more business or education-oriented grants), researchers can also apply for proposal development grants to hire external support.

The committee learned from the documentation and the site visit that the growth and professionalization of the Research Support Office has proven highly successful. In funding programs where specialized support is offered, the success rates are currently up to 50% higher than the EU/NL average. The specific expertise and

clear lines of full-cycle support have proven to be of great value to researchers across UMC Utrecht. The UMC expects that in line with the organization's transformation efforts, its funding support services will be further centralized and optimized. The committee shares this hope. It learnt from its conversations with UMC Utrecht researchers that they sometimes struggle with legal hurdles, particularly when conducting international studies. The committee therefore recommends enhancing and streamlining legal expertise, currently concentrated in department of Legal Affairs, by including expertise in a risk proportionate approach to international work, in the new centralized support structure. Aside from this suggested improvement, the committee considers research and grant support to be exceptionally strong within UMC Utrecht and a real asset to the organization.

Valorization support
UMC Utrecht aims to convert its knowledge, innovation and expertise into concrete impact. It provides support, stakeholder engagement, and public-private partnerships to boost such valorization. Staff within the Research Office and on site within divisions are a first point of contact for researchers with questions about valorization. For example, they help designing a business case, finding a private partner for joint research funding, or writing an impact paragraph in grant proposals. The annual UMC Utrecht innovation contest – the Ureka Mega Challenge – also provides a support platform for those with an innovative idea.

To help researchers with economic valorization, specialized support is provided by Utrecht Holdings. Utrecht Holdings is the Knowledge Transfer Office (KTO) of Utrecht University and UMC Utrecht. It focuses on the commercialization of academic research and supports researchers in the development, protection, and exploitation of IP through spin-off companies and/or out licensing. UtrechtInc is the platform on campus to support university-linked entrepreneurship as a start-up incubator. Since 2017, the UMC Utrecht has been implementing 'academic entrepreneurship'. In this procedure, Utrecht Holdings, the legal department, and Human Resources (academic entrepreneurship committee) evaluate situations in which UMC Utrecht staff wish to be involved in a startup company on a case-by-case basis. In most cases, this means that the UMC Utrecht staff member wants to obtain shares in the startup and remain employed by the UMC Utrecht at the same time. Since 2017, many cases have been evaluated and advised. Although equity share is often part of the advice, it mainly involves mitigating actions to prevent conflicts of interest.

For certain research areas, hubs with expertise on innovation and valorization in that specific field are created. For example, there are hubs for advanced therapies (Innovation Center for Advanced Therapies), MedTech (Department of Medical Technology and Clinical Physics), AI (3AI, AI labs) and oncology (Oncode Institute). To support researchers in contract research, trial centers and trial coordinators provide on-site support in the set-up, conduct, and close-out of clinical trials within divisions. In addition, U-TRIAL aims to strengthen the clinical trial climate at UMC Utrecht by being a first point of contact for clinical research organizations (CROs), pharmaceutical companies and medical device companies, and by offering knowledge and expertise for internal and external research partners.

The committee values UMC Utrecht's dedication to the valorization of its research and expertise. From conversations with researchers and the documentation provided, the committee learned that the current approach has positive effects but could also be improved in various ways. As mentioned before, the support landscape for valorization is fragmented across the UMC Utrecht, and the planned transformation is an important opportunity to improve this. The committee also gathered from its conversations with researchers that valorization and business development are currently highly dependent on the proactive attitude of the researcher(s) in question.

The committee recommends developing and implementing a UMC-wide valorization strategy. This would allow the UMC Utrecht to unite and build on valorization expertise within the wider organization, but also to take a targeted and proactive approach. The UMC Utrecht could identify promising areas and recognize, foster/incentivize and support early innovation. This would offer opportunities to improve the efficiency and speed of valorization and the swift and targeted commercialization of new technologies.

In particular, the committee thinks that the set-up of Utrecht Holdings, where support and entrepreneurship come together, should be expanded and altered. Currently, Utrecht Holdings offers support and expertise for researchers looking to valorize their findings. However, it also works in the (financial) interest of the UMC Utrecht at large, negotiating an equity share in patents or companies developed, which is currently not a tailored approach. This combination of roles lacks clarity, potentially creates conflicts of interests, and can be confusing for the researchers involved. The committee advises to look into restructuring the approach to academic entrepreneurship as a part of the upcoming transition. It advises to offer a separate and independent support structure for researchers working on valorization and/or a clearer division of roles in the current setup.

Facilities

The UMC Utrecht houses research facilities for both internal and external clients. These can be divided into four categories: core technologies, advanced technology platforms, expertise centers, and the sample management hub. Core technologies are generally mature, with a well-developed pay-per-service business model, and a broad user base within UMC Utrecht. Currently, these include the Cell Microscopy Core, Core Flow Facility, and Utrecht Sequencing Facility. Advanced technology platforms often work on a more collaborative basis and usually provide their services to a smaller group of researchers. They have the potential to grow into core technologies if the respective technologies are adopted across the UMC Utrecht. Examples are Biofabrication Facility Utrecht, Cellular Screening Technologies, and the Utrecht Platform for Organoid Technology. Expertise Centers are individual research groups that utilize complex technology or analyses requiring continuous R&D input from lab managers or lead scientists. This technology is only available to others on a collaborative basis. The current expertise centers are Bioinformatics, the Center for Image Sciences, and the UMC Utrecht Artificial Intelligence labs. Finally, the sample management hub includes the Central Biobank Facility and the Pathology Tissue Facility.

Most research facilities and technology platforms in the UMC Utrecht have evolved organically into their current form and have different organizational structures aligned with the role and function of the facility. The heterogeneous organizational structure is necessary to enable the facilities to function optimally and to keep them up to date with developments in the field. However, recent developments in biotechnology and data science, a shortage of skilled personnel and a general decline in national funding for knowledge institutes have directly impacted UMC Utrecht research programs. Due to the growth in research FTE by 20% over the last 5 years, several departments indicate a lack of (laboratory) space.

UMC Utrecht addresses these issues as part of its longer-term transformation by developing the current research infrastructure into a centralized Research & Innovation Center. In doing so, UMC Utrecht commits to long-term strategic planning for infrastructure investments and staffing. This centralization of research facilities and technology platforms is set to maximize resources, streamline research, improve education and training and promote collaboration across the campus and beyond. In addition, with central funding, an investment plan is put in place that stabilizes current research facilities and acts as a catalyst for new innovative technologies.

The committee agrees with UMC Utrecht's management that the centralization of facilities and the creation of a Research & Innovation Center indicate a promising and necessary new direction that will positively impact UMC Utrecht's research. The committee noted that in the current structure, innovation occurs bottom-up and depends on individual developments. While the committee is not in favour of replacing this with a top-down structure, it does think that a centralized and structured approach to research and innovation will allow the strategic programs as well as individual researchers to sooner and better identify and act upon new opportunities and directions.

3.4 Open Science

Research data
UMC Utrecht aims to promote Open Science. It has a dedicated and multidisciplinary Open Science team, chaired by the dean, that convenes five times per year to discuss and advise on relevant policies. Various policies are in place. A Research Data Management (RDM) policy, effective since 2019, specifies how UMC Utrecht researchers manage data in the entire research data life cycle: during processing, validation, cleaning, preparation for analysis, archiving and sharing data. For specific processes, the policy prescribes certain methodologies and (preferred) systems. Special attention is paid to transparent scientific practices. In 2021, the Data Sharing Guidelines were introduced to provide practical guidance, taking into account different types of data sharing scenarios, and relevant laws and regulations regarding privacy and data processing. The UMC stimulates Open Access publishing, and an UMC Utrecht-wide publication strategy is under development by the Library Committee and the Open Science team.

The UMC adopted DataverseNL as its centrally supported repository for datasets. Technical facilities to support FAIR (Findable, Accessible, Interoperable and Reusable) data sharing include myDRE, Archivematica, and Molgenis. In myDRE, researchers can provide dataset access to external parties while remaining in control over copies. Archivematica is the research archive of the UMC, where previously composed datasets are stored in a findable and accessible way post-study. In Molgenis, the UMC has started to index the metadata of clinical cohorts. Reuse of healthcare data for scientific research is facilitated at UMC Utrecht by a specially designed data platform. This platform ensures that healthcare data from the patient file is available to researchers anonymously.

There is a continuous effort to improve RDM and Open Science support for researchers. Researchers are expected to self-evaluate their adherence to their own data management plan and RDM policy. To facilitate such research data management, the UMC offers its researchers dedicated courses. It has a mandatory course in place for all PhD students. Now, each division has one or more data managers available for consultation by researchers. The maturing of the data governance model, as well as the upcoming central organization of research activities, offer the possibility to enhance and centralize this support system.

The committee appreciates UMC Utrecht's dedication to the promotion of Open Access, RDM and data sharing. The multi-level approach combines a prominently placed Open Science team chaired by the dean with UMC-wide policies, training, and facilities as well as with decentralized support. The committee found during the site visit that this approach has led to an institution-wide adoption of Open Science policies and practices. In the period under review, the percentage of Open Access publications rose from 53% in 2015 to 82% in 2024. Similarly, the uptake of DataverseNL has gradually increased: in 2020, 14 datasets were deposited here versus 113 in 2024. The committee learned from the documentation that the increase of Open Access publications has lessened somewhat recently and understood that this may be explained by demands posed by journals. The committee hopes that the anticipated centralization of support structures

and expertise will allow the UMC to gain a clear view of such developments and their causes and encourages continuous promotion of Open Access and RDM.

The committee learned that the UMC Utrecht is currently forming the Health Data Space Utrecht (HDSU), which is to become the regional platform for data access and exchange between the UMC and all of its local partners. It is intended to offer legal access to all health care data in the Utrecht region. Data can then be exchanged with the national catalogue in the Netherlands, under the European Health Data Space (EHDS) obligation. The committee considers this a promising direction that offers great promise for researchers in- and outside UMC Utrecht.

3.5 Open Science: Patient Participation

While many researchers at UMC Utrecht collaborate with patients, for others this is still relatively unfamiliar territory. Therefore, the UMC aims to enhance patient involvement in all aspects of research. Currently, this is promoted through a dedicated patient participation program and a Patient Engagement Office. These have already yielded results. First of all, awareness and education surrounding patient participation were boosted on various levels. In consultation with researchers, patients, and others, an e-learning module for researchers was developed in 2022. This module focuses on the initial stages of research, specifically writing about collaborating with patients in a research proposal. An e-module on collaboration during research projects became available mid-2025. To train researchers in collaboration with patients, there is a one-day training course consisting of two parts. First researchers learn theory, concrete examples and case histories, then participants practice some situations with patient partners. Upon completion of the course, participants will have developed a clear understanding of the added value of involving patients. They know how and at what stage they can optimally involve patients. The program also invests in training medical students to include patient participation in their research projects. Finally, members of the UMC Utrecht program on patient involvement also acted at a national level to promote patient participation in research.

During the site visit, the committee was supported by a subcommittee dedicated to patient participation, which discussed further measures to enhance this aspect with various stakeholders from UMC Utrecht and patient groups. According to this subcommittee, UMC is clearly a leader in the area of patient participation, and a lot is being done already to increase patient participation. The enthusiasm and dedication to this became evident during the site visit. The patient participation committee encourages the UMC Utrecht to continue striving to implement patient participation in such a way that it becomes a natural part of the researchers' automatic response and DNA. This means further improving communication on the already existing tools. In line with this, the "why and how" of patient participation could be shared more widely. The best way to do so would be to formulate an explicit vision and mission to increase awareness among all researchers on why patient participation is important, and to make sure this mission and vision are widely known among researchers. Finally, the UMC Utrecht could partner up with other universities in boosting and enhancing patient participation.

The committee noted that many research units include the patient perspective. It saw some clear examples, which will be described below in the program-specific sections, of patients inspiring research and collaborating with researchers, thereby enhancing its quality. Patient organizations are consulted not only during research but also at a strategic level, to help determine which direction to follow. The committee fully agrees with the suggestions offered by its subcommittee and adds to this that UMC Utrecht should investigate best practices and roll them out across all programs.

3.6 PhD Policy and Training

The training and supervision of PhD candidates in UMC Utrecht is assigned to the Graduate School of Life Sciences (GSLS). The GSLS is the collective responsibility of the Faculty of Medicine (UMC Utrecht), Faculty of Veterinary Medicine (Utrecht University), and Faculty of Science (Utrecht University). It hosts an academic community with 1800 active master students and over 2000 PhD candidates across 17 master's and 15 PhD programs, as well as a new continuing education program for professionals. The GSLS aims to offers an inspiring and innovative academic environment that prepares graduates to thrive in the life sciences and society.

PhD candidates enrolled in the GSLS are offered structured guidance and support. They register in the MyPhD system at the start of their track, where they list their supervisors and mentor. A mentor provides independent advice to both the PhD candidate and supervisory team regarding the progress of the PhD track, offers advice to the PhD candidate on issues that cannot be discussed or resolved with the supervisory team, advises the PhD candidate on decisions in the context of their ambitions and future career, and monitors the quality of supervision. The candidate also uploads a Training and Supervision Agreement outlining task division, meeting frequency, and their intended training plan. All of this should be completed at least 3 years before the end of the PhD.

The PhD trajectory continues with a number of milestones. PhD candidates must have a PhD Progress Meeting with their supervisory team and mentors each year ensuring systematic monitoring of their academic development The first of these meetings includes a go/no-go moment. Since the initial UMC contract covers the entire PhD period, a no-go decision constitutes a strong advice to the PhD candidate that successfully completing the PhD is not considered feasible. During the final PhD Progress Meeting, scheduled about 12 months before the end of the PhD contract (or the intended end date for PhD candidates without a contract), the Completion Plan is to be filled out. This plan is designed to assist the candidate and the supervisory team in completing the PhD research and doctoral thesis on time. The thesis is to be submitted to the assessment committee via MyPhD before the contract ends.

The GSLS offers PhD candidates a variety of courses through its PhD Course Centre, such as teaching training, writing courses, and other skills courses organized in-house by the Communication Skills Academy. For career development, an annual Life Sciences Career Week, attended by around 120 PhD candidates, and activities such as the PhD Day and Supervisor of the Year award are organized. Further, the biweekly PhD Update shares important information, events, and news. To monitor PhD wellbeing, a PhD Survey is organized annually by the GSLS's PhD Council. In 2021, confidential advisors dedicated to PhD candidates were appointed who meet once every six weeks with a PhD team to discuss recent developments.

The GSLS also invests in supervision monitoring and quality. In 2021, new guidelines were introduced defining expected attitudes and behaviours for both PhD candidates and supervisors. To further support supervisors, the GSLS provides mandatory supervision training for new supervisors and a toolbox of advanced training options. To improve supervisor support further, the GSLS conducted the first PhD Supervisor Survey in 2023, which received more than 350 responses. Additionally, support for PhD supervisors is being through peer support initiatives.

The committee discussed PhD guidance and experiences with candidates from across all strategic programs. It learned that they are generally happy with the guidance and support they receive, and the environment and courses offered by the GSLS. However, the committee also understood that not all GSLS PhD candidates enrol in the graduate school on time before the end of their first year. This is not obligatory and is sometimes

not mentioned or offered by the supervisors. PhD candidates stated that it was possible to only enrol at the end of their PhD, to hand in the thesis. Naturally, such PhD candidates remain unaware of the offerings of the GSLS. They also stay below the radar in terms of monitoring and visibility.

The committee also understood that PhD candidates feel they depend quite a lot on their supervisors. PhD candidates can therefore be hesitant to report issues with supervisors. In order to address this, all candidates have dedicated mentors who can help them with such issues. Mentors can be selected by the PhD candidates themselves. However, since finding a mentor can be difficult for those first entering academia, the supervisors often suggest them. This impacts the independent role of the mentor and may form an extra hurdle for the PhD candidate to address issues concerning supervision.

A worry of PhD candidates is the need to finish their trajectory within the duration of their contract. These concerns are justified, as is demonstrated by the PhD success rates (see Appendix 3). Less than half of the PhD candidates manage to complete the trajectory nominally or even within five years, and many take longer. The committee understood that there may be various explanations for this, although the UMC Utrecht does not have clear data on this. In addition, the committee was told by various conversation partners that PhD candidates are sometimes told to finish up the PhD in their own time, even though this is not formally permitted.

The committee therefore advises UMC Utrecht to improve guidance and monitoring of PhD candidates. Procedures and practices should be standardized and contract extensions or delays should be registered centrally and monitored. Mentors should be independent of the supervisory team in order to fulfil their tasks optimally. All PhD candidates should enrol in the GSLS at the start of their trajectories, so that they can be followed from start to finish in MyPhD. The committee understood that Utrecht University and UMC Utrecht are planning to turn the MyPhD system into a monitoring tool, that can offer essential data such as the rate of annual progress meetings. This would also allow the GSLS staff to proactively follow the trajectories and intervene when needed, for instance when annual meetings are cancelled or postponed. Importantly, this would allow UMC Utrecht to understand, manage and mitigate delays in the PhD trajectory. The committee supports this plan and suggests to also discuss the Completion Plan at an earlier stage.

The committee urges UMC Utrecht to collect data on PhD candidates and their progress, success, and further careers. These data should be compared to those of other institutions to gain clear insight into the causes for delay and the manner in which PhD candidates are supported at UMC Utrecht.

3.7 Academic Culture

Research integrity
UMC Utrecht promotes a research culture based on the values of honesty, scrupulousness, transparency, independence, and responsibility. These values are described in the Netherlands Code of Conduct for Research Integrity, which UMC Utrecht endorses. This Code has also been translated into UMC Utrecht's own Guidance on Research Integrity (2024), which offers a practical elaboration of the national Code and refers to relevant policies, procedures, and service desks available to researchers, students, support staff, supervisors, and others involved in research.

All new researchers follow the e-module 'Introduction for researchers', which addresses research integrity. Furthermore, training on research integrity is a mandatory part of the PhD training program. Currently, a Responsible Conduct of Research training (RCR) for PhD supervisors is under development. Trainings and programs have been established to implement these policies for both researchers and staff. Outreach

activities are organized and tools are made available to spark dialogue on research integrity. The aim is that everyone working in research who has a question pertaining to research integrity talks about it with their colleagues and supervisors, knows where to find more information and reaches out when they witness something that is in violation of research integrity.

UMC Utrecht aims for relevant clinical research that adheres to current safety and integrity standards and guidelines. All medical research that meets the criteria of the 'Medical Research Act with human subjects' (WMO) is assessed by the national Central Committee on Research Involving Human Subjects. This committee protects subjects while taking into account the interests of medical progress. All clinical research at UMC Utrecht can only be carried out with the consent of the Executive Board. Research with human biological material requires a positive recommendation of the Biobank Research Ethics Committee and in case of collection of human biological material an approval of the Executive Board.

All divisions have dedicated research quality coordinators who report to division management. The research quality coordinator has an advising and controlling task to promote quality and safety and works in close cooperation with division support staff for data management, privacy and legal affairs. The coordinator performs quality checks on the non-scientific aspects of a research proposal before it can start or be submitted to the review committee. The Research Office is responsible for quality assurance, training, and UMC-wide procedures and policies (Quality Manual Research), in collaboration with the research quality coordinators. A new Quality Manual Research was implemented in 2022, providing researchers and staff with a clear overview of the agreed standard procedures and associated work instructions per type of research. It also outlines roles, responsibilities, and internal and external quality monitoring processes aimed at continuous improvement. The UMC Utrecht quality system is consistent with the Guideline 'Quality assurance of research involving human subjects', which has been prepared by the Dutch Federation of University Medical Centers.

The Basic Course Regulations and Organization for Clinical Investigators (eBROK) deals with laws and regulations when conducting clinical research and is compulsory for all researchers involved in human-based scientific research. In addition, the UMC Utrecht has an internal audit program, which is conducted in the form of tracers. There are tracers on the research itself and tracers on research leadership. Through research tracers, the implementation of the UMC-wide research policies is checked. The tracer on leadership focuses primarily on the organization of the research over the whole division and on the management and support processes.

Critical incidents are reported hierarchically. Depending on the impact on subject safety/data integrity, reporting can include the Ethical Review Board, department head, research quality coordinator, division management and the Executive Board. In 2022, UMC Utrecht introduced Vidatum, a centralized research management application. This unified system for registering all medical scientific research supports internal approval workflows, financial monitoring, and budgeting for grant proposals.

The committee considers UMC Utrecht's approach to research integrity to be clearly up to current standards and can be considered well-designed and thorough. The researchers and staff members that the committee met with were keenly aware of the importance and the procedures applicable. The committee also noticed that the overall measures to ensure (knowledge of) research integrity were flanked by exchanges and meetings on lower organizational levels, for instance within a strategic program or research group. The attention paid to educating researchers in the importance of research integrity is also a clear positive.

Openness, (social) safety and inclusivity
To encourage a research culture that endorses integrity and minimizes the risk of misconduct, UMC Utrecht has adopted policies promoting good mentorship and supporting an open, safe, stimulating and inclusive research culture. For instance, UMC Utrecht started the 'This Is Us' campaign, which addresses social safety within the entire organization, with coffee talks and lectures for all interested employees.

In practice, the current organizational structure is not always conducive to creating a positive academic culture. Fragmented support structures and organizational complexity can sometimes lead to a lack of clarity on where responsibilities lie. In the current setup, individual senior investigators have a relatively strong say in personnel policies, promotions, and opportunities given to researchers. The committee learned from conversation partners that this creates feelings of dependency and a fear of speaking up (as was already mentioned in the section on PhD policy and training). This was also made apparent by a survey organized by the UMC's representation of younger scientists, the Young Academy (see also under HR Policy). Researchers stated that they experience a high threshold for raising concerns to wellbeing staff or ombudspersons. They also indicated that they do not have a clear view of promotion policies or career perspectives and emphasized that they would appreciate regular conversations about career perspectives. 'This Is Us' and UMC Utrecht recognize that the current pathways to address issues in social safety are in need of further development. Although UMC Utrecht, for example, has an ombuds office and counsellors, not all employees are aware of their options to speak up and speak out safely.

Within the strategic themes, the GSLS, the departments and divisions, much is organized to boost academic culture, ranging from low-key personnel outings to meetings dedicated to cultural aspects. The committee heard of many examples where senior and junior, as well as support staff formed a close and thriving community. However, much depends on the internal organization of a program or division and on individuals. In the current structure, it is still possible for a researcher to be relatively isolated from other UMC scientists, to experience inequality in promotion or treatment without knowing how to address this, or for a PhD student not to be enrolled in the graduate program (see above).

Based on conversations during the site visit, the committee expects the above-mentioned concerns to be addressed in the upcoming transformation. In the new structure, hiring and promotion decisions will be taken at a higher level, promoting social safety. The new organization may also create more transparency and make it easier for individual researchers to connect with peers. At the same time, the transition itself brings academic culture and social safety to even more prominence as individuals are dealing with changing structures and hierarchies. In view of this development, the committee urges the UMC Utrecht to proactively invest in promoting openness and social safety during and in the transition. The committee asks that this be given priority, since the organization depends on its people.

3.8 Human Resources Policy

Talent development
UMC Utrecht aims to be the place where the retention and progression of the most talented researchers is prioritized, and where research and other talents can be developed (see also 'Career trajectories'). Since 2022, talent development programs have been made available at all academic levels, from PhD and postdocs to full professors. Current funding secures these programs at least until the end of 2027. The four Talent Programs are the PhD Boost Program, the Research Career Development Program (postdoc / assistant professor), the Talent Development Program for Associate Professors and the New Professor Program. These programs strengthen participants in the impact they have with their work and accelerate their teamwork and personal leadership skills. They also aim to strengthen the internal network in UMC Utrecht and between

participants and create a community of talented young researchers. Participants of the talent programs are invited to familiarize themselves with the career profiles and develop their expertise and activities according to one of those profiles.

The programs are broadly communicated to ensure that all researchers have the opportunity to express interest and apply. Final participation is determined through a nomination process in which division management plays a key role, complemented by input from the strategic programs. The New Professor Program is excluded from the selection process: candidates are invited to participate upon appointment. During the selection process, diversity criteria are taken into account: at least 50% are women and at least 1/3 of participants have a culturally diverse or international background.

The committee met with various researchers from all levels who had participated in the talent programs. It was pleased to note that they were all positive on the programs and found that they had made a clear difference in their professional, and sometimes even private, lives. Participants reported that they had gained new and valuable insights on academia at large, the UMC Utrecht, and their own skills and positions. They also highly appreciated the network gained through the training. Participants rated the programs eight or higher. The committee applauds and fully supports the Talent Programs.

At the same time, the committee points out that not all researchers at UMC Utrecht qualify for these selective programs. Selection depends strongly on nomination by group leaders and the criteria for this were not clear among all researchers the committee talked with. What is more, the number of candidates typically exceeds the number of available places, so that some candidates will have to be turned down. In addition, the UMC Utrecht Young Academy, which represents early- to mid-career researchers, carried out a survey in 2024 among researchers about their career goals, prospects, and support at UMC Utrecht. This survey demonstrated that 50% of respondents stated a need for clarity regarding what is required to advance to a next career step and 95% expressed an urgent need for one-on-one coaching or mentoring. The committee discussed this with early and mid-career researchers during the site visit, who confirmed this impression. The committee noted that some strategic programs, such as Cancer and Child Health, had instated versions of a mentorship approach, but that this is not done across the entire UMC.

The committee advises UMC Utrecht to install mentorship programs across all strategic programs and researchers. The UMC should make this a structured approach, taking the entire career trajectory into account: from PhD candidates and postdocs to mid-career scientists and (associate) professors. On each of these levels, regular conversations should be organized to help researchers forward and explore options and directions. The committee finds that since its people are the backbone and the future of the institution, the UMC Utrecht would benefit greatly from providing them with such structured and balanced support throughout their careers.

Career trajectories

UMC Utrecht has been one of the frontrunners in the Dutch national ‘Recognition & Rewards’ movement, analogous to the European ‘Coalition to the Advancement of Research Assessment’ (CoARA). The aim of these initiatives is to develop forms of research evaluation that recognize the various activities and outputs needed to achieve scientific and societal impact. To diversify the reward system in relation to career advancement, UMC Utrecht implemented six academic career profiles in 2022, each representing a different pathway to scientific and societal impact. The six profiles are academic educator, clinical researcher, exploratory researcher, implementation researcher, methodology & technology researcher, and valorization researcher. Appointments occur typically at the associate professor level.

In addition to these profiles, UMC Utrecht believes that clinicians who are also active in translational research embody its mission as they bridge the clinical and scientific environments. However, given the immediacy and urgency of clinical duties, it is often hard to protect research time. To balance this, UMC Utrecht started recognizing so-called 'clinical scientists' in 2021. When supported by divisions and strategic programs, these clinicians/researchers are formally recognized by the dean for their translational research and are granted at least 0.4 FTE research time from their division. As of 2025, 43 clinical scientists were appointed. Surveys done by UMC Utrecht indicate a generally positive effect of clinical scientist recognition but also suggest that pressures on research time continue to exist.

The committee is positive on the six profiles. These are well-known in the organization and they clearly show that alternative career options are possible and appreciated. The committee concludes that recognition of the role of clinical scientist is essential. The protection of research time of translational scientists is a continuous point of concern, to which this role offers a solution. However, the committee understood that the role of clinical scientist is not yet well-defined. Uncertainty persists about the optimal timing within the clinical career for undertaking such a role, leading to significant variation in practice. What is more, the manner in which the 0.4 FTE research time is to be demarcated and protected is also undefined.

The committee highlights the importance of the clinical scientist as an essential intermediary between research and hospital, particularly in the new structure. It strongly recommends providing a clearer outline for this function. It suggests offering the clinical scientist role after the specialist training, as this should not come too late in a career and makes a lasting impact. The committee recommends that different approaches be considered for integrating clinical duties with research time, for example through a block-based model in which research and clinical activities alternate over defined periods of weeks or months.

Diversity and inclusion

UMC Utrecht strives to be an inclusive and diverse academic environment. In line with EU requirements, UMC Utrecht formulated a gender equality plan in 2021, which gives a full overview of the gender and diversity policies. In addition, within the HR department, a full-time Diversity & Inclusion (D&I) officer has been hired, and a D&I core team has been established. This core team includes representatives from HR, healthcare, education and research, who work to address issues of diversity and inclusion within UMC Utrecht. Through the D&I in education research group, bias trainings have been developed for the UMC Utrecht staff, with specific versions for staff in healthcare, research or teaching. 60% of education staff has already participated in the training, aided by the fact that it has been a management KPI. The research training is currently being finalized, aimed at associate and assistant professors. Additionally, the group has developed an active bystander training for the UMC Utrecht, and the Funding & Support team at the Research Office has developed a training on D&I in research proposals.

The committee discussed D&I with various researchers and staff members at UMC Utrecht, as well as with a representative of the D&I core team. It learned that much is still to be done regarding this topic, as the UMC Utrecht also stated in its documentation. In the Young Academy survey, a common theme among respondents was that they feel the effects of "the X-factor", "internal politics" and "being male" as troubling biases that may affect their careers. Notwithstanding the efforts presently undertaken, this issue requires continued attention and resolution.

The committee concludes that diversity and inclusion deserve serious attention within UMC Utrecht. The UMC should create a clear and broad policy on how to promote D&I across the organization. This plan should also specify the execution of the measures stated, the KPIs and targets aimed for, and the manner in which

UMC Utrecht monitors the achievement of such aims. The committee concludes that Diversity and Inclusion should be a prominent and integral priority on the agenda of UMC Utrecht and its management.

3.9 Conclusion

UMC Utrecht stands before a transformation that will positively impact its researchers. Simpler structures, centralized facilities and support, and a stronger financial mandate for the six strategic themes are developments that the committee sees as important and necessary for future development and improvement. The success of the Research Office indicates what can be done when expertise is brought together centrally and boosted by UMC Utrecht management. Further streamlining of valorization and legal support can contribute to research excellence. At the same time, UMC Utrecht should ensure that the internal changes don't distract the institution from the valuable outward perspective outlined in its 'Connecting Worlds' strategy.

The dedication of UMC Utrecht to promoting Open Science, research integrity and patient participation is laudable, according to the committee. UMC Utrecht should continue striving to implement patient participation in such a way that it becomes a natural part of the researchers' DNA. In addition, UMC Utrecht should investigate best practices and roll them out across all programs. The committee urges the UMC Utrecht to proactively invest in promoting openness, social safety, diversity & inclusion, and mentoring of all staff (including PhD candidates and postdocs). This should be done in a structured manner with attention paid to attainable targets, while monitoring of the success of measures taken. The committee praises the UMC's focus on different career paths through outlining six career profiles and appointing clinical scientists. The latter function could still be better defined and implemented in order to achieve maximum effect.

4. Brain

4.1 Introduction

The strategic program Brain, also known as the UMC Utrecht Brain Center, deals with clinical, fundamental and experimental neuroscience. The program conducts comprehensive research in the full translational range, bridging fundamental studies and healthcare innovation to advance neurological, neurosurgical, and psychiatric patient care. There are around 500 people related to the program, including both clinical and preclinical researchers across over 50 research groups, as well as support staff. The program holds a total of 40 full professors and approximately 35 associate professors, 30 assistant professors, 80 postdocs, and 250 PhD students. The strategic program consists of researchers located in four divisions. The management team, which is responsible for vision and strategy, talent management, and day-to-day activities, consists of a chair, two program managers, a communication advisor, and representatives from the different divisions. Each member of the management team holds a specific portfolio, e.g. valorization, clinical care, and education. The Brain program also has an advisory board made up of the chairs of the disease areas and research approaches. This board advises the management team on strategy and is the direct link with the researchers.

The Brain program focuses on six different disease areas: developmental disorders, epilepsy, neuromuscular disorders, neuro-oncology, personalized psychiatry, and stroke. All disease areas aim to translate basic science and patient-driven research questions into clinical diagnostic methods, prediction models, and novel treatments. Underlying these disease areas, there are four different research approaches: genetic risks,

from research to care, translational research, and neuroimaging & neurotechnology. The program's five-year strategy for the period 2021-2025 focused on four major topics: synergy of neuroimaging research; prevention, personalized care, and precision medicine; realization of a strategic program laboratory (the Center for Translational Neuroscience); and the strengthening of its collaborations, both national and international. Additionally, the program stimulated the incorporation of artificial intelligence, data science, and e-health as research approaches.

4.2 Research Quality

Among its research accomplishments over the period 2019-2024, the Brain program lists a large-scale European study into the effectiveness of epilepsy surgery in over 9000 patients, led by the UMC Utrecht and the University Hospital of Erlangen. The study demonstrates that early surgery improves the chance of reaching seizure-freedom. The program also coordinated an innovative medical treatment for children with Spinal Muscular Atropy (SMA). Other prominent examples of research in the Brain program include the B-STARS research program trials to improve recovery after stroke; the development of epilepsy prediction models; and the development of a novel stem cell therapy to treat brain injuries in newborn children. The program also boosts Project MinE: the largest resource of genetic data on ALS.

The strategic program successfully achieved national and international grants. These include 18 personal NWO grants (10 Veni, 5 Vidi, and 3 Vici); two NWO Gravitation grants for neuroscientific research in the BRAINSCAPES consortium (€19.6 million); and the Dutch Brain Interfaces Initiative (DBI2; €21.9 million). Brain researchers also secured various ERC grants (2 Starting grants and 2 Proof of Concept grants). In 2020, the PREMSTEM project received an EU Horizon 2020 grant. The study aims to develop new regenerative therapies for brain injuries in preterm babies. Various UMC Utrecht Brain researchers were distinguished by being made members of the Dutch Royal Academy of Science (KNAW) or the European Academy.

Following its strategy, the Brain program specifically aims at strengthening national and international collaborations. Over the past period, the BRAINSCAPES consortium offered a collaboration with various research institutes, bringing together geneticists, molecular biologists, translational researchers, and bioinformatics specialists. Further collaboration is achieved in the 'ALS Triangle' that brings together the Dutch ALS Patients' Association (APV), the Dutch ALS Center (UMC Utrecht), and the Dutch ALS Foundation (SAN). UMC Utrecht is also one of the founding partners of NeuroTech-NL, which brings together leading institutes, patient organizations, and companies across the neurotechnology field to perform groundbreaking, multidisciplinary, large-scale R&D and translate the results into solutions for patients and economic activity. The CONTRAST consortium (Collaboration for New Treatments for Acute STroke) is a collaborative initiative in the Netherlands dedicated to enhancing outcomes for patients with acute stroke. It unites experts from various medical centers. UMC Utrecht epilepsy researchers also play a key role in ERN EPiCARE, a European Reference Network focused on rare and complex epilepsies.

One of the program's ambitions was to unite all fundamental, animal, and translational research within the Brain program in a Center for Translational Neuroscience (CTN). From 2022 onwards, the CTN was founded as a virtual center, and the chairs of the five brain laboratories meet regularly. In 2024, the first annual CTN meeting was organized, which was well attended by researchers from laboratories within the Brain program.

The National Growth Fund invested €124.5 million in the Centre for Animal-Free Biomedical Translation (CPBT); as will become clear in this report, researchers across UMC Utrecht benefit from this. Within the CPBT program, Brain researchers work on the ALS transition project. The goal of this project is to accelerate the shift from traditional animal models to innovative, human-relevant technologies. By fostering collaboration

between researchers, clinicians, and industry, the project aims to improve the predictability of preclinical studies, reduce animal use, and ultimately speed up the development of effective treatments for ALS patients.

The committee is impressed with the high quality of Brain research. During the site visit, the committee gained insight into strong, and in many cases ground-breaking or excellent, examples of research, including the generation of a stroke location map that predicts the risk of cognitive impairment following stroke, continued development of brain computer interfaces for people with severe paralysis, and development of nasal drops for perinatal arterial ischaemic stroke. The committee considers the research into neonatal developmental disorders and neuromuscular disease to be internationally world-leading. It encountered highly innovative approaches to clinical assessment of pre-term neonatal and developing children using imaging technologies. The strong environment for genetics is an asset to this area of research. Regarding epilepsy, UMC Utrecht is clearly a well-integrated epilepsy center operating at the cutting edge clinically, with a strong epilepsy surgery program and integration with national and international consortia for epilepsy genetics. There are clear synergies with the program's research in developmental disorders. On the subject of neuromuscular disease, the committee finds that research into amyotrophic lateral sclerosis in Utrecht is world-leading on multiple levels. UMC Utrecht researchers have pioneered the large-scale acquisition of DNA samples to make genome wide association studies productive. The Project MinE initiative has transformed the understanding of the genetic architecture of ALS. The unit has also pioneered the development of clinical trial methodology in ALS and has led the European network across multiple countries to deliver academic lead and industry studies.

The committee notes that while research in these fields is of high and/or excellent quality, the Brain program also focuses on other fields that stand out less in terms of output and visibility. For instance, the committee wondered if psychiatry and neurovascular disorders are operating at the same level as other research topics. The committee learned during the site visit that some areas were impacted by researchers moving away to other UMCs, and that this type of developments can lead to a shift in attention paid to such topics. The committee understands that this is hard to avoid and part of natural evolution of research fields. At the same time, it thinks that a proactive rather than a reactive stance regarding such developments would allow the program to boost research quality (see also 4.4 Viability).

4.3 Societal Relevance

The strategic program Brain combines a fundamental with translational outlook and this implies clear societal relevance of its research. It collaborates closely with other partners on campus, such as the Princess Máxima Center (PMC) and the Central Military Hospital (CMH). In 2024, the program started 'Utrecht Brain' to unite all neuroscience partners on campus and make optimal use of expertise and facilities. Its partnerships in larger consortia and projects also leads to collaboration with other researchers and healthcare partners in the Netherlands and outside. Several of its focus areas are registered as national centers of expertise for rare disorders (ECZAs) and are part of European Research Networks (ERNs). The program collaborates with academic, institutional, industrial, and societal partners. Its work involves developing and directly applying (personalized) treatments in clinical practice. Additionally, it engages in public outreach activities to share knowledge about brain health and diseases.

A clear example of the societal relevance of Brain research was the development of the telehealth service ALS Home Monitoring and Coaching, which provides responsive and personalized care with more self-control over the care and less burden of care for patients and their caregivers. With a newly developed app, patients at home record data about their functioning (such as swallowing, motor function, and breathing), body

weight, and wellbeing. The app allows patients to chat with healthcare professionals, and the monitoring of their data is done by a nurse specialist. This prevents patients from coming to the hospital unnecessarily. The app is implemented in twelve multidisciplinary ALS teams of the ALS Care Network. Similarly, the Spinal Muscular Atropy (SMA) center advised the National Institute for Public Health and the Environment (RIVM) to add SMA to the Dutch perinatal screening program (hielprik), allowing newborns to be diagnosed early on and to receive timely treatment. From 2022 onwards, SMA has been included in the screening program. Finally, the program decided to integrate the methodological line 'From research to care' into the six disease areas and appointed specific ambassadors to support this topic in all research fields.

The program also focuses on patient participation in its research. This includes collaboration with patient associations, but can also take other shapes. As an example, the 'Participation in Perspective' (PiP) project was a research initiative for and with young people (12-17 years) with cerebral palsy (CP). It focused on sharing personal experiences about school, sports, and healthcare. Twelve CP ambassadors were actively collaborating with the UMC Utrecht researchers, advising on recruitment, analyzing interviews, and raising awareness to combat misconceptions about CP. The project generated qualitative and quantitative data, scientific publications, and the website Wij&CP, that contains information and personal stories. In addition, a course on patient involvement in research is now part of the Clinical & Experimental Neuroscience PhD program. PhD students can also decide to follow a more in-depth course on this topic, which provides practical tools to involve patients in their research.

In addition, the Program's Dutch ALS Center launched GoALS, an ambitious five-year, €60 million research initiative aimed at accelerating the development of ALS therapies. GoALS partners with industry through co-financing and strategic collaborations, ensuring that the most promising ALS treatments move efficiently from research to real-world application. It also collaborates closely with patients, whose ideas and suggestions provide insights and suggest research topics or directions. In doing so, GoALS researchers make sure to share results with patients while also managing their expectations regarding any results or treatments.

Finally, the strategic program Brain invests in and contributes to communication towards a wider and non-scientific audience. In 2020, 2022, and 2024, it organized a large outreach event in collaboration with New Scientist, a popular scientific platform, in TivoliVredenburg, Utrecht. These events highlighted the potential of artificial intelligence, virtual reality, and data science in neuroscientific research and care and were sold out every time. Other outreach activities include the biannual Utrecht Brain Conference aiming to unite brain researchers and industry professionals to promote public-private partnership; participation in the annual Betweter festival connecting scientists and the general public; a book containing stories from patients with a brain tumour, their loved ones, and caregivers; and participation in the 3FM Serious Request fundraiser dedicated to ALS. Two ALS researchers won the Klokhuis Science Award, which recognizes research that is interesting and relevant to children aged nine to twelve years.

The committee applauds the Brain program for its efforts at making an impact in translational and clinical application as well as in wider society. It notes that Brain researchers are making clear and conscious efforts to not only perform impactful research, but also communicate it widely. The continuous focus on societal relevance in many aspects is a clear strength of the Brain program. The committee was particularly pleased with the way patient participation is done in the GoALS project, and finds that this could serve as an example to other programs.

4.4 Viability

As mentioned before (see 'Mission, Strategy and Governance'), the six programs including Brain have not yet formulated a clear strategy for the upcoming period due to the anticipated transformation of governance. Now that the anticipated changes have become clearer and point to a broader mandate for strategic programs in areas such as finance and staffing, the committee advises to articulate their future perspective. Where does this program aim to be in five years, and what strategy will be employed to achieve this? Furthermore, how and to what extent will clinical departments, such as Psychiatry and Neurosurgery, be involved in the strategic and tactical planning? This should help the program's leadership to proactively steer the program through the upcoming transition. This goes for all six programs. Specifically for the Brain program, the committee suggests formulating a specific national strategy to determine specific focus points in relation to other UMCs as well as to look for opportunities in the synergy across different diseases.

Regarding the future, the Brain program hopes that its current virtual Center for Translational Neuroscience will materialize as the UMC Utrecht transforms in the upcoming years, but much is still uncertain. Meanwhile, Brain is functioning well under the current strategy. It produces very good and even excellent research with clear and strong societal relevance.

In the previous evaluation, the SEP committee noticed an exodus of (young) talented researchers from the UMC Utrecht, mainly due to the absence of a talent program. To further strengthen the collaboration between clinical and fundamental research, as well as between different departments and laboratories, the Brain program transformed personal fellowships into duo grants. This new initiative resulted in new and out-of-the-box collaborations for young researchers and has proven successful, with many of the fellowship winners becoming Veni and Vidi laureates. Furthermore, many researchers from the strategic program Brain participate in the UMC Utrecht talent programs every year. According to the committee, Brain hereby sets an example for the other UMC Utrecht strategic programs. The program invests in retaining and boosting young talent while bridging the gap between clinical and basic research. The success of the program is evident in, for instance, the relatively high number of clinical scientists here. This can be considered a best practice within UMC Utrecht.

4.5 Conclusion

The Brain program has good and often excellent research, harbouring many world-leading researchers that are working on such themes as into neonatal developmental disorders and neuromuscular disease. The program combines this with evident societal impact and outreach, including exemplary patient participation in ALS research. According to the committee, the Brain program sets a UMC Utrecht-wide example in talent management, offering junior researchers program-specific duo grants.

5. Cancer

5.1 Introduction

The mission of the strategic program Cancer is to be a world-leading, cross-disciplinary platform for research and innovation with the ultimate goal of improving the outcome of those at risk or affected with cancer. The program focuses on innovations in fundamental, translational, clinical, and applied sciences that are

connected in the so-called innovation cycle covering the whole patient journey – from prevention, early diagnosis, individualized treatment to supportive and palliative care. The Cancer program aims for multi- and interdisciplinary collaboration within and outside UMC Utrecht. Its research strategy is focused on three main themes: Molecular and cellular science & therapy; Risk stratification for individualized interventions; and Image science & image guided therapies. Each of these themes has two sub-themes.

Currently, over 1000 researchers from seven UMC Utrecht divisions contribute to the strategic program Cancer. These include 80 professors, 61 associate professors and 10 clinical scientists, as well as assistant professors, postdocs, PhD candidates, and support research staff. The program is led by a General Board with representatives from each of the themes. The General Board is supported by a management assistant, a dedicated communication manager, two grant officers, and a clinical trial specialist. Junior representatives of the OncoCareer Board for young researchers join the regular biweekly meeting of the Board once every two months. Three advisory boards have been installed for interaction and advice: 1) management of the divisions, 2) heads of (cancer) departments, and 3) advocates for patients. Furthermore, the strategic program Cancer was the first to formally include patient advocates in its advisory board, positioning this program at the forefront of patient participation.

5.2 Research Quality

In the period under consideration, the Cancer program's achievements included the use of Multiplex Tissue Imaging to gain insight into the cellular subtypes that are involved in tumor microenvironment heterogeneity; the development of immune organoid interaction models to assess the impact of the immune system and/or immune modulatory drugs on solid cancers; the DENSE trial on supplemental risk screening for women with dense breast tissue; research on radiotherapy under real-time MRI guidance (MR-Linac) that enables a more precise treatment of tumors without surgery; the use of robotic surgery in the Netherlands; and many other topics.

The program considers multi- and interdisciplinary collaboration to be crucial to achieving its mission. It has invested in such collaborations on a local and national level. The Utrecht Science Park (USP) hosts a mix of public and private partners, offering an environment for new cancer research initiatives and collaborations. These partners are now represented in Utrecht Cancer: a comprehensive cancer platform that connects over 1200 cancer researchers of the Hubrecht Institute, Princess Máxima Center (PMC), UMC Utrecht, the faculties of Science and Veterinary Medicine, the University of Applied Sciences Utrecht and the Westerdijk Institute. The Cancer program works together with the PMC in multiple projects, and every two months the chair of the Board meets with the Board of Directors of the PMC as well as the Antoni van Leeuwenhoek Hospital/Netherlands Cancer Institute to discuss collaborative research strategy and talent development. The translational program, capitalizing on the organoid technology in concert with strong genomic approaches, benefits from the presence of the PMC and Hubrecht Institute on campus. Nationally and internationally, the Cancer program participates in a wide variety of collaborations. These range from the Oncode Institute, where over 800 researchers at 13 partnered research institutes across the Netherlands aim to drive breakthrough discoveries, to the European Lobular Breast Cancer Consortium (ELBCC), the ENDO-ERN European Reference Network on rare endocrine conditions, and the UGIRA the upper GI international Robot association.

The program's researchers earned 1 ERC Starting Grant, 2 ERC Proof of Concept grants, 3 ERC Consolidator grants, as well as 7 NWO Veni, 7 Vidi and 2 Vici grants over the evaluation period. Researchers also earned 5 Young Investigator grants from KWF Dutch Cancer Society. Researchers received distinctions such as a Dutch Applied-AI award, an Ammodo Science Award, The William and Francis Fry Award, International Society for

Therapeutic Ultrasound (ISTU), and the Klaas Breur Award from the European Society for Radiotherapy and Oncology.

Researchers in the Cancer program also gained larger project grants. The theme Molecular and cellular science & therapy participates in the DARE-NL Consortium (KWF grant), where Dutch academic developers of Advanced Therapy Medicinal Products (ATMPs) aim to revolutionize cancer treatment. The team also boasts a large National Growth Fund grant for Oncode Accelerator, which aims to collaboratively optimize and accelerate the development of new cancer therapies by integrating patient data and materials, including patient-derived organoid models at early stages in preclinical therapy development. The theme Risk stratification for individualized interventions earned a KWF Grant for the development of the Corsano EndoWatch for children with hypothalamic tumors, and another for REDUCE, which investigates prognostic molecular markers to optimize and reduce the individual follow-up of operated neuroendocrine tumors of the pancreas. The theme also gained two Horizon-EU grants for the PREFERABLE-II consortium, a super umbrella trial to demonstrate the (cost)effectiveness of live-remote exercise in cancer survivors; and for the ARTILLERY project, which aims to develop AI systems to automatically detect chronic disease risks in breast cancer patients using these routine CT-images. Finally, the theme Image science & image guided therapies received two KWF grants for investigating PET scans with FAPI tracer, an IHI-Europe Grant for the ILLUMINATE project which aims to improve the use of Lutetium-177-PSMA (Lu-177-PSMA) in treating advanced prostate cancer, an NWO-LTP grant for IMAGINE, which aims to integrate advanced imaging technology into cancer care, and a ZEGG grant for CROSSROADS, which is aimed at determining whether follow-up or complementary surgery after local excision of a colon carcinoma is best for the patient.

During the site visit, the committee was introduced to research on biomimetic models, digital pathology, and image-guided interventions. It discussed Cancer research with the program's scientists. In these conversations, the committee pointed out that in the documentation it received, certain prominent research areas received relatively little attention. For instance, the committee missed input on theranostics. The committee notes that this reporting period has again demonstrated the excellence of MR-guided radiotherapy, with continuing contributions that merit more prominent representation. The Elekta Unity MR-Linac was developed out of close collaboration between UMC Utrecht, Elekta, and Philips, and while the first patient was treated with the MR-Linac during the last reporting period, several important advancements have been made during this reporting period, a few of which include: i) demonstrating that volumetric modulated arc therapy (VMAT) can be delivered using existing MR-Linac hardware, ii) demonstrating real-time tracking of cardiac targets during VMAT deliveries, and iii) clinically introducing Comprehensive Motion Management, which controls for periodic or pseudo-periodic, ultracyclic, and random bulk motions. The committee understood that since the program is so large, choices had to be made in what to represent, which testifies to the high quality of the program.

The committee is impressed with the research done in the Cancer theme, which is very good and in many cases excellent. Each of the three themes has made significant contributions to scientific knowledge during this reporting period. These include the use of organoid technology for molecular and cellular science and therapy, rapid development and utilization of AI in risk stratification and individualized interventions, and MR-guidance for image science and image guided therapy. UMC Utrecht is a known name in the field of cancer and has contributed specifically to the field of digital pathology, a world leading technology created in Utrecht. The committee also praises Cancer's success in securing over €192M in external research funding. The strategic theme was specifically advised by the previous committee to enhance research support and has clearly capitalized on the restructuring of the Research Support Office.

The committee appreciates the fact that the Cancer theme overlaps with others, such as Brain and Infection & Immunity, creating connectivity and collaboration across UMC Utrecht. The committee sees the program's strong network and environment, through Utrecht Cancer and many other collaborations, as a strong point. This vibrant local infrastructure is highly beneficial and contributes greatly to the excellence and recognition of its researchers.

5.3 Societal Relevance

The Cancer program's societal relevance is evident and lies primarily in the translational and clinical impact of its research. Many research themes and projects have direct impact on patient care and treatment. Over the past years, the program has invested in strengthening societal relevance through improving research facilities and methodologies, such as trial within cohorts design. Multi- and cross-disciplinary interaction between scientific topics and the subsequent translation to patient care have been established through clinical Tumor working groups. Vice versa, questions from the Tumor working groups feed the research performed by the various research groups.

Societal relevance of research is heightened by widespread collaborations among multiple partners, both local and (inter)national, ranging from Health Center de Bilt to the Dutch Ministry of Health, Welfare and Sport. A regional network with the surrounding teaching hospitals, called Oncomid, supports regional collaborative cancer care in various disciplines and is also a partner in clinical research. 37 cancer-related patents have been filed in the period of 2019-2024, and the spinoff companies Nanocell Therapeutics and LaigoBio were established. The program implemented a Funding Tool, developed by U-trial, to support clinical researchers in their budget negotiations with industry.

The program's research has also led to the implementation and adaptation of health care policies and practices. For instance, the DENSE trial showed MRI's added value for women with dense breasts in Dutch biennial mammography screening: breast cancer is detected in an earlier stage in a cost-effective way. Results have led to adaptation of the EUSOBI guidelines for breast imaging. In the Netherlands, under societal pressure, the Secretary of State tasked the National Institute of Public Health with investigating how MRI screening can be implemented. At the same time, the government (through ZonMw) has invested in the DENSE-2 trial to investigate potentially cheaper and less cumbersome ways of supplemental screening (abbreviated MRI and contrast-enhanced mammography).

The program actively reaches out to a wider audience. It was involved in the THINK Utrecht conference (2023) on cancer care innovation, and the Utrecht Cancer stakeholder dinner (2024). Researchers who are appointed Associate Professor are asked to record a lecture for the strategic program's social media (UHD Lectures), and on KWF tours (2022-2024) volunteers and heritage keepers (groups of 12-50 participants) are given a tour at UMC Utrecht to see the latest innovations in prevention, early diagnosis, treatment, and survivorship care. The program also participates in Oncomid, where specialists from different hospitals work together per tumor type in thirteen multidisciplinary expert teams (tumor working groups). To involve the general public Oncomid organizes regular lectures and a yearly bike event. Many individual researchers make regular appearances in the media to explain recent developments or highlight their research.

The committee concludes that societal relevance is an asset of the Cancer program. In terms of collaborating with industry as well as innovation, the program does remarkably well, having achieved 37 patents and 2 spin off companies. Significant collaborations with industrial partners were formed or maintained during the reporting period, including the 2020 MR-STAT collaboration between UMC Utrecht and Philips, and the MR-Linac collaboration between UMC Utrecht and Elekta. The program is also quite visible to peers and a

general audience, via invited presentations, social media, and tools (ie Sturgeon AI for fast brain tumor classification). The participation in Oncomid is also positive, according to the committee.

5.4 Viability

With respect to the future, the Cancer theme intends to continue focusing on the chosen themes and topics, awaiting the new governance structure to be implemented. Clearly, the choice for staying with the three topics and six themes is working out very well for the program, so that retention is evident and viability is guaranteed.

The committee learned from its conversations with the program representatives that the main concern of the Cancer program is the fact that clinical demands are growing as patient care and treatments improve, resulting in patients living longer and needing prolonged care. The protection of research time is therefore increasingly complex. According to the committee, this deserves full attention specifically for this program when discussing and deciding future strategies. The program should proactively decide on measures to ensure that clinical duties do not interfere with research.

In order to retain and stimulate talent, the Cancer program initiated the OncoCareer Board, a team of young cancer scientists, mainly junior postdocs, to identify the needs of junior (temporary) scientific staff and guide them in their career. Representatives of this board join the daily board meetings on a regular basis. The committee also learned that young researchers in this program can receive seed grants to boost their career development. The committee applauds this investment in the careers of young researchers. It sees the OncoCareer Board as an example worth following elsewhere in UMC Utrecht, and appreciates the fact that it is currently being broadened int a UMC-wide EarlyCareer Research Board. The seed grants are crucial in helping young researchers advance and should also be seen as a best practice.

5.5 Conclusion

The committee is impressed with the outstanding and in many cases world-leading research done in the Cancer theme. These include the use of organoid technology for molecular and cellular science and therapy, rapid development and utilization of AI in risk stratification and individualized interventions, and MR-guidance for image science and image guided therapy. The local embeddedness and infrastructure are unique and the many collaborations enhance the strategic theme's positioning and importance. The committee admires the collaborative and societally relevant research approach and the solid focus on three major themes. It urges that research time remain protected in the near future as the governance structure changes. The committee highly appreciates the fact that young researchers are given a seat at the governance table in the OncoCareer Board, as well as the seed money available to them. These are best practices across UMC Utrecht.

6. Child Health

6.1 Introduction

The strategic program Child Health is an integrated framework for child-centered interdisciplinary research. It aligns patients, clinicians, investigators, and resources in order to fill gaps to improve the lives of children

with complex chronic diseases during childhood and thereafter. The program's chair is supported by a program manager, a management assistant, and a communication advisor. The Child Health program consists of researchers working in 57 research groups. Currently, the Child Health program has about 48 Principal Investigators (PIs) who are not professors and 38 PIs who are professors. They cover both the basic and clinical science fields as well as psychology, physiotherapy, ethics, and nursing. Additionally, the program has 31 associate professors, 43 assistant professors and 120 PhD students. The Child Health program has a program committee, consisting of senior scientists who are active in the program and represent both basic and clinical science.

The program focuses on specific disease areas that are characterized by their influence on the individuals' entire lifespan. These disorders often start at the beginning of life, or even before birth, and can have consequences far into adulthood. The main research topics therefore encompass severe inflammatory disorders, such as juvenile arthritis and respiratory infections; congenital and hereditary diseases, including cystic fibrosis as well as disorders of the liver, kidney, and blood; ante- and perinatal damage; and the broad fields of pediatrics and oncology.

Although these diseases are diverse, all researchers share the same perspective. They study diseases in a life cycle perspective, they realize that physical and mental health interact continuously, and they strive for a highly interdisciplinary approach.

6.2 Research Quality

Among the program's main research accomplishments are the first biomarker-guided multicenter intervention trial in systemic Juvenile Idiopathic Arthritis (sJIA); personalized gene-correction therapy and organoid based disease modeling; GeNepher, a data- and biobank for hereditary kidney disease that has grown to include over 400 participants; studies on ante- and perinatal damage during the COVID-19 pandemic; and research on intranasal stem cell therapy for newborns after hypoxic brain injury (see also the Brain program). The Child Health program aims for interdisciplinary cooperation and therefore collaborates with several divisions in the UMC Utrecht: Woman and Baby, Pediatrics, Images & Oncology, Heart & Lungs, Surgical Specialties, Brain, Internal Medicine & Dermatology, Julius Center (for Health Sciences and Primary Care), Laboratories, Pharmacy & Biomedical Genetics, and Anesthesiology, Intensive Care & Emergency Medicine. On campus, the program interacts with the Princess Máxima Center and the Dynamics of Youth program of Utrecht University.

In order to further boost local cooperation, the program initiated the 030-Lab, a core facility in the Wilhelmina Children's Hospital (also on campus) where researchers from all disciplines in the UMC Utrecht, Utrecht University, and the Princess Máxima Center work closely together. The 030-Lab's goal is to perform innovative research which will improve the treatment of diseases and the quality of life of children and adolescents, and to reduce health damage. This core facility consists of a trial office to support researchers with the design and conduct of studies; a Child Health Disease Cohort providing both biological and psychosocial data from over 10,000 healthy and diseased children and adolescents over an extended period; and a prevention desk to offer children and parents support in lifestyle areas, such as sleep, nutrition and physical activity. In 2022, an adult physician was appointed as U-trialist for Child Health, bringing in experience with and knowledge about gene therapy trials. This is important in the field of rare diseases in Child Health, such as metabolic diseases, hematology, and cystic fibrosis. The U-trialist has contributed to a professionalization of the 030-Lab, with increasing quality and efficiency regarding clinical trials and the start of first phase gene therapy trials in 2024 as important results.

The many collaborations within the Child Health program include UCAN CANDU, the Dutch-Canadian bi-national prospective cohort study, developing personalized treatment strategies for Juvenile Idiopathic Arthritis; the coordination of the European HIT-CF and Orgestra consortia, with laboratories and clinical centers all over Europe to drive innovative research on cystic fibrosis; INFRAGENE, a joint initiative between UMC Utrecht and LUMC to establish a national gene therapy platform for liver disease; the GenoMed4All and SYNTHEMA projects, two European initiatives aiming to integrate multi-omics data from patients with rare hematological disorders across Europe using AI; collaboration in the European Reference Network for Rare Kidney Diseases; the TRIDENT consortium investigating the introduction and test performance of the Non-Invasive Prenatal Testing (NIPT) in the Netherlands; and the ENSEMBLE project as a collaborative European research initiative aiming to establish a reliable early detection program for cerebral palsy. The program also has an extensive international network of European Reference Networks (ERNs).

Over the past period, the program's researchers secured 2 NWO Veni, 5 NWO Vidi and 4 NWO Vici grants, as well as one ERC Starting grant. In addition, the program obtained an EU Marie Curie grant, a ZonMW grant for the TRACER consortium (Treating hereditary anaemias through stem cell research), and a Horizon 2020 grant for stem cell regeneration research network (PREMSTEM) focused on delivering a novel regenerative therapy to reduce the enormous emotional and economic implications of neurodevelopmental injury caused by brain damage associated with premature birth. The program also participated in the EndoWatch project mentioned earlier (see 'Cancer'), and currently participates in UMC Utrecht's Center for Animal free Biomedical Translation (see 'Brain'). Within this Center, the program's researchers will work on the development and dissemination of animal-free biomedical innovations and expertise with a large number of national and international partners. Finally, Child Health scientists are involved in coordinating one of the transition projects focusing on cystic fibrosis. Child Health researchers are also partners in the Asthma/COPD transition project.

During the site visit, the committee was informed on research accomplishments including the PROactive and CARE cohorts, RSV, and cystic fibrosis organoid studies. It enjoyed conversations with many of the program's researchers. It finds the quality of research to be very good overall. Admirable and outstanding elements include the clear focus on improving existing care or developing new treatments; an inclusive interpretation of care and treatment that ranges from individualised gene therapy for liver diseases through to home tele monitoring in high risk pregnancies; the strongly interdisciplinary approach e.g. with regard to resilience factors for chronic diseases; and the life-cycle approach, for instance in the 030-Lab. The group is relatively small, with around 280 researchers (all levels included), and manages to be very active in diverse fields with an impressive list of major achievements, such as successful national and international studies leading to new treatment modalities, as well as (inter)national leadership in several areas. The program has increasing success in obtaining external funding: on average 12.2 million per year over the past 6 years, steadily increasing over the last 3 years and reaching 17 million in 2024. Together with strong international collaborations, this testifies to the strong and dynamic profile of the Utrecht Child Health program at the national and international level.

The committee does point out that the oncology program seems to be highly focused on hypothalamic dysfunction, and it advises rethinking if this focus should be broadened. The committee understood that collaboration with the PMC in paediatric oncology is strong, and this may impact such choices or developments. Overall, however, the committee is impressed with the very good and in many cases excellent level of Child Health research and its impressive accomplishments over the past period.

6.3 Societal Relevance

The program's focus on Child Health leads to direct impact in translational and clinical settings. There is a strong focus on improving care and developing new treatments for some chronic pediatric conditions and the program is committed to research being translated into changes in care, access and policy. Clear examples are biomarkers to guide treatment tapering in juvenile arthritis, RSV vaccine policy, access to drugs for cystic fibrosis, and commercial partnerships to take agents through to market. In addition, the program strengthened research on the topic of public health by starting the 030-Lab, where cohorts of healthy and diseased children are followed and connected to a learning health care system and preventive lifestyle advice. The program also contributed to public health, in close collaboration with the national public health institute RIVM. Joint research on COVID-19 epidemiology directly fed into the RIVM's advice to the ministry of health and policy decisions during the pandemic. UMC Utrecht also supported the evaluation and implementation of twice weekly self-testing in educational settings. For RSV vaccine development, studies were performed within EU-funded studies with many countries in Europe.

The program includes patients and other stakeholders in its research. Most notably, it generated the first national patient research agenda for juvenile idiopathic arthritis. Patients and caregivers were in the lead for developing a research agenda according to the James Lind alliance method. More than 600 questions from patients, family, and caregivers were prioritized in many sessions with all stakeholders.

The Child Health program has also managed to achieve impact through valorization, including personalised gene correction therapy leading to a start-up; the set-up of a pharma company FAIR; a patent on mesenchymal stem cell therapy; discovery of treatment for rare bleeding disorder leading to collaboration with industry. Outreach activities focused on the general public include media appearances and contributions by many of the program's scientists. Endeavours focused on a wider audience include network meetings, lectures, events, and summer schools; Next Generation Radio, 030-Lab day, speeddate events, Slimme Gasten, Meet the Professor primary school visits, and more.

The committee concludes that societal relevance in Child Health is evident and laudable. The program manages to have strong impact, also thanks to its large network and focus on collaboration with regional, national and international partners. Compared to other programs, patient participation is clearly prioritized. Examples include close contacts with patient organizations, the generation of the first national patient research agenda for juvenile idiopathic arthritis according to the James Lind alliance method; the HIT CF program working for and with patients with rare variants of Cystic Fibrosis; and a prevention desk to offer children and parents support in lifestyle areas such as sleep, nutrition and physical activity, linked to 030-Lab.

6.4 Viability

Just like the other strategic programs, Child Health has not yet formulated a future strategy in view of the upcoming governance change. Over the past period, it did make some adjustments. Based on advice from the previous evaluation, the program name was amplified with the subtitle Science for Life. This subtitle adequately covers research from conception to adulthood and embraces the broad environment like mother, family and society of the child. In the new organizational structure, the Child Health Program will be integrated into the theme of Mother and Child.

The committee considers the program vibrant and viable for the longer term. It expects benefits from a new governance structure, as the current 57 research groups within the program make the organization seem complex. The many collaborations are a strength, but it is not always clear where Child Health ends and Cancer, Brain, or PMC begin. The new structure should create some clarity here. The committee advises the program to create a strategy for the upcoming period so that it can proactively put some of its challenges on the agenda of UMC Utrecht management. Most notably, the committee warns the program to protect its observational cohorts. These are very promising for the long term, but need structural financial support. The cohorts need to be supported and backed up by the organization even when the short-term focus is currently prominent due to the organizational transformation.

In terms of talent development, the program stands out in UMC Utrecht due to its career coaching. The program uniquely provides opportunities for the intermediate staff levels via a well-developed people management plan with yearly fleet review, talents program and coaching interviews. The committee applauds this structured approach, which it thinks could be rolled out across the other research programs.

6.5 Conclusion

The Child Health program is relatively small in size, but manages to achieve high and sometimes excellent research quality due to its clear focus, interdisciplinarity and proactive collaboration with partners on a national and especially international level. Societal relevance also stands out as very good. The program distinguishes itself through the way in which it manages young talents, and can serve as an example for other research programs. Patient participation is done very well and could be even further boosted in future, and the program should formulate a vision and strategy for the upcoming years. The observational cohorts represent a highly promising long-term development, and to fully realize their benefits they require structural financing and support.

7. Circulatory Health

7.1 Introduction

Cardiovascular disease is the leading cause of death worldwide in both men and women. The strategic program Circulatory Health has as its mission to (inter)nationally reduce the burden of cardiovascular disease. To address this challenge, the program connects cardiovascular researchers, clinicians, and educators within the UMC Utrecht and beyond. Circulatory Health thus combines clinical, translational, and basic research, with applications in care, cure, and education. The daily board of Circulatory Health meets biweekly and is composed of representatives of various divisions linked to the field of cardiovascular health. The program has a program office which consists of a program manager, management assistant, senior communications advisor, and policy and grant advisor. The Circulatory Health community consists of approximately 700 members, including 45 professors, 35 associate professors and 4 clinical scientists. The remainder of the community consists of approximately 300 assistant professors, 50 postdocs, 300 PhD candidates, students, and support staff.

For the period 2019-2024, Circulatory Health targeted four research focus areas which had a clear translation to patient groups within the broad field of cardiovascular disease: Heart Failure, Atherosclerosis & Aneurysms, High Risk, and Cerebrovascular Disease. The focus for these patient groups is supported and

strengthened by utilizing eight research approaches: data science & AI, genomics, diversity & health equity, prevention, local drug delivery, clinical epidemiology and trials, disease modelling and imaging.

7.2 Research Quality

Over the past period, the strategic program Circulatory Health's research achievements included developing and validating multiple European risk scores for predicting cardiovascular disease (CVD) risks; contributing to innovations in image-guided therapies (IGT) in cardiovascular disease; uncovering the genetics of cerebrovascular diseases; advancing understanding of heart disease and stroke in women; and enhancing applied cardiovascular health in the primary care, public and global domains. The program invested in facilities and structures to foster collaboration between its researchers and in the wider field. In 2021, an NFU (Dutch University Hospitals) expertise center for genetic dyslipidemias was founded with the primary aim to provide optimal care for patients and families. The center aims to advance knowledge about diagnosis, prognosis, and treatment of these diseases, and also to gain insight in the pathophysiology of the lipid derangements.

In 2022, the Circulatory Health Research Center (the successor of the Laboratory for Circulatory Health) was launched, following up a recommendation from the previous SEP evaluation. At present, this center exists only virtually, but its governance ensures a better collaboration between different research (wet lab) groups and finetuning of objectives and resources. Ideally, collaboration, objectives, and resources would be served by having all Circulatory Health research groups in one physical center, but the plans for one UMC Utrecht Research & Innovation Center still await implementation as the renovation of UMC Utrecht is planned. To bridge the time until a core facility is established, two Data Science quartermasters were appointed within Circulatory Health to make an inventory of needs and questions and to develop a vision and strategy in the domain of Data Science. In addition, as a strategic commitment, a new chair Data Science was appointed.

The program harbours numerous partners and networks, from regional to (inter)national. For instance, collaboration with the University of Cape Town resulted in the implementation of a specialized laboratory technique to separate lipoproteins, used in research, now made available for clinical practice to better diagnose and treat genetic lipid disorders. The recent start of an observational registry for patients with Familial Dysbetalipoproteinemia further contributes to more knowledge for this rare lipid condition. Teaching and disseminating knowledge about rare genetic dyslipidemias are done during annual lipid teaching courses in the Netherlands and in 2024 also in Ethiopia for the African continent. The program also participates in the European Reference Network for Rare and Low Prevalence Complex Diseases of the Heart, the AtheroNeth consortium funded by the Dutch Heart Foundation, in the CAPACITY registry that has been set up to clarify the role of cardiovascular disease in the COVID-19 pandemic, the Dutch CardioVascular Alliance (DCVA), and many others.

In the period 2019-2024 researchers from Circulatory Health acquired numerous (inter)national personal and collaborative grants, including Public Private Partnership (PPP) consortia grants. These included 2 NWO Vici and 3 NWO Vidi personal grants, 6 Dutch Heart Foundation (DHF) personal Dekker grants, 2 ERC Starting grants, 2 ERC Consolidator grants, and 3 ERC Proof of Concept grants. In addition, 4 LeDucq Foundation consortium transatlantic grants were awarded. The program participates in the Exposome-NL consortium, which was awarded the NWO-Gravitation grant (€ 17.4 million) in 2019 to study the influence of non-genetic factors on health. The NANOSPRESSO-NL consortium, centering around the local preparation of high-quality, personalized nucleic acid nanomedicines, was awarded an NWO-NWA ORC grant. DRIVE-RM (new treatments for chronic diseases such as heart and kidney failure using implantable smart materials) gained an NWO SUMMIT grant. The RAPHAEL consortium, integrating a palliative care approach for patients with heart

failure, was awarded a Horizon Europe grant. Finally, AtheroNeth (Differences in mechanisms in cause and progression atherosclerosis) received a Dutch Heart Foundation consortium grant.

The committee finds that research in Circulatory Health is of high to excellent quality. The program has a clear structure and clear focus points that correspond with the largest patient groups. Since this approach has been followed for over a decade, the program is well-established, which means that researchers benefit from stability, longevity, and close connections to stakeholders and patient groups that have been built up over the years. During the site visit, the committee was introduced to impressive examples of Circulatory Health research, dealing with topics such as high risk, heart failure, atherosclerosis & aneurysms, and spontaneous coronary artery dissection. Qualitatively, the unit publishes impactful research in and for the field, and the national and international cooperation is excellent. National and international visibility, especially on the leadership level, is equally outstanding.

The committee found Circulatory Health to be a broad and wide-ranging research program, which excels mainly in clinical and translational research. The program has developed over the years and while many groups are performing very well or achieving excellence, the committee noticed that other areas seem to have declined somewhat, for instance in the area of cerebrovascular medicine. Here, prominent researchers went elsewhere. The committee understands that such developments are hard to avoid, but at the same time thinks more could be done to proactively deal with such changes and to retain research talent in UMC Utrecht.

7.3 Societal Relevance

As mentioned above, the translational and clinical application of research is prominent in the Circulatory Health program, as much of its research deals with or leads to enhancement of treatments. This aspect was boosted by the appointment of a Circulatory Health clinical trial specialist. The presence of a central expertise center for trial initiation and support, U-Trial, has aided the initiation (with patient involvement) of numerous clinical trials. The program also contributed to various European guidelines. It developed online prevention tools, and had members participate in European task forces. At the request of the Ministry of Health, Welfare & Sports, one of Circulatory Health's principal investigators was involved as product owner in an action team for the development of the tool Valuable AI. This tool has been embraced, further developed and implemented over the past five years by all UMCs, the Dutch AI Coalition (NLAIC), investors and many peripheral houses.

Over the evaluation period, the Circulatory Health program paid a lot of attention involving patients in research (questions) and educating researchers on this aspect. Regular contacts are maintained with patient organizations such as the Dutch Heart Foundation, Harteraad, Stichting Vrouwenhart, and the PLN Foundation. E-modules have been developed that assist researchers with patient involvement issues for research proposals. A symposium was held on patient involvement in education, and a SCAD (Spontaneous Coronary Artery Dissection) challenge and a workshop was organized for researchers on how to involve patients in research and research proposal writing.

In the past years, UMC Utrecht has invested considerably (via the Research Support Office and Utrecht Holdings) in expertise on Public-Private Partnerships (PPP). The success rate of Circulatory Health in obtaining funding for PPP with Health Holland-TKI has been relatively high, and several spin-off companies are based on or make use of the program's inventions: ORTEC (U-Prevent medical device for cardiovascular risk management), TargEd (improved treatment of thrombosis), Cordys Analytics (AI software for improved

early detection of heart disease), and JAMA Therapeutics (extracellular vesicles as vehicles for better treatment targeting). The program has also continued working with Philips on FORS.

The program also reaches out to a wider audience, for instance by participating in the Betweter science festival, Meet the professor elementary school visits, and the University Museum Utrecht. The program joined forces with professional soccer club FC Utrecht and the Dutch Heart Foundation (DHF) (focus areas Heart Failure and High Risk) via the Carry that Band-campaign to emphasize the importance of cardiovascular health to a broader audience. Clinicians from UMC Utrecht and ambassadors of FC Utrecht (including soccer players) work together in providing publicity and opportunity to measure blood pressure around one of the soccer games of FC Utrecht. The added value of the collaboration with FC Utrecht is to generate public awareness for the importance of regular blood pressure measurements in the prevention of cardiovascular diseases and heart failure.

The committee praises the excellent societal impact and high visibility of Circulatory Health. The program is characterized by an emphasis on clinical and translational research and this suggests high impact possibility. In effect, valorization and outreach are taken seriously and the program clearly invests in this, with excellent results. The committee considers this a strong choice that is entirely in line with program strategy and strengths. It noted that the activities of U-trial had a direct impact on the number of clinical trials performed in the unit, which increased over the last years. Also, Circulatory Health is a big presence in European guideline committees, shaping policies.

The committee considers patient involvement to be very well done within Circulatory Health, going beyond stakeholder contacts and patient organizations. During the site visit, the committee was told by a patient how they became involved with Circular Health research and how this informed research directions. The connection between researchers and patients is more prominent in this program than elsewhere, and the program actively educates researchers in how to go about this. This is a best practice within UMC Utrecht and a key asset to Circulatory Health.

7.4 Viability

The program is planning to continue with the four focus areas and eight research approaches in the future. In view of the upcoming changes, the committee agrees with this. The Circulatory Health research program is well positioned for the future, owing to its strategic selection of research topics. With an ageing population at the national level, the prevalence of heart failure and cerebrovascular diseases is expected to rise, necessitating the development of new treatment strategies. These new treatments may also require early detection modalities for the diseases. The focus on high risk individuals and atherosclerosis presents valuable opportunities for advancing preventive and diagnostic approaches.

To maximize Circulatory Health's potential, continued efforts are required from the program leadership to further integrate the various focus areas and to align the activities of participating divisions within UMC Utrecht. Strengthening such areas will be essential for supporting the program's ambitions and ensuring robust research outcomes. An area needing further investment is the Data Science and Clinical Trial department, which remains at an early stage of development. In addition, the committee thinks that more investment is necessary to support the further career development of clinicians who wish to pursue scientific careers. Focused support in this area will help retain and nurture talent in the clinical research sector.

A positive aspect regarding the training of future research talent is that the program organizes a two-day grant meeting to support and prepare researchers (including early career researchers) with their grant proposals. The committee applauds this program-specific initiative, which also brings researchers together.

7.5 Conclusion

Circulatory Health is a well-functioning and long-standing research program with a broad focus, which is well-organized and stands out through its clinical and translational focus. The committee finds the program very well-placed for the future due to its focus on the ageing population. It admires societal relevance and patient involvement, which are a key asset of Circulatory Health. In view of the upcoming governance changes, the program would do well to formulate a strategic direction. The program should invest in data science and clinical trials as well as in career development of clinicians to be well-prepared for the future.

8. Infection & Immunity

8.1 Introduction

The strategic program Infection & Immunity (I&I) aims to be a national and international leader in advancing and sharing knowledge and innovation on inflammatory and infectious diseases, and immune-mediated therapy. Its goal is to improve treatment for patients, especially those with complex infections, immune disorders, or cancer. Through close collaboration between clinicians and researchers, I&I aims to deliver high-quality care and cutting-edge research, involving patients where possible.

The incidence of immune-mediated inflammatory diseases (IMIDs) and infections caused by microorganisms resistant to current therapies is increasing, necessitating a coordinated multidisciplinary scientific and healthcare response. At the same time, harnessing the immune system is emerging as a powerful therapeutic approach for preventing and treating infections, immune disorders, and cancer. These research themes are integrated into the strategic program. By combining fundamental knowledge of immunology with clinical expertise, the program designs and studies novel immune-mediated therapies, including vaccines, biologicals and cell-based therapies.

I&I collaborates with eight divisions within UMC Utrecht. Its research activities are primarily conducted by three major departments. The first two, the Center for Translational Immunology (CTI) and Medical Microbiology (MMB), are located within the division of Laboratories, Pharmacy and Biomedical Genetics. The third, Epidemiology of Infectious Diseases (EpiID), is based at the Julius Center. These departments work closely with clinical research groups across the divisions of Pediatrics, Internal Medicine & Dermatology, Heart & Lungs, Images & Oncology, and Anaesthesiology, Intensive Care & Emergency Medicine. The program brings together over 600 researchers across 57 research groups. Its academic team includes 44 full professors, around 40 associate professors, 155 assistant professors, 70 postdoctoral researchers, and 250 PhD students. Leadership of the program is provided by a Management Team, which includes a Daily Board alongside representatives from the participating divisions.

8.2 Research Quality

Due to the COVID-19 pandemic, advancing epidemiological research became a major focus within I&I. Research activities ranged from epidemiological and mathematical modelling studies to COVID-19

vaccination and treatment trials, as well as epidemiological studies, evaluation of SARS-CoV-2 rapid diagnostic tests, mathematical modelling to support evidence-based policymaking, and, more recently, pandemic preparedness and Post-COVID. Other research accomplishments include innovative research into infectious disease pathophysiology by dissecting molecular mechanisms of host-microbe interactions, as well as studies on tissue-resident T-cells and their dynamics. I&I researchers also contributed to the decoding of immune-neuron interactions for novel chronic pain therapies.

One of the program's many research accomplishments has been trial innovation by the Clinical Trials in Infectious Diseases group. In 2014, the Randomized Embedded Multifactorial Adaptive Platform trial for Community-Acquired Pneumonia (REMAP-CAP) started, using a Bayesian adaptive platform methodology to deliver rapid, robust results in future pandemics. This global trial pivoted at the start of the COVID-19 pandemic and has delivered practice-changing results, immediately incorporated into national (SWAB-FMS guideline for COVID-19) and international guidelines (WHO Therapeutics and COVID-19: Living Guideline). The trial has gained global recognition and media attention. To date, it has tested 66 interventions across 18 domains, involving nearly 300 sites worldwide to perform over 24,000 randomizations. Also, during the pandemic, UMC Utrecht initiated and participated in four randomized trials evaluating the efficacy of BCG-vaccination to protect against COVID-19 infection through inducing trained immunity. The REMAP-CAP trial methodology inspired others, which led to the Staphylococcus Aureus Bacteremia Network Adaptive Platform (SNAP) trial, a global collaboration evaluating five interventions across three domains.

In addition, UMC Utrecht (in the I&I field) has been, or still is, the academic lead of COMBACTENET (building a pan-European clinical trial and laboratory network, performing clinical studies with innovative treatments for Gram-positive infections; 2012-2025), COMBACTE-MAGNET (building a pan-European epidemiology network, performing clinical studies with innovative treatments for antibiotic-resistant Gram-negative infections; 2015-2023), VITAL (assessing the role of immunosenescence in infectious diseases and vaccine response in the ageing population; 2019-2024), COVID-RED (remote early detection of SARS-CoV-2; 2019-2024), PrIMAVeRA (quantifying the potential role of antibodies and vaccines on antimicrobial resistance; 2021-2026), and others. I&I researchers have taken a leading role in various HORIZON projects, such as ECRAIDBASE (building the European clinical research alliance on infectious diseases; 2021-2026), ECRAID-PRIME (adaptive platform trial for COVID-19 therapeutics in primary care; 2021-2026), and CLARITY (causative link between RSV and chronic lung diseases; 2023-2028). They partner in multiple other projects, such as PREPARE (preparing the scientific response capacity to future large-scale outbreaks; 2014-2021), MPX-RESPONSE (establishing a clinical trial for treatment of monkeypox infections; 2022-2026), and RECODID (reconciliation of cohort data in infectious diseases; 2019-2023).

Following I&I-specific recommendations from the previous SEP evaluation, the program developed a strategy for future I&I technologies and facilities. It established robust core facilities at the Center for Translational Immunology (CTI): the Central Flow Facility, Central Facility Imaging, Utrecht Monoclonal Antibody Facility, and Computational Immunology Core, providing technical and logistic support to all research groups. Medical Microbiology (MMB) invested in a new microbiome lab and a bioinformatics group and realized a Biosafety Level-3 laboratory for SARS-CoV-2 work in 2020. Epidemiology of Infectious Diseases focused on innovative biostatistics and research methodologies.

Nationally and internationally, the program fosters collaborations in various projects and networks, taking leading roles. I&I co-founded Ecraid, a large European network for clinical research in infectious diseases. It also took an active role in the international, multidisciplinary SPIRAL consortium, advancing HIV cure research through uniting experts from Dutch universities and university hospitals as well as research institutes in Zambia, Uganda, and South Africa, alongside HIV advocacy groups and patients.

I&I researchers were awarded 5 NWO Vici, 3 Vidi and 3 Veni individual grants, as well as an ERC Consolidator and an ERC Starting grant. One researcher was selected as member of the Royal Netherlands Academy of Arts and Sciences (KNAW), another received the NWO Athena Award for outstanding female role models in beta sciences in 2023. Several researchers received awards from their scientific societies in recognition of their contributions. I&I is currently involved in two large projects funded by the Dutch National Growth Fund: the Centre for Animal-Free Biomedical Translation (CPBT) and Oncode Accelerator.

The committee considers I&I research to be strong and demonstrate high quality, and in some cases world-leading excellence. During the visit, it met with researchers working on diverse topics such as immunology of pain, epidemiology and trials for infectious diseases, and host-microbe interactions. The program is very active in diverse fields of interest with major achievements and/or (inter)national leadership in several areas; setting up a platform for clinical trials in ID; impressive biorepositories for specific diseases; development of a prediction model; and high impact publications, nearly all with open access, with a high citation rate for many. In the Infection sub-theme, the role of UMC Utrecht and I&I in large, multi-national platform adaptive clinical trials is highly commendable. UMC Utrecht is clearly a European leader in this area. The REMAP-CAP platform trial has been very impactful and influential globally. Also, the work on infection pathophysiology appears strong with a good translational potential. In Immunology, there is an impressive portfolio of work and achievements on immune-mediated inflammatory diseases such as neuropathy, pain and cancer. The Center for Translational Immunology (CTI) is an exciting and impactful initiative.

A point of improvement regarding research quality are the cohorts and biorepositories. Several I&I research groups manage longitudinal cohorts and biorepositories driving scientific discoveries and sustained (inter)national collaborations. By systematically collecting clinical data across diverse patient populations and treatment pathways, these registries enhance personalized therapy and enable pragmatic clinical trial enrolment. The committee noted that they seem to yield limited output at present and that more transitional impact could be gained from these very large and long-standing cohorts. The committee suggests looking for ways to better use these valuable cohorts in current research.

8.3 Societal Relevance

Societal relevance of the I&I program, highlighted in the previous SEP evaluation as a strength, became more prominent over the current review period during the COVID-19 pandemic. Aside from scientific investigation, this led to clear impact on policies and practices. Scientists from I&I were members of or contributed to the national Outbreak Management Team and advisory committees for the Ministries of Health and Education. Their input informed key policies, including implementation of the ‘Coronamelder’ contact-tracing app, the “corona passport”, and mitigation and testing policies in educational settings. Findings from I&I studies were shared with policymakers (Outbreak Management Team, ministries) and gained international recognition, featuring in reports by the European Centre for Disease Prevention and Control (ECDC) and World Health Organization (WHO). The platform trial REMAP-CAP contributed to improved patient care for acute COVID-19 worldwide. Researchers frequently appeared in national media, providing expert analysis on television, radio, and in print. On May 26, 2023, the program organized “Looking Back at Corona”, a well-attended public event where scientists, doctors, and science journalists reflected on the pandemic’s course and impact.

Other I&I research also holds clear societal impact, for instance through translational and clinical application. The previously mentioned longitudinal cohorts and biorepositories support researcher-led and

industry-sponsored studies. Other examples include scientific contributions that changed guidelines for inflammatory and infectious diseases, for instance on Q fever or food allergies.

To accelerate clinical implementation, I&I scientists collaborate with industrial partners, such as biotech and pharmaceutical companies, or develop their discoveries through spin-off companies, maximizing clinical impact of early discoveries. The program aims to contribute to solutions for these diseases with large societal impact, focusing on tertiary patient care, strong research facilities, strong connections in the region and beyond, continuous response to new developments, and an effective talent policy.

I&I actively engages with patients through various initiatives. The 'Patient Event on Rare Immune Deficiencies' (2023) welcomed 150 patients with immune disorders and their families for expert talks and workshops. The 'Rheumatology & Clinical Immunology Patient Day' (2024), dealing with recent advances in the treatment, diagnostics, and research of autoinflammatory diseases and featuring presentations, interactive demos, and patient society discussion, attracted 300 attendees.

Over the past six years, I&I researchers have shared their work with the public, including children, through various television programs. Its scientists annually contribute to Utrecht's Betweter Festival, a major arts & science event drawing 3,000 visitors. In line with the 'Recognition & Rewards' movement, the strategic program hosts lecture series for newly appointed I&I associate professors, offering them a platform to present their research to internal and external audiences. Finally, the associated master's program Infection & Immunity celebrated its 20th anniversary (2022), reconnecting alumni and staff. Many former students now contribute as supervisors and work in academia or biotech companies.

The committee highly appreciates the strong societal relevance of I&I, which has certainly not lessened since the previous evaluation. Clear examples of this relevance are the discovery of new treatments and the clinical application of research in many groups. In several cases, the translation from bench to bedside is ongoing via collaboration with industry. Several workstreams have led to at least 3 spin off companies. During the COVID pandemic, several research groups took up the societal and medical challenge and adapted their activities to the new need of combatting a life-threatening worldwide epidemic. These actions had major impact during the pandemic and also anticipate a possible repetition. The committee finds societal relevance to be a key strength of I&I.

The committee was happy to read about patient participation. The program interacted with patients in events, which is positive. However, based on the information it received during the site visit and in the self-evaluation report, the committee found that including patients in the design and execution of research is not as prominent here as it is in other strategic programs. The committee advises to invest in this.

8.4 Viability

The past six years have been a peak period for the infectious diseases sub-theme of I&I. The program adapted during and after the COVID-19 pandemic to do important work in this field. However, epidemiology of infectious diseases and transmission modelling is a crowded academic field, especially after COVID. Also, I&I faces internal changes due to new leadership and a change in the trials team. It may therefore be facing a more challenging environment in the next six years, and should consider mitigating any forthcoming risks and/or capitalizing on forthcoming opportunities (such as AI). The committee also thinks that an international strategy to achieve ongoing impact outside of Europe would be wise, in order to ensure that the program's work remains internationally competitive and prominent.

The I&I program has access to a range of core facilities. During the site visit, the committee understood that the transition of UMC Utrecht to a new governance model may impact this accessibility. It noticed that in particular the upcoming move of the new microbiome lab to UMC Utrecht core facilities causes some worries within I&I. The program as well as UMC Utrecht research management should ensure that this is arranged well and in such a manner that I&I research does not suffer from the change.

Regarding talent development, the committee learned that the program considers this an important aspect. Ensuring transparent career pathways and providing structured support, such as mentorship, targeted internal funding, or the involvement of early-career researchers in governance meetings, would strengthen sustainability and foster a culture of inclusion and renewal. The Brain and Cancer programs offer good examples of how such initiatives can be put into practice.

8.5 Conclusion

I&I research is of high and in many cases excellent quality, offering groundbreaking work in clinical trial development (among other examples) and taking a leading role in national and international networks and projects. The existence and upkeep of longitudinal cohorts could be exploited better in current research. The program is clearly viable, but should look to the future with an eye on retaining excellence and impact in an internally and externally changing landscape. Patient involvement and career development deserve to be taken to the next level. The societal relevance of I&I research is outstanding, with very high impact on clinical practice and policies.

9. Regenerative Medicine & Stem Cells

9.1 Introduction

The strategic program Regenerative Medicine & Stem Cells (RM&SC) aims to improve understanding of stem cell biology, to develop innovative technologies, and to translate its findings into novel regenerative therapies. Its mission is to bring novel regenerative treatments for patients to standard clinical care; to provide a center of excellence for biomedical, technological, and stem cell-based research; to attract, train, and educate the next generation of investigators and caregivers to develop and implement regenerative therapies; to incorporate societal perspectives through active connections to patients (societies) and relevant stakeholders; and to actively foster (international) collaboration with academia, government, and industry. RM&SC sees regenerative medicine as an emerging interdisciplinary field that bridges research and clinical applications. Its focus is on repairing, replacing, or regenerating cells, tissues, and organs to restore function impaired by congenital defects, disease, trauma, or aging.

The Regenerative Medicine Center Utrecht (RMCU), located within the same building as the Hubrecht Institute, serves as the physical research hub of the UMC Utrecht RM&SC community and is designed to optimize regenerative medicine research at Utrecht Science Park. At RMCU, approximately 350 researchers from UMC Utrecht, Utrecht University's Faculty of Veterinary Medicine and Faculty of Science, and the Hubrecht Institute collaborate in a single location, sharing equipment and facilities. The center fosters multidisciplinary interactions between fundamental and translational scientists, engineers, and clinicians, encouraging creativity and cross-pollination of knowledge across disciplines and institutions. RM&SC activities are prioritized around three patient-oriented themes: musculoskeletal tissue regeneration, cardiovascular and renal regeneration, and stem cell-based interventions. These patient-oriented themes

are connected through supporting technologies, disciplines and infrastructures such as organoids, biofabrication, in vitro models, biomaterials, cell therapy, extracellular vesicles, imaging, and ethics.

The RM&SC strategic program aims to foster alignment and synergy among researchers from eight different UMC Utrecht divisions. Currently, the RM&SC program includes approximately 45 principal investigators (25 full professors, 11 associate professors, and 9 clinical researchers), 60 investigators (assistant professors, postdoctoral researchers, and clinicians), as well as 110 PhD candidates and 30 technicians. RM&SC is led by the RM&SC executive committee, which consists of seven senior members from participating divisions who represent the themes and main clinical areas. The executive committee is backed by support staff (program manager, coordinators on communications, education and funding, impact officer, and Trial & Innovation lead). The RM&SC scientific board focuses on the management of the RMCU research center (technology infrastructures, logistics around finance and persons). Various community structures are also organized: a post-doc society (RUPS), a PhD council, technician meetings, and a student association (ReBio).

9.2 Research Quality

After the previous evaluation, which highlighted the need for a stronger strategy and focus, RM&SC developed the UMC Utrecht accelerator 'Biofabrication and Disease Modeling'. This accelerator outlines critical valorization steps focused on discovery, prediction, and intervention. As a strategic framework, it has helped to guide RM&SC's funding priorities, enabling the establishment of large-scale, long-term research infrastructures. UMC Utrecht has invested in the construction of three additional clean rooms of the GMP cell therapy facility. Additionally, public funding (seed & sector money) was acquired and invested to strengthen the areas of disease modeling (iPSC) and genetic interventions.

Among RM&SC's main accomplishments in research over the past period are innovative solutions for knee joint preservation; using 3D printing technology and living cells to create functional tissues for transplantation and as miniaturized models of health and disease; development of cellular and gene therapy approaches for different cardiovascular patients, as well as a heart patch; developing vascular and renal regenerative therapies for patients with cardiovascular and chronic kidney disease; developing a stem cell therapy for newborns with brain damage after a cerebral infarction; and developing patient-derived, stem cell-based models for drug development and personalized medicine.

The program benefits from its embeddedness in the Utrecht ecosystem and the RMCU, which bring proximity to Utrecht University's faculties of Medicine, Veterinary Medicine, and Science, as well as the Hubrecht Institute. Researchers belonging to these institutions collaborate frequently. Together, the UMC Utrecht (coordinator), Utrecht University, and the Hubrecht Institute offer over 100 PhD positions on regenerative medicine & stem cells. Nationally, RM&SC is initiator of and actively involved in the Living Technologies program of the EWUU alliance, where Eindhoven University of Technology, Wageningen University & Research, Utrecht University, and UMC Utrecht together cover a broad range of fields in scientific research. By cooperating and bringing together different areas of expertise, the four partners enhance the joint impact of their research. The focus in the cooperation is on the social challenges in the fields of health, energy, food and sustainability.

The program also participates in communities such as RegMed XB, which brings together leading RM scientists at Dutch (Utrecht, Leiden, Eindhoven, Maastricht) and Belgian (Leuven) universities and institutes and a range of companies in so-called 'Moonshots'. These are long-term visions of breakthroughs for patients, translated into research roadmaps with specific short-term milestones. hDMT INFRA StemCells is a joint initiative of the UMC Utrecht, Rotterdam, and Leiden in affiliation with hDMT, funded by an NWO

National Roadmap Large-Scale Research Infrastructure of the Netherlands Organization for Scientific Research (NWO). Within the project, researchers collaborate closely to develop a unique new class of human models that leverage the advantages of both adult stem cells and induced pluripotent stem cells.

At a European level, the RM&SC program partakes in Orgestra, an EU-funded MSCA Joint Doctoral network that trains thirteen doctoral candidates in developing personalized disease models using stem cell-derived organoids for rare diseases, including the lung and kidney diseases, cystic fibrosis, and cystinosis. This four-year project funded by the European Committee is made up of fourteen partners from seven European countries providing international, intersectoral, and interdisciplinary training that brings together molecular biologists, engineers, pharmacologists, clinicians, epidemiologists, ethicists, and patient representatives to give each of the doctoral candidates a joint-doctoral training experience complemented by a network training program.

Over the period 2019-2024, the program's researchers gained 3 NWO Veni grants, 2 Vidi grants, and 2 Vici grants, as well as 2 ERC Advanced grants and 2 Starting grants. 5 scientists were distinguished with awards, including the Prix Galien Research Award and the ISBF Senior Investigator Award 2021. In 2022, the Omnes Pro Uno (OPU) consortium was one of the two winners of the Ammodo Science Award for groundbreaking research. UMC Utrecht researchers participate in 5 out of 6 projects of the Horizon Europe 'Health' call, with research projects focusing on the bio-printing of living cells for regenerative medicine. As mentioned above, the program also received collaborative grants such as the NWO SUMMIT for DRIVE-RM, focusing on smart materials that assist the body in healing, a collaboration that involves UMC Utrecht, Utrecht University, Eindhoven University of Technology, Maastricht University, and the Hubrecht Institute. The program also participates in two National Growth Fund projects.

The committee considers RM&SC's research to be very good and in some sections excellent. During the site visit, the committee discussed various aspects of research with the program's representatives. It gained a positive impression of a vibrant community that is growing rapidly and benefiting from its location next to Hubrecht and the local infrastructure. The quality of the main research accomplishments is excellent, highlighting the impactful research that is done in the unit. With regard to musculoskeletal disease, the program is a leader in this developing field, and the accomplishments over the past decade are impressive. Overall, the research quality is positively impacted by the establishment of translational research support infrastructures (e.g. stem cell biobanks, data registries, disease modelling infrastructures, biofabrication and ATMP facilities, etc.).

9.3 Societal Relevance

RM&SC's comprehensive bench-to-bedside approach enables the unit to potentially translate fundamental discoveries into patient and, therefore, societal impact. Its societal relevance is evident in clinical practice and innovation. In 2021, the first artificial heart was implanted at the UMC Utrecht. In the same year, the first ex vivo perfused heart following a DCD (Donation after Circulatory Death) was transplanted at UMC Utrecht. On a national level, DCD heart transplantation has led to a doubling in the total number of annual heart transplants. As another prominent example, a collaboration 3D lab was established to develop advanced technology such as 3D printers, scanners, prosthetics, and implants to support both patients and doctors.

The previous evaluation committee advised to strengthen research valorization, for instance by enforcing 5% equity limitation in spin-out companies only for clinical staff running clinical trials, and allowing a larger equity holding to be allocated to non-clinical research staff, where appropriate. The program implemented this with some success. Over the review period, various spin-off companies (ArthroSave, Epione Therapeutix,

HELLO-RD and others) were created by RM&SC researchers. In addition, 11 patents were applied for and/or obtained. Improvements have been made around the definition of academic research use of organoid technology with companies, and the use of organoid biobanks. Since the beginning of 2025, an in-house impact officer has been associated with the RM&SC program, further aiming to stimulate impact and communicate between researchers and Utrecht Holdings. This might help to better recognize and valorize business opportunities within RM&SC.

Large, 10-year public-private growth fund initiatives were granted in the context of ATMP development (ICAT) and animal-free biomedical translation (CPBT). These grants aim to build self-sustaining preclinical and clinical valorization infrastructures in the coming 5-10 years. The program also hosts national expertise centers for other researchers as well as companies. The Utrecht Platform for Organoid Technology (UPORT) support living tissue access or biobanked living stem cells. Several 'living biobanks' are already established, and tissue and cells can be acquired for academic and commercial research. A searchable organoid catalogue (often linked to clinical information) is available for researchers. If the desired material is not available, a request can be made to set up a protocol to obtain the right material and make it available for the research. The UMC Utrecht AI lab for Living technologies is a hDMT INFRA StemCells service center of expertise for AI in the context of living cell technologies. They enable automation, data analysis, and modeling for impactful applications in biology and healthcare. The development and implementation of artificial intelligence for patient-derived living technologies in microscopy, bioprinting, and automation accelerate the development of personalized and curative treatments.

The patient perspective is included frequently in research, for instance in the RegMedXB 'Moonshots' project (see above). Each Moonshot is championed by a Health Foundation and their related patient organizations, putting patient impact at the heart of the project. The strategic program also participates in European Reference Networks (ERNs) that were established by the European Commission in 2017. Each ERN focuses on a cluster of rare conditions with common characteristics. Various ERNs have been set up within RM&SC: Skeletal malformations, congenital facial and dental defects, Osteochondritis Dissecans, Lung (Cystic Fibrosis), hereditary metabolic diseases, hereditary and congenital renal and urinary tract disorders.

Researchers within RMCU also provide input from an ethics perspective to increase societal awareness and opportunities for future translation of research results in a responsible manner. The Intimate Implants project won several prizes and enabled a social dialogue on science, technology and innovation within the context of regenerative implants. Intimate Implant is a speculative art-based experience focused on an underexplored theme in science: the emotional relationship between humans and technology. Another way to involve patients and the general public in RM developments are public campaigns (new kidneys 2021), a public evening 'the hospital of the future' about living cells as medicine (2024), and HelpdeskRM. This interactive website offers reliable information in clear and accessible Dutch, tailored to questions from the public. Finally, RM&SC scientists are present in national media and campaigns for the larger public such as the 'Serious Request / Glazen Huis' action for children with metabolic diseases in 2024.

According to the committee, RM&SC research is clearly societally relevant and its translational and clinical impact can be considered impressive. The program's senior researchers are prominent in reaching out to the general public and the efforts to enhance patient engagement are laudable. The committee met with these researchers during the site visit and noted they were engaged, enthusiastic, and driven to promote research and create a stimulating and open atmosphere among more junior staff members. The committee also met with patient representatives during the visit and discussed their influence on the research done. The structural work with patient associations and the occasional direct involvement of patients in research are positive and deserve further development, also across the UMC Utrecht.

The program worked hard to improve valorization over the past years, and spin-off companies were successfully started up. At the same time, researchers informed the committee that they experienced considerable difficulties with the process of valorization and the establishment of a company (see also paragraph 3.3 of this report). The committee concludes that this program specifically needs extra support to connect its research successfully to the clinic and industry.

9.4 Viability

RM&SC identified some risks and challenges for the near future which were discussed with the committee members during the site visit. First of all, space at RMCU is getting limited due to its growth. This raises questions on how to continue and how to retain a tight-knit community. The committee agrees that this is a point of concern. The current location works out very well for RM&SC, and research quality would benefit from remaining there, but the group's growth and the relative distance from the hospital are factors to be taken into account.

The committee also learned that RM&SC is considering how to position itself in the near future, specifically regarding its relation to clinical departments. The committee thinks that rather than choosing a specific clinical counterpart, the program should continue seeing itself as an expertise center that collaborates with the clinic in separate projects.

The committee is very positive on the viability of this dynamic and fast-developing program. The program is well-positioned for the future. The committee is specifically pleased with the attention paid to the position of young researchers here, who told the committee that they feel included and taken seriously, and are offered career options where possible. A structural approach to career management (as in other programs) might further enhance this.

9.5 Conclusion

RM&SC is a very good to excellent research program that is developing fast in promising directions. It benefits greatly from its location and surroundings, including various facilities. Its comprehensive bench-to-bedside approach enables the unit to translate fundamental discoveries into patient and, therefore, societal impact. Patient participation is a strong point that could be further boosted in future.

10. Executive summary and recommendations

Research quality within all six strategic programs at UMC Utrecht is of very high quality with excellent elements. The bench-to-bedside approach and the strong focus on translational and clinical research are key strengths. The UMC's local embeddedness and strong collaboration with institutions as Princess Máxima Center, Hubrecht Institute, and Utrecht University next to collaborations with other partners at the Utrecht Science Park, and Eindhoven and Wageningen University are defining factors in its success, as well as UMC Utrecht's proactive role in national and international collaborations.

The UMC is about to enter a period of transformation that will positively impact its research. Simpler structures, centralized facilities, and enhanced financial mandates for the six strategic themes are considered crucial. The committee sees these developments as important for future improvement and growth. The success of the Research Office indicates what can be done when expertise is brought together centrally and boosted by UMC Utrecht management. Further streamlining of valorization and legal support can contribute to research excellence. At the same time, UMC Utrecht should ensure that the internal changes don't distract the institution from the valuable outward perspective outlined in its 'Connecting Worlds' strategy.

The dedication of UMC Utrecht in promoting Open Science, research integrity and patient participation is laudable, according to the committee. UMC Utrecht should continue striving to implement patient participation in such a way that it becomes a natural part of the researchers' DNA. The committee praises the UMC's focus on recognizing and rewarding various career trajectories by distinguishing six career profiles and appointing clinical scientists. The latter function could still be better defined and implemented in order to achieve maximum effect. The talent programs that were created over the evaluation period have become very successful and make a real difference to UMC Utrecht's research talent.

The committee urges the UMC Utrecht to proactively invest in promoting openness, social safety, diversity & inclusion, and mentoring of all staff (including PhD candidates and postdocs). This should be done in a structured manner with attention paid to attainable targets. The effect of the measures taken should be evaluated and followed up. PhD success rates should be improved and causes for delays should be identified.

The committee saw many bottom-up examples of best practices in the various strategic themes. These include seed money and mentoring for researchers, duo grants for researchers and clinicians, and a structural 'fleet review' of staff members in the program. UMC Utrecht should identify such best practices and roll them out across all programs in the course of its current redesign, so that all strategic programs and researchers benefit from proven practices.

The committee formulates the following recommendations:

- Make sure research money is protected in the current transformation.
- Maintain an outward view in spite of internal changes, consistent with the 'Connecting Worlds' strategy.
- Install mentorship programs for all researchers across all phases of their careers.
- Improve transparency around promotion and career perspectives for researchers.

- Formulate a clear definition of the ‘clinical scientist’ role and specify the timing of this role and the manner in which research time is to be protected. Ensure that this position is also financed in a structural manner.
- Formulate a policy on promoting diversity and inclusion with clear and measurable targets. Execute and monitor this carefully and structurally.
- Improve PhD guidance and monitoring by standardizing procedures and practices. Register contract extensions or delays centrally and monitor them. Ensure that all PhD candidates enrol in the GSLS at the start of their trajectories, so that they can be followed from start to finish. Ensure that mentors are independent of the supervisory team in order to fulfil their tasks optimally.
- Promote social safety and a positive academic culture, capitalizing on the new governance that permit a less hierarchical and more simple and transparent structure.
- Promote patient engagement and make sure it becomes part of all researchers’ DNA through a clear and measurable policy.
- Further improve research support by strengthening and streamlining legal and valorization support structures.
- Make sure UMC Utrecht’s strategic themes develop specific short-term future strategies, allowing leadership to proactively guide them through the transformation process.
- Identify best practices throughout the various themes and roll them out across all UMC researchers.

Appendix 1: The SEP 2021-2027 Criteria and Categories

The committee was requested to assess the quality of research conducted by the UMC Utrecht as well as to offer recommendations in order to improve the quality of research and the strategy of the UMC Utrecht. The committee was requested to carry out the assessment according to the guidelines specified in the Strategy Evaluation Protocol. The evaluation included a backward-looking and a forward-looking component. Specifically, the committee was asked to judge the performance of the unit on the main assessment criteria and offer its written conclusions as well as recommendations based on considerations and arguments. The main assessment criteria are:

1) **Research Quality:** the quality of the unit's research over the past six-year period is assessed in its international, national or – where appropriate – regional context. The assessment committee does so by assessing a research unit in light of its own aims and strategy. Central in this assessment are the contributions to the body of scientific knowledge. The assessment committee reflects on the quality and scientific relevance of the research. Moreover, the academic reputation and leadership within the field is assessed. The committee's assessment is grounded in a narrative argument and supported by evidence of the scientific achievements of the unit in the context of the national or international research field, as appropriate to the specific claims made in the narrative.

2) **Societal Relevance:** the societal relevance of the unit's research in terms of impact, public engagement and uptake of the unit's research is assessed in economic, social, cultural, educational or any other terms that may be relevant. Societal impact may often take longer to become apparent. Societal impact that became evident in the past six years may therefore well be due to research done by the unit long before. The assessment committee reflects on societal relevance by assessing a research unit's accomplishments in light of its own aims and strategy. The assessment committee also reflects, where applicable, on the teaching-research nexus. The assessment is grounded in a narrative argument that describes the key research findings and their implications, while it also includes evidence for the societal relevance in terms of impact and engagement of the research unit.

3) **Viability of the Unit:** the extent to which the research unit's goals for the coming six-year period remain scientifically and societally relevant is assessed. It is also assessed whether its aims and strategy as well as the foresight of its leadership and its overall management are optimal to attain these goals. Finally, it is assessed whether the plans and resources are adequate to implement this strategy. The assessment committee also reflects on the viability of the research unit in relation to the expected developments in the field and societal developments as well as on the wider institutional context of the research unit

During the evaluation of these criteria, the assessment committee was asked to incorporate four specific aspects. These aspects were included, as they are becoming increasingly important in the current scientific context and help to shape the past as well as future quality of the research unit. These four aspects relate to how the unit organises and actually performs its research, how it is composed in terms of leadership and personnel, and how the unit is being run on a daily basis. These aspects are as follows:

4) **Open Science:** availability of research output, reuse of data, involvement of societal stakeholders;
5) **PhD Policy and Training:** supervision and instruction of PhD candidates;
6) **Academic Culture:** openness, (social) safety and inclusivity; and research integrity;
7) **Human Resources Policy:** diversity and talent management.

Appendix 2: Program of the site visit

Wednesday, November 12, 2025

Time	Format	Topic and Speakers	Location
12:00 - 14:30	**Arrival at hotel**	Arrival of the committee	Crowne Plaza Hotel
14:30 - 15:00	*Transfer to UMC Utrecht*		
15:00 - 17:00	**Committee together at UMC Utrecht**	Committee meeting with secretary - Introductions - Explanation of the program - Sharing initial impressions	Berekuil meeting room
17:00 - 17:45	*Transfer back to hotel and downtime*		
17:45 - 18:00	*15-minute walk from hotel to restaurant at Utrecht University Hall*		
18:00 - 21:00	**Walking dinner**	Informal introduction of committee and UMC Utrecht *By Carina Hilders (chair of the executive board), Arno Hoes (dean and vice-chair of the executive board), and Elly Hol (vice-dean research)*	Utrecht University Hall *(Academiegebouw)*, 'Maskerade' Room

Thursday, November 13, 2025

Time	Format	Topic and Speakers	Location
08:00 - 08:30	*Transfer to UMC Utrecht*		
08:30 - 09:30	**Opening**	Introduction to UMC Utrecht and the purpose of the evaluation *By Carina Hilders (chair of the executive board) and Arno Hoes (dean and vice-chair of the executive board)*	Maliebaan meeting room
09:30 - 10:00	**Plenary**	An overview of the current research governance *By Kors van der Ent (chair of the strategic programs)*	Maliebaan meeting room
10:00 - 10:10	*Short break / walking time*		
10:10 - 12:30	**Focused session** *(committee splits up)*	Insights into the different strategic programs. The committee will visit the different strategic programs in pairs. Please refer to the schedule below for details.	Locally at the strategic programs
12:30 - 13:30	**Committee together + Lunch**	Time to discuss input among each other	Berekuil meeting room
13:30 - 15:50	**Focused session** *(committee splits up)*	Insights into the different strategic programs. The committee will visit the different strategic programs in pairs. Please refer to the schedule below for details.	Locally at the strategic programs
15:30 - 16:00	*Short break / walking time*		
16:00 - 16:30	**Committee together**	Time to discuss input among each other	Berekuil meeting room
16:30 - 17:30	**Gallery walk**	Poster session about different subjects *(Quality policy, Funding support, Support for core technologies, Collaborations within campus, EWUU alliance, Valorization, AI and data infrastructure, Graduate School of Life Sciences)*	Foyer ground floor
17:30-18:50	*Transfer to hotel and downtime*		
18:50 - 19:00	*10-minute walk from hotel to restaurant*		
19:00 - 21:00	**Dinner**	*Private dinner committee*	Restaurant Winkel van Sinkel, St. Laurens room

Friday, November 14, 2025

Time	Format	Topic and Speakers	Location
08:30 - 09:00	*Transfer to UMC Utrecht*		
09:00 - 09:30	**Plenary**	Patient participation *By Hans van Delden and Astrid Janssens*	Maliebaan meeting room
09:30 - 10:00	**Plenary**	How do we recognize and reward our researchers? - Career profiles and clinical scientists *(by Rinze Benedictus)* - Talent program *(by Ine-Marije de Jong)* - UMC Utrecht Young Academy *(by Julia Berezutskaya)*	Maliebaan meeting room
10:00 - 10:20	**Plenary**	Research integrity and diversity & inclusion *By Eugenie Ram, Geerte Slappendel, and Didi Vredeveldt*	Maliebaan meeting room
10:20 - 10:30	*Short break*		
10:30 - 11:30	**Working group** *(committee splits up, to be decided by committee)*	Two parallel sessions with our early career researchers. Discussion on how they experience being a researcher at UMC Utrecht. - One session with PhDs - One session with postdocs	Berekuil & Maliebaan meeting room
11:30 - 12:30	**Plenary**	Identified Strengths, Weaknesses, Opportunities, and Threats (SWOT) and our future perspectives *By Kors van der Ent (chair of of the strategic programs)*	Maliebaan meeting room
12:30 - 14:30	**Committee together** *(includes lunch)*	Discuss input from the entire site visit and formulate recommendations	Berekuil meeting room
14:30 - 15:00	**Pre-discussion findings**	Feedback from the committee to the higher management of UMC Utrecht *(Dean; Vice-dean; Head of Research Office; Chairs of the strategic programs)*	Yellow Lecture Room *(Gele collegezaal)*
15:00 - 15:30	**Plenary**	Final presentation by the committee, accessible to all those interested	Yellow Lecture Room *(Gele collegezaal)*
15:30 - 16:30	**Drinks**		Foyer Stratenum

Patient participation parallel program

Time	Topic
09:00 – 09:15	Welcome and introduction
09:15 – 09:30	Presentation of our program patient participation in research
09:30 – 10:15	Three presentations from UMC researchers and patients
10:15 – 10:30	*Short break*
10:30 – 11:30	Subgroups to discuss what is already happening in terms of patient participation and what could be improved
11:00 – 11:30	Plenary conclusion on the findings from the subgroups and a final discussion on when patient participation is deemed ‘succesful’
11:30 – 12:30	*Lunch and formulation of recommendations by committee*
12:30 – 12:45	Patient Participation Committee shares their findings and recommendations with the general SEP committee.

Appendix 3: Quantitative data

Quantitative data on the research unit's composition and funding, as described in SEP Appendix E, Tables E2, E3 and E4:

- Input of research staff;
- Funding;
- PhD candidates.

Appendix A - Research staff

Research staff (numbers)

	2019	2020	2021	2022	2023	2024
Full professors	202	206	208	214	210	212
Associate professors	151	157	172	175	194	173
Assistant professors	424	465	475	500	524	536
Post-docs	279	257	285	296	258	273
PhD students	763	749	760	775	810	864
Technicians & other support	254	347	316	292	295	299
Visiting scientists	93	3	2	28	41	325
Total research staff	**2.166**	**2.184**	**2.218**	**2.280**	**2.332**	**2.682**

Increase in 2024 compared to 2019: **24%**

Note: the number of full professors is based on information from the Academic Careers database. The other numbers are based on information from divisions and Pure research information as compiled by directorate IT. Numbers indicate persons, not FTE.

Appendix B - Earning capacity

Externally acquired research funding (per program)

	2019	2020	2021	2022	2023	2024
Brain	€ 14,485,113	€ 18,851,201	€ 13,873,470	€ 16,679,038	€ 25,442,785	€ 34,842,515
Cancer	€ 24,281,931	€ 22,307,366	€ 28,323,076	€ 25,875,847	€ 38,040,878	€ 53,261,232
Child Health	€ 14,425,322	€ 5,370,674	€ 11,771,582	€ 11,132,624	€ 14,245,003	€ 17,331,751
Circulatory Health	€ 26,337,818	€ 16,226,868	€ 17,571,844	€ 627,555	€ 22,218,191	€ 21,292,933
I&I	€ 28,430,216	€ 46,439,354	€ 63,092,453	€ 22,603,836	€ 11,600,182	€ 34,544,713
RM&SC	€ 9,693,373	€ 8,569,964	€ 22,016,735	€ 6,764,571	€ 19,732,235	€ 14,968,555
Other research	€ 5,845,781	€ 5,547,108	€ 997,202	€ (296,961)	€ 728,819	€ 6,840,220
Total budget	**€ 123,499,555**	**€ 123,312,535**	**€ 157,646,362**	**€ 83,386,510**	**€ 132,008,092**	**€ 183,081,920**

Note:

- *The complete amount of funding awarded for a project is registered in the year of reception, regardless of the duration of the project.*
- *When a project is linked to multiple strategic programs, the funding is administratively divided equally among them.*
- *Negative amounts can occur if reimbursements had to be made, e.g. when fewer patients were included than expected and the initially awarded budget was not realized. This is the case, for example, for two large Circulatory Health projects (Genius' II and Trials@Home) in 2022. Acquired research funding of Circulatory Health is therefore € 7,575,204 in 2022.*
- *Due to various reasons, the financial administration sometimes takes more time than expected, which is why some projects have not yet been incorporated in the table above. Some examples of large projects that have been awarded in the period 2019-2024 are:*
  - *NGF RegMed XB pilot factory ICAT*
  - *NGF OnCode accelerator (partial)*
  - *NGF CPBT (partial)*
  - *NGF NXTGEN Hightech (partial)*
  - *NWO Summit DRIVE-RM*
  - *ZonMW CEMMRI*
  - *VWS RZN - Antimicrobiële Resistentie*
  - *Spieren voor Spieren' funding*
  - *NWO KIC-LTP IMAGINE*

Earning capacity per year per funding stream

	2019	2020	2021	2022	2023	2024
2nd (national research funders)	€ 27,350,912	€ 25,414,907	€ 26,353,426	€ 17,069,074	€ 38,807,220	€ 35,363,228
3rd (health charities, EU)	€ 71,824,389	€ 74,702,200	€ 102,208,301	€ 42,004,418	€ 69,913,767	€ 111,323,424
4th (private parties)	€ 23,967,709	€ 23,195,428	€ 29,921,565	€ 24,283,147	€ 23,287,076	€ 36,395,267
Total budget	**€ 123,143,011**	**€ 123,312,535**	**€ 158,483,292**	**€ 83,356,639**	**€ 132,008,063**	**€ 183,081,920**

Note: Due to rounding issues, small differences may occur between this table and the one above.

Appendix C - PhD candidates

Graduation rate

Faculty of Medicine

	Enrollment (N / %)			Graduation rate (N, cumulative) in relation to PhD duration (D)					Success rate N (%)		
Starting year	Total	Female	Male	D ≤ 4 years	D ≤ 5 years	D ≤ 6 years	D ≤7 years	D >7 years	Graduated	Not yet graduated	Stopped
2016	**289**	169 (58%)	120 (42%)	110	159	193	214	236	236 (82%)	26 (9%)	27 (9%)
2017	**297**	182 (61%)	115 (39%)	61	136	188	227	237	237 (80%)	46 (15%)	14 (5%)
2018	**232**	141 (61%)	91 (39%)	38	92	147	162		162 (70%)	58 (25%)	12 (5%)
2019	**278**	182 (65%)	96 (35%)	35	117	155			155 (56%)	107 (38%)	16 (6%)
2020	**256**	159 (62%)	97 (38%)	37	66				66 (26%)	172 (67%)	18 (7%)
2021	**259**	175 (68%)	84 (32%)	25					25 (10%)	221 (85%)	13 (5%)
2022	**274**	181 (66%)	93 (34%)	2					2 (1%)	266 (97%)	6 (2%)
2023	**299**	202 (68%)	97 (32%)	0					0 (0%)	295 (99%)	4 (1%)
2024	**240**	183 (76%)	57 (24%)	0					0 (0%)	240 (100%)	0 (0%)