



A HEALTHY SOCIETY FOR EVERYONE

Mid-term self-evaluation report 2023–2025: Annexes



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A. Report of the Evaluation Committee (approved June 2024)

Evaluation of the Care and Public Health Research Institute (CAPHRI) (2017–2022)

Report by the External Review Committee (version 17, 17.03.2024)

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Preface

This report presents the findings of the committee appointed to review the Care and Public Health Research Institute (CAPHRI), as part of the Strategy Evaluation Protocol 2021–2027. The committee's assessment drew upon a self-evaluation report prepared by the research institute and a site visit by the committee conducted on November 29 and 30, 2023. The committee reviewed a vast amount of written material and was impressed by the joint efforts of CAPHRI researchers to prepare and organise a successful two-day evaluation. The committee highly appreciated all of the hard work that was put into the evaluation process. The committee met a lot of enthusiastic and committed people who wish to contribute to a better health for all.

I speak for the entire committee in congratulating CAPHRI in ensuring a very good level of performance across the following assessment criteria: research quality, societal relevance, and viability. In addition, as required by the protocol, the committee has reported on the research institute's PhD programme, open science, academic culture, and human resource policies. Detailed findings and recommendations for consolidating and enhancing CAPHRI's performance in future are included in this report.

On behalf of the committee, I would like to thank all members of CAPHRI, whose contributions to the review were very helpful. We also thank the research institute's leadership for the excellent organisation of the review materials and the site visit. I would like to thank the committee members for their wisdom, thoroughness, commitment, and good humour throughout the review process. Finally, I thank our secretary, Petra Uittenbogaard, for her support during the review process and the preparation of this report.

Anna Petra Nieboer,

Committee chair, CAPHRI research review committee

February 7, 2024

1 EXECUTIVE SUMMARY

In this document, the external review committee reports its findings on the assessment of the Care and Public Health Research Institute (CAPHRI) in Maastricht. The external review committee, further referred to as the committee, was requested by the board of the Faculty of Health, Medicine, and Life Sciences (FHML) to conduct this assessment by taking into account the national Strategy Evaluation Protocol (2021–2027). This assessment report is drawn up in accordance with the guidelines and format of this protocol.

The review process included a self-evaluation report with annexes per research line (RL) (for an overview, see p. 5 of the Self-evaluation report: Part A) prepared by CAPHRI and a site visit by the committee on November 29 and 30, 2023 (see annex 3 for the full programme). The committee had interactive sessions with researchers from the six RLs, the science commission, the advisory board, various stakeholders and strategic partners, PhD coordinators and PhD representatives, people responsible for research integrity and quality assurance, the management team, and the boards of both the FHML/Maastricht University Medical Centre (Maastricht UMC+) and the institute. For a more extensive description of the outline of the review process and the procedures that were followed, see chapter 2 of this report.

Conclusions

1. The academic quality of the research by CAPHRI is very good.
2. The breadth of methodological and theoretical expertise enables CAPHRI to conduct multi-, inter-, and transdisciplinary projects addressing research questions on varied care and public health problems from identification of intervention type to evaluation and implementation methods.
3. The committee saw some exceptionally positive case studies and approaches indicative of “unique selling points” of CAPHRI, such as living labs and organisational partnerships contributing to societal impact.
4. The organisational charts and pictograms are useful for describing structures and outputs, but they do not help people understand what CAPHRI does, the methodological and disciplinary expertise within and between research lines, or how this research impacts the organisational infrastructure and makes changes to society and health. Therefore, more coherence is required.
5. The committee appreciates that CAPHRI has put in place structures for academic culture and open science, but these have not been sufficiently translated into practice or changed mindsets at all levels. CAPHRI lacks a clear open and responsible science programme that will be implemented in practice.
6. The academic culture is split between education and research career pathways, which are aligned to management needs rather than the development of an integrated academic identity that works across the organisational infrastructure.
7. The university schemes and promoting systems rely on the promotion of staff by line manager and supervisor recommendations. These reward and recognition schemes may not be equitable for all staff due to the role of unconscious bias in people’s judgements based on sex, ethnicity, and disciplinary perspectives.
8. CAPHRI has worked on many policies and the organisational infrastructure to manage a diverse research programme and alignment with an established education portfolio (e.g., the matrix and finance models), but data management, research integrity, and human resource policies are not clearly laid out and need further development and implementation.

Recommendations

The committee has three recommendations with regard to the research quality and research strategy. CAPHRI should,

1. Strengthen interdisciplinary coherence within the institute by developing a more coherent conceptual and methodological framework (research vision), based on the defined areas of impact, methodological strengths, theoretical framework, and strategic direction.
2. Give more in-depth attention to fully understand, integrate, and internalise concepts and theoretical frameworks from different disciplines, recognising the institute's inter- and transdisciplinary approach.
3. Further develop the strategic plans with a greater focus, clear goals related to impact, and articulation of “need” (in terms of scientific approaches) at specific stages from the identification of the problem to the design, implementation, and evaluation of interventions.

The committee has three recommendations with regard to societal relevance. CAPHRI should,

4. Take leadership, better harvest, and build more broadly on the already 25 years existing tradition in applying living labs to enhance societal impact, given current attention for research in living labs in academia.
5. Frame the objective of stakeholder and citizen involvement in a more productive way (not merely SMARTer, but also provide room for unpredictability, creativity, and out-of-the-box thinking), ensuring that interactions with societal partners are pushed to a higher level.
6. Make better use of its advisory board and formulate a clear mission/role, e.g., help the research institute strengthen its strategy and/or install more specific advisory groups to reflect on the research strategies of the RLs.

The committee has three recommendations with regard to viability. CAPHRI should,

7. Develop an identity everyone recognises and that translates into similar goals everyone is working for and, in turn, translates into a visible, recognisable branding of the research institute, supporting (inter)national visibility, force, and attractiveness to funders.
8. Put (more) effort in risk management: develop a strategy, with measurable goals, to improve the transparency of not only the research results but also the methodology (such as source data and code).
9. Strengthen incentives for high-quality, high-impact inter- and transdisciplinary output in order to meet the future needs of society and to increase viability.

The committee has four recommendations with regard to open science and academic culture. CAPHRI should,

10. Help early-career staff develop skills to deliver, lead, and innovate across educational and research activities to ensure that organisational priorities and business cases are appropriately justified, through transparent university schemes that help staff integrate the different components for equitable career development.
11. Actively manage risk related to research integrity, including the need for meticulous analysis of conflicts of interest, focusing on information exchange (how staff can get advice), governance (how the organisation deals with (potential) breaches), and culture. The development of a reflective culture on research integrity within CAPHRI is essential to put the structure into practice.
12. Spend more time/effort on governance concerning research data management, especially with the rapid progression of big and digital data as well as the demand for open science.
13. Create an open and responsible science community with a clear Open and Responsible Science programme that will be implemented in practice.



The committee has one recommendation with regard to education and training. CAPHRI should,

14. Adjust the PhD policy such that the quantity and quality of the training as well as the opportunities for the PhD students within the institute will be more equitable, allowing more involvement of PhD representatives to evaluate, monitor, and help develop policy, especially because PhD students seem to be dependent on individual supervisor interests and recommendations.

2 GENERAL SECTION

2.1 Background and outline of the review process

The review committee was asked by the board of the FHML to assess the research quality, relevance to society, and strategic targets of both the research institute as a whole as well as its research units: the six RLs. The evaluation was based on both CAPHRI's ambitions and strategy of the previous six years (2017–2022, backward-looking component) and the future strategy (forward-looking component). The board of the faculty specified the objectives and criteria of the assessment, the schedule of the assessment procedure and reporting, and the responsibilities of the committee in the terms of the reference (Annex 2) sent to the committee on October 3, 2023.

Specifically, the committee was asked to judge the performance of CAPHRI on the main assessment criteria described in the Strategy Evaluation Protocol and to offer its written conclusions as well as recommendations based on considerations and arguments. The main assessment criteria were as follows: 1) research quality, 2) societal relevance, and 3) viability of the unit. When evaluating these criteria, the committee was asked to incorporate four specific aspects: a) open science, b) PhD policy and training, c) academic culture, and d) human resource policy (e.g., diversity and talent management).

2.2 The review committee and the procedures

The review committee was composed of the following members:

- Professor Anna Petra Nieboer, Erasmus University Rotterdam, NL (chair),
- Professor Hilary Bekker, University of Leeds, UK
- Meindert Boysen, PharmD, MSc, National Institute for Health and Care Excellence (NICE), UK
- Professor Jacqueline Broerse, VU Amsterdam, NL
- Dr. Inge de Kok, Erasmus Medical Centre, NL
- Dipl.-Soz. Geront. Verena Leve, MA, Institute of General Practice (ifam), Medical Faculty, Heinrich Heine University Düsseldorf, DE
- Em. Professor Jan De Maeseneer, WHO Collaborating Centre for Family Medicine and Primary Health Care, Ghent University, BE
- Petra Uittenbogaard, MSc, (appointed secretary to the review committee), The Hague, NL

Prior to the visit, the committee members signed a statement of impartiality to exclude any possible conflict of interest. Additional information on the committee members can be found in annex 1. The review process included a self-evaluation report prepared by the research institute and a site visit by the committee on November 29 and 30, 2023. The committee was formally installed by the dean of the FHML, Professor Annemie Schols, on November 29, 2023.

In preparation for the site visit, the committee had three online meetings. In their meetings, the committee agreed on a division of tasks for reading the report and additional documentation as well as for writing comments on it. The two-day visit concluded with a public feedback session in which a “snapshot” of the preliminary findings and recommendations were presented. Professor Jacqueline Broerse chaired the committee during the two-day visit, as Professor Anna Petra Nieboer could only participate online due to a COVID-19 infection.

Before the two-day site visit, the committee received and studied well-presented information meeting the standards of the Strategy Evaluation Protocol (2021–2027), including the following:

- Terms of reference for the external review of CAPHRI (2017–2022)
- Statement of impartiality

- Strategy Evaluation Protocol (2021–2027)
- Self-Evaluation Report (2017–2022)
 - Part A: Documentation at the level of the research institute
 - Part B1: Ageing and long-term care (ALTC)
 - Part B2: Creating value-based healthcare (VHC)
 - Part B3: Functioning, participation, and rehabilitation (FPR)
 - Part B4: Health inequities and societal participation (HISP)
 - Part B5: Optimising patient care (OPC)
 - Part B6: Promoting health and personalised care (PHPC)
 - Case studies
 - Programme of the site visit

In the Self-Evaluation Report (2017–2022), CAPHRI presents its research strategy and strategic process over the past six years. Furthermore, CAPHRI reports on the accomplishments and results over the past six years as well as the follow-up of the recommendations of the previous assessment in 2017. Finally, CAPHRI presents its objectives for the next six-year period, based on strengths, weaknesses, opportunities, and threats (SWOT) analysis. In addition to studying CAPHRI's self-evaluation report, the committee also addresses the recommendations of the previous committee, in particular, what CAPHRI has said about making progress towards them in the assessment of the research institute and its RLs (see sections 3.1 and 3.4–3.9 in this report).

In a confidential meeting before the start of the site visit, the dean of the Faculty of Health, Medicine, and Life Sciences (FHML) informed the committee about a newspaper article that would appear in *NRC* in which the research activities of CAPHRI's former director were critically examined. Issues raised included the correct reporting of ancillary activities, their overlap with research embedded within the university, the expertise and composition of research teams involved in systematic reviews and meta-analyses, transparency of funding and processes to prevent conflicts of interest in contract research, dilemmas in research assignments for specific clients such as the chemical industry, and thus awareness of the wider implications of the scientific research conducted. The committee was informed that the board of the FHML, in consultation with the Maastricht University Medical Centre (MUMC+)/FHML Scientific Integrity Platform, will investigate the details of this specific case as well as examine whether CAPHRI as an institution has everything in place to manage registration and monitoring of ancillary activities. Without the details being presented to them, the committee could not judge the merit of the case or what the impact on the arrangements for 'open science' would be. As the case is so fundamental to open and responsible science and academic culture as well as critical for the governance of the research institute and faculty, we did examine related issues regarding openness, safety, inclusivity, and research integrity but did not address this case specifically (see sections 3.2.5 and 3.2.6 in this report).

3 ASSESSMENT OF THE RESEARCH INSTITUTE AND ITS RESEARCH LINES

3.1 Brief description of CAPHRI's organisation

As a research institute, CAPHRI is a part of the FHML of Maastricht University (UM) and MUMC+. CAPHRI researchers are generally employed by UM/FHML (98% of full-time equivalents (FTEs)) or by the Maastricht academic hospital (2% of FTEs). CAPHRI's research is organised along six thematic RLs in which researchers from different discipline-oriented departments come together to work in multidisciplinary teams: ageing and long-term care (ALTC); creating value-based healthcare (VHC); functioning, participation, and rehabilitation (FPR); health inequities and societal participation (HISP); optimising patient care (OPC); and promoting health and personalised care (PHPC). Each RL is led by two RL leaders (chair and vice-chair). In addition, CAPHRI has established long-term partnerships with local public health and healthcare institutes in so-called living labs and centres.

The management board of CAPHRI consists of the scientific director and the managing director. The scientific director has the final responsibility for the institute and reports to the FHML board. As of November 2021, Professor Silvia Evers holds the position of scientific director. The organizational and financial structure of CAPHRI is complicated, with the responsibilities of department heads on the one side and RL leaders on the other side (see Self-evaluation report: Part A, annexes 5 and 6). CAPHRI is a part of a matrix organization with individual researchers belonging to different organizational groups and having different organizational and financial responsibilities. Overall coordination of the research activities is achieved through meetings with RL leaders and department heads, joint projects, and collaborative publications.

CAPHRI seeks to achieve “a healthy society for everyone” by conducting “high-quality research in care and public health with societal relevance” (see p. 7, Self-evaluation report: Part A). CAPHRI has a key position in the healthcare sciences in the Netherlands and in specific fields internationally. In addition to its research and societal impact, CAPHRI offers a comprehensive doctoral (PhD) training programme and collaborates with three other institutes in the Netherlands School of Public Health and Care Research (see p. 65, Self-evaluation report: Part A).

3.2 Qualitative evaluation of the research institute and findings

3.2.1 General remarks

Mission and strategy

CAPHRI aims to conduct high-quality research in care and public health with societal relevance (see p. 7, Self-evaluation report). CAPHRI is designed to provide a structure enabling staff to integrate their different academic approaches to investigate and develop innovative solutions enabling care and public health to improve the health of all populations in society. The documentation and presentations illustrate that each of CAPHRI's six RLs have developed a mission and strategy aligning with CAPHRI's vision. Furthermore, they reveal that staff are working within each RL to ensure that their research is scientifically robust and impactful, enabling CAPHRI to build bridges between research methods and findings and societal relevance. The committee was able to see some exceptionally positive case studies and approaches indicative of “unique selling points” of CAPHRI, such as living labs, organisational partnerships (large cohort of external PhDs), and governance (science commission, advisory board, and communication commission).

The inclusion of SWOT analysis for the institute overall as well as for each of the RLs has been very useful and insightful for the committee. It allowed the committee to focus on the areas of challenge and opportunity. The five strategic plans for the next six years (see p. 26, Self-evaluation report) provide an

important focus to support the management and organisation of staff across the RLs of CAPHRI. Ensuring that these strategic plans are communicated to staff across the RLs and that they are at the forefront of people's thinking when initiating and executing research is critical to further develop people's identity within CAPHRI. The committee recognises that the operationalisation of these strategic plans is likely to change depending on its external review, CAPHRI and RL leadership and staff changes, Maastricht University (UM) and health service organisational priorities, and societal needs. But at the same time, the committee encourages the management team of CAPHRI to further develop the strategic plans with a greater focus on what is likely to be achieved by when, along the lines of the specific, measurable, achievable, relevant, and time-bound (SMART) concept, with clear goals for every member of the CAPHRI community.

The committee suggests that a next step for CAPHRI should be to help others within Maastricht UMC+, UM and externally to understand the reason *why* CAPHRI exists, i.e., why it is important in health and societal research, and how it impacts on health and social care methodologists, organisations, and people's health practices and outcomes. More specifically, what CAPHRI stands for. Yes, "a healthy society for all" is important and laudable, but what does CAPHRI contribute? What are CAPHRI's strengths and unique selling points? The organisational charts (Matrix, CAPHRI) and pictograms are useful for describing structures and outputs, but they do not help people understand what CAPHRI does, what the methodological and disciplinary expertise within and between RLs contributes, why collaboration with health and societal professionals and populations is essential for innovating current practice, or how this research impacts society and changes health.

Organisational and governance structure

It took the committee time to consider the matrix structure used to position CAPHRI as well as other research institutes within the broader institutional structure across FHML and MUMC+. As a result, the committee better understands the "why" and "how" CAPHRI is financed and manages staff across departments and aligned with the RLs. Within CAPHRI alone, researchers are drawn from 13 university departments, each with their own academic identity and scientific approach: Clinical Epidemiology & Medical Technology Assessment; Epidemiology; Family Medicine; Health, Ethics & Society; Health Promotion; Health Services Research; Internal Medicine (mainly Rheumatology); International Health; Medical Microbiology, Infectious Disease & Infection Prevention; Methodology & Statistics; Orthopaedic Surgery; Rehabilitation; and Social Medicine (Figure 1.1, p. 5, Self-evaluation report). This breadth of methodological and theoretical expertise enables CAPHRI to conduct multi-, inter-, and transdisciplinary (applied) projects addressing different research questions needed for the identification of problems as well as the design, evaluation, and implementation of interventions. The organisational and governance structure seems to have the advantage of enabling a crossorganisational culture proactively supporting inter- and transdisciplinary cooperation, which is seldom seen in Europe. The responsible, accountable, consulted, and informed (RACI) framework, which is used by some organisations, may help to further identify and outline governance by clarifying and defining roles in cross-departmental projects. In order to overcome possible fragmentation and to create cohesion and focus between RLs, CAPHRI aims to intensify active participation of its entire staff (the third of five strategic aims/objectives for the next six years; see section 6.2, p. 26, Self-evaluation report: Part A).

The committee suggests that it would be useful if CAPHRI can find a way to represent the strengths of their applied health and social care research expertise in order to help inform a narrative of needing different types of research-related methods, theoretical explanations, and multi-stakeholder approaches to deliver the aims and objectives of CAPHRI. The committee developed an example to illustrate an overall summary of CAPHRI's activities and suggested different RLs would highlight their particular expertise in this complex field and integrate the "sum of the parts" for others to see "the whole" (see annex 6).

Recognizing explicitly the academic home or theoretical identity of the scientific methods is important to help others see what is needed to ask questions and to find solutions by drawing on the expertise from another's perspective. These academic homes are key to delivering research that is inter- and transdisciplinary from multi-stakeholder perspectives. CAPHRI needs to find ways to recognise the expertise of all those collaborating in innovating healthcare, including academics and methodologists, patients and the public, and health and social care professionals.

To fully take advantage of the available expertise, there needs to be communication between academic departments and RLs to illustrate the education-research symbiosis as well as the organisational ownership of the scientific and societal impacts of staff activity. University schemes and promotion schemes should help staff integrate the different components (activities) and support equitable career development.

3.2.2 Research quality

CAPHRI produces a large volume of research output, mainly in the form of journal publications but also professional publications and book contributions. Many of these publications are of high scientific quality and range across different disciplines, as shown by the Category Normalised Citation Impact (CNCI) scores in the evaluation reports of the RLs. The committee was impressed by the quality of the high-impact publications it has reviewed in the table describing the most important scientific publications (2017–2022, top 10%) included in the self-evaluation reports of the RLs. For example, 39.6% of CAPHRI's output receives more citations than expected based on the age, document type, and subject area. In addition, 13.9% of the total output belongs to the world's top 10% documents, according to citation impact (p. 56, Self-evaluation report: Part A). Nevertheless, for the majority of outputs, the CNCI lies close to 0 or 1, suggesting that publications are cited as frequently as the world average or less. Some may see a CNCI score of 0 or 1 as tipping the balance of quantity over quality.

The committee recognises that there are limitations to using citation indices as the only indicator of quality or impact. Furthermore, there is a risk to innovation in certain fields and people's career progression when using such indicators of quality as a reason for focusing on one type of research over and above another. It is likely that having a large number of PhD students will drive different types of research studies and publications in order to meet the objectives of the PhD process. A narrative that could be provided for each RL is that a key objective of a research unit/academic department is the effective training of future researchers and evidence-based practitioners, with amplification of the areas of innovation in the peer-reviewed publications of early-career researchers and academics, and evidence of quality of doctoral training. In addition, having researchers from different methodological areas asking different types of questions as well as finding different solutions to current practice (e.g., modelling data sets versus randomised trials versus crosssectional mixed methods studies versus community-based participatory interventions) means that there will be different citation indices. CAPHRI and the RLs may want to identify narrative-based statements to help others understand the impact of their research for other methodologists, changes to health, and/or wider public impact.

The multi-, inter-, and transdisciplinary (applied) research with a strong emphasis on improving health for individuals and populations, across healthcare settings, and in society was clearly reflected in the output. The large variety of topics indeed suggests that the research may be too scattered. CAPHRI aims to build on theoretical and methodological excellence across multiple fields (the second of five strategic aims/objectives for the next six years; see section 6.2, p. 26). Therefore, more focus could help to further develop a clear identity of RLs and CAPHRI, as suggested by the previous assessment committee as well. A concern regarding the inter- and transdisciplinary approaches is the depth of the understanding of the concepts used from other (non-methodological) disciplines. The full understanding of concepts from other disciplines probably requires more time and exchange of expertise. Especially inter- and transdisciplinary research risks leading to less in-depth approaches. To people external to applied health research science,

it may not be clear how and why this form of collaborative science is different from established models of clinical (laboratory) science, service audit, and innovation methods, or why it is more likely to impact change in practice. Making explicit the relevant theoretical frameworks to question the formulation, research design, and methods may be useful to help link seemingly disparate projects and strengthen the interpretation of findings for future research as well as service innovation.

The committee identified many collaborative publications between the RLs, a clear sign of cooperation and multidisciplinary work (see p. 58, Self-evaluation report: Part A). The number (and total amount of funding) of grants that CAPHRI has successfully received over the review period also is an indicator of its high research quality. Funding has been received from a diverse range of national and international sources (ZonMw, NWO, VWS, and EU).

Based on ten selected publications of each RL, the committee drew the following conclusions regarding the RLs' output:

1. The research quality of researchers from the ALTC RL is very good, with high-impact publications and CNCI scores.
2. Articles from the VHC RL illustrate well its different objectives to a) innovate methods needed to increase the effectiveness of economic and statistical modelling to inform evidence-based healthcare, b) demonstrate flexibility of their approach to identify relevant methods to address disparate health service-led questions about treatment and illness trajectories, and c) collaborate with other methodologists and clinical teams to evaluate intervention integration into current health systems.
3. The FPR RL has strength of publications as their common focus. The articles represent an excellent illustration of translational research.
4. The HISP RL has a very varied output dealing with antimicrobial resistance, ethnicity, testing of an HIV app, and patient engagement in drug development, but only one publication (of the 10) is directly related to what is a very innovative asset of HISP: the living labs in the local communities with a focus on underserved groups.
5. The publications of the OPC RL are of outstanding quality. They are all published in high-impact journals. However, it is less clear why these journals were selected and how they showcase the RL's new actionable evidence-based insights.
6. The publications of the PHPC RL illustrate the leadership of the team in setting quality standards for a) varied methodological approaches to finding robust evidence, b) steps to design interventions from findings and theory, and c) knowledge translation enabling implementation of interventions within current health service practices.

The academic reputation of a number of senior staff members reinforces the internationally leading position of CAPHRI in specific fields such as shared decision making, health literacy, supported selfmanagement, healthy aging, cost effectiveness, and value of information. Their expertise, experience, and stature are internationally recognised. The academic quality of the research by CAPHRI is very good. As in all research institutes, there is variation in the quality of research within CAPHRI, but the committee judges that the quality across the board is of a very high level.

3.2.3 Societal relevance

CAPHRI has a lot to be proud of, such as the many projects that really have an impact on society. The committee considers the societal relevance of CAPHRI's research to be very good to excellent. Researchers reach out and work with many partners in the region to implement their findings in the health system. In this context, the various national and international collaborations that CAPHRI has will certainly help to support dissemination and to ensure the impact of its research, e.g., CAPHRI is a founding member and

holds the secretariat of the Netherlands School of Public Health and Care Research (CaRe). Several of its staff members are also appointed at other universities and national organisations.

In accordance with CAPHRI's fifth of five strategic aims/objectives for the next six years (see section 6.2, p. 26, Part A Self-evaluation report: Part A) a more pro-active role having impact on agendasetting and early development of policies of key organisations seems feasible. Its influence on policies and practice of funding and healthcare organisations is mostly incidental rather than on a continuous basis.

The committee thinks that the interaction of CAPHRI with societal partners could be brought to a higher level. Besides living lab and citizen science methods that are impactful and relevant, the expertise used at the project level should be recognised to ensure that research is carried out to meet the priorities of all stakeholders involved and to fully utilise stakeholders' role in disseminating impact through patient and professional organizations.

3.2.4 Viability

Funding and staff

Table 2.1 (see p. 39, Self-evaluation report: Part A) provides an overview of staff members throughout the period of review. It shows a stable total number of staff members between 2017 and 2022, except for the increase in external PhD candidates. CAPHRI's debt to the central level has been reduced in recent years (see p. 18 and p. 28, Self-evaluation report: Part A). After a reduction of staff in 2011 and 2013, CAHPRI is now responsible for 335 employees (equalling 193.1 FTEs), including 51.5 FTE scientific staff, 43.6 FTE postdocs, 64.5 FTE (internal) PhD candidates, 33.4 FTE support staff, and 421 external PhD candidates. CAPHRI depends financially on direct governmental funding (26%), research funds (27%), contract research (44%), and other funds (3%). The number of FTEs on direct governmental funding has shown a slight decrease, whereas staff appointed on research funds has increased (see Table 2.3, annex 5). The number of permanent academic positions is not one-on-one linked to the amount of direct funding, making it vulnerable to changes in (temporary) research funds and contract research. In line with their ambitions to acquire prestigious (personal) grants and larger grant applications, CAPHRI has become less reliant on contract research and focuses more on research funding (see section 6.3, p. 28 and Table 2.3, p. 41, Self-evaluation report: Part A). They are commended for making progress on this. Possible changes in the funding model, both at the national and UM/FHML level, could have a negative impact on CAPHRI and are a potential threat in the longer run, as mentioned in the SWOT analysis (see p. 25, Self-evaluation report: Part A).

With the arrival of a new scientific director, many policy changes on the level of viability (e.g., strategic budget and composition of the advisory board) appear to have been implemented in 2023. It is not yet fully clear to the committee what the effect will be. In principle, the committee regards the viability of CAPHRI to be healthy, but all staff members need to recognise the increasing financial pressures that universities and research funders face. Early-career staff members need to develop skills to deliver, lead, and innovate across educational and research activities to ensure that organisational priorities and business cases are appropriately justified. It can be difficult for some organisations and project leaders to recognise explicitly the academic expertise of the methodological staff collaborating for small FTEs (5-20%) across several projects. In CAPHRI, the theoretical and methodological skills and knowledge are not linked to a clinical specialty, although they may work well in established clinical pathways. Without these academic approaches, FHML/MUMC+ is unlikely to achieve evidence-based and sustainable change to healthcare delivery and experience.

The committee was pleased to see the development of a healthier financial position in recent years. The CAPHRI management team shows much awareness to manage the finances of the research institute to a more sound and solid base. Their target is to have repaid the remaining debt in the next six years. Staff

members have expressed their concern about the deficit. The committee noticed that CAPHRI's management team is taking these concerns seriously and that it has the intention to reassure staff by holding regular meetings to discuss progress (see section 6.3, p. 28, Self-evaluation report: Part A).

The committee acknowledges that CAPHRI is on the next inflection of transformation, with several senior people leaving (due to retirement). As part of this transformation, they will need to prioritise which research and interventions have to be innovated to meet future needs in society as well as which research and approaches are “good enough”. More strategic leadership, vision, and overview as well as incentives for high-quality, high-impact, and inter- and transdisciplinary output are now needed. CAPHRI's director is only remunerated for 0.5 FTEs. The committee raised questions whether this transformation is achievable at the level currently set for this role. This might be a risk, but it can be done, provided that the CAPHRI management team has strong support, good mitigation strategies, and a decent management approach. The committee found that some of the risk management strategies are handled by the faculty of the university at large but would advise CAPHRI to make sure that it takes care of its own risks (first). The instance regarding conflicts of interest also should have been picked up much earlier, by CAPHRI itself.

3.2.5 Open science

Across the various themes and topics of the self-evaluation, CAPHRI recognises the importance of involving stakeholders, through their long-term partnerships with public health and health and care institutes in the region as well as (inter)nationally, which we welcome. The committee is particularly impressed by the work of the living labs in this context to ensure CAPHRI's work has societal relevance (see section 3.2.3 above). In this context, the committee notes CAPHRI's first of five strategic aims/objectives for the next six years (see section 6.2, p. 26, Self-evaluation report: Part A):

- *“to align [its] research with the needs of citizens (local to global), [thus] contributing to the vitality of the citizens and reduction of inequality in health with a focused approach to prevention and health, and with due consideration to emerging challenges and opportunities in the field of health care and public health”.*

The committee is encouraged by this focus on the needs of key stakeholders in the work by CAPHRI; we were presented with inspiring “citizen science” case studies, especially in the context of living labs and “University in the Neighbourhood”, as well as collaboration with regional, national, and international stakeholders, with whom CAPHRI is clearly successful. However, the committee misses details on *how* the institute has structurally and systematically involved, and is intending to involve, citizens in the development of its strategic ambitions and its research programmes now and in future. The committee looks forward to further development of the plans for the creation of (see section 3.1, p. 8, Self-evaluation report: Part A)

- *“an independent forum in which various researchers and stakeholders with different backgrounds and of heterogeneous views can come together to discuss each other's ideas in order to facilitate transdisciplinary research to generate societal impact and to deliberate in terms of establishing priorities.*

Considering the importance of cohort studies as a strong asset for CAPHRI, the handling of data, including its reuse and storage, is critical to support “open science” activities. The committee understood from the self-evaluation (see section 3.5, p. 14, Self-evaluation report: Part A) and heard from academic leaders that CAPHRI

- *“tries to ensure that [our] research data is FAIR, openly available wherever possible to foster collaboration, offer transparency and improve trustworthiness of [our] research”.*

We were not presented with a clear and unequivocal data management strategy for the research institute. Instead, a link was provided in the self-evaluation to the “Research Data Management Code of Conduct” of the University of Maastricht. Disappointingly, this code of conduct is from March 2014, without an indication of when it is due for review.¹ CAPHRI lacks a clear plan regarding what actions will be taken in the next few years to ensure the findable, accessible, interoperable, and reusable (FAIR) data principles. It would be helpful if CAPHRI would develop (measurable) goals as well as monitor and execute action plans to reach these goals. Clear examples or goals of how research results, other than publications and reports, will be made publicly available were not presented. We recommend the development of a strategy, with measurable goals, to improve the transparency of not only research results and data management but also methodology (such as source data and code). The committee considers Open and Responsible Science (ORS) a critical risk for the organization that needs appropriate management and mitigation strategies. This refers to creating an Open and Responsible Science community who are working on a clear Open and

Responsible Science programme that will be implemented in practice (e.g., having a clear research code of conduct, ethical conduct, open access goals, a data management plan, and stakeholder engagement). CAPHRI itself should have a stronger commitment to this issue, including the development, distribution, and dissemination of a policy itself, especially in the context of an ever-increasing digital world.

The committee notes progress made by CAPHRI in delivering open access of its peer-reviewed publications: from 43.5% in 2017 to 66.1% in 2022 (up to 81.4% including green open access). Open science is reported as priority for the research institute and the university in general; however, we were not provided with CAPHRI’s goal regarding increasing its open access publication rate. It is possible to make all short scientific works that are not directly published Open Access via a publisher, automatically publicly available after a 6-month embargo (e.g., through Pure). This policy is based on Article 25fa of the Dutch Copyright Act Opens external (Taverne Amendment). We advise CAPHRI to develop a target and plan to increase the open access publication rate. We welcome the establishment of an open science community and the appointment of an open science ambassador, although we did not have the opportunity to “interrogate” their work in much detail.

3.2.6 Academic culture

FHML and Maastricht UMC+ have institutionalised a Platform of Scientific Integrity with representatives of all Research Institutes. This platform has developed roadmaps on scientific integrity and social safety (posters) for researchers, students and PhD candidates. These roadmaps show where researchers and PhD students can go to start an open conversation for different types of integrity or social safety issues. Yet, the committee does have concerns regarding arrangements for governance that are in place regarding conflicts of interest. We were not presented with a conflict-of-interest policy, even though we did ask about possible integrity issues when working with industry. Only independence in publishing research results was mentioned as a condition in contracts that is not negotiable. Other processes to prevent conflicts of interest in contract research presented in the Maastricht UMC+ Research code ‘secondary employment and conflict of interest’² seem to be lacking. The committee expected CAPHRI (or at least the faculty) to have translated this policy in clear instructions for its own staff and RLs, with examples of what is considered reasonable, how

staff can get advice, and how the organisation deals with (potential) breaches. We also expected CAPHRI not only to put the structure in place but also to organise discussion and reflection on this topic, e.g.,

¹ FHML added that the research Data Management code has been revised in 2024 and will be published soon.

² <https://www.maastrichtuniversity.nl/file/researchcodebrochureinteractief29012020pdf>

through internal workshops, to enhance the required change in mindset among its staff. Addressing research integrity not only takes setting-up an Open and Responsible Science programme, but also good governance in sustaining its implementation. Making ORS the norm takes translating it into reward systems, educational programs (e.g., obligatory PhD-courses), requirements for contracts with external parties and an infrastructure that supports it.

The culture of (academic) collaboration could be seen as a success of the matrix structure of the FHML research institutes bringing together researchers from different RLs and academic affiliations to develop networks within FHML as well as with external organisations, in line with CAPHRI's fourth of five strategic aims/objectives for the next six years (see section 6.2, p. 26, Self-evaluation report: Part A). The committee took note of the "heat map" of collaboration between the RLs of CAPHRI (p. 58, Fig. 9, Part A). In addition, the heat maps between FHML research institutes indicate CAPHRI's collaboration with FHML institutes across the "bench-patient" range of questions, methods, and innovations to practice. It was unclear to the committee how established and sustainable these partnerships between FHML institutes are and whether collaborations are aligned with the FMHL strategy.

The committee was provided with evidence of excellent teamwork within and across RLs. The matrix structure ensured that the line-management structure aligned with the academic department and FHML human resource policies as well as the reward and recognition schemes. The ways that RLs are financed and budgets are managed (PIs are not budget holders), encouraged a collaborative team-based approach to project delivery. There are pressures on (early-to-mid-career) staff to secure funding to "buy out" teaching activities and to work towards tenure. What was less clear is how early-to-mid-career staff members were supported in their academic development and encouraged to find their academic identity and networks through professional affiliations (e.g., methodological and professional societies). There were few examples given regarding how staff members were supported to develop academic skills that were over and above their research project expertise through staff reviews or mentoring within their academic departments. As associate and full professors, staff members need to have organisational oversight and skills to deliver, innovate, and lead staff from different disciplines as well as professionals across both education and core research UM activities. How, for example, is staff member training in academic procedures, leadership, and pedagogical principles for teaching at higher-education institutes as well as for continuing professional development organised? It was unclear how CAPHRI and the RLs helped staff members manage these different personal development needs equitably in the context of delivering research and navigating changes in life situations.

We note that future plans (p. 27, Self-evaluation report: Part A) are to support early-to-mid career staff in their development in line with reward and recognition practices. However, it seemed that these reward and recognition schemes may not be equitable for all staff, as they rely on recommendations from line managers and judgements made by leaders from across FMHL with different career experiences and professional training. The committee suggests that these types of schemes are open to inequity due to the role of unconscious bias in people's judgements based on sex, ethnicity, and also differences by professional type and scientific methods.

3.2.7 Education and training

The PhD programme offers candidates a solid basic structure for the successful realisation of their projects. In addition to a personal research plan and support from supervision teams, the programme offers a wide range of training opportunities. These can be individually compiled and adapted are required. The measures for assessing the quality of supervision through the online PhD-TRACK system and the monitoring of processes by the PhD coordinator are rated positively. The PhD-TRACK system is consistent with other university-based management systems to assure the quality of training that PhD candidates receive allows them to become well-rounded academic professionals. PhD-TRACK identifies nine areas for doctoral students to develop academic skills, knowledge, and experience. Overall, the PhD students seem

happy. As with all doctoral students, supervisors play a significant role in identification of the research area as well as career development. Consequently, there is variation in how students' careers are supported and the likelihood of inequity of experience and opportunity (as in the preceding section). It was not clear to the committee if there was equity in opportunity for all PhD students or if there were differences in experience between "internal" and "external" students. Moreover, it was uncertain to the committee how PhD students developed to find their academic identity, especially when they were part of a RL team and academic department. Of course, we are aware that these conversations happen, and they occur at the PhD level within the PhD-TRACK system. We suspect that there may be differences in supervisory teams to support students' personal development over and above the delivery of their research training and outputs.

The large number of external PhD students must be evaluated critically in the context of the individual organisation. Some measures are already offered to them, e.g., online meetings and workshops. However, it remains unclear how external PhD students with multiple workloads, due to professional requirements in other work contexts and PhD students living abroad, can be specifically supported in their research projects. PhD representatives could be stronger advocates for external PhD students and ensure representation among those with differing needs. They could play a key role in more (independent) evaluations, monitoring, and policy development. In addition, education departments and RLs could ensure that the different needs and opportunities of internal and external PhD students are met in order to develop their careers and achieve the requirements of the PhD process by explicitly building these policies into the appraisal and career development plans. This approach is likely being adopted by some supervisors already, but there may be variations in practice between RLs as well as academic departments.

Overall, the committee had the impression that the supervision and possibilities for PhD students now mainly depend on their individual supervisors. Currently, each research team retains its autonomy in terms of selecting courses or conference visits. A clear goal of collecting a certain number of European Credit Transfer and Accumulation System (ECTS) points and obligatory courses for example on research integrity during the PhD period is lacking. The committee recommends adjusting the PhD policy at this point so that the quantity and quality of the training as well as the opportunities for the PhD students within the institute are more equitable.

3.2.8 Human resource policy

CAPHRI's staff is critical to its success: "People are CAPHRI, CAPHRI is made of people". In 2022, more than 80% of its expenditures were on personnel (up from 76% in 2017). A clear and extensive human resource policy that specifically addresses diversity, talent management, and organisational culture should be a high priority, especially when the organisation relies on matrix management across a variety of RLs, academic departments, and institutions, and when 64% of its staff members are PhD students (of which 85% are external). CAPHRI's own SWOT analysis notes the "increased — and still increasing work pressure, which is especially experienced in the area of education, possibly leading to less innovative initiatives in research" (see section 6.1, p. 25, Self-evaluation report: Part A). The committee notes CAPHRI's explicit focus on human resource policy in its strategy for the next six years (see introduction to chapter 6, p. 25, Self-evaluation report: Part A).

In its report, the previous committee commented on "diversity", noting a focus on gender and a rather narrow definition of "ethnicity" (i.e., the number of staff members recruited internationally), but did not formulate a specific recommendation to direct CAPHRI's activity in this regard over the past six years. Our committee was presented with a similar narrow definition of "diversity" (see Table 2.11 and section 2.12, p. 44, Self-evaluation report: Part A). We too would have wanted to see more data on other aspects of diversity such as ethnic and cultural background and disciplines, as per the Strategy Evaluation Protocol, especially when there may be a risk of unconscious bias. The committee considered that there would be merit in thinking more broadly about staff involvement, for example, using (regular) staff surveys and

crowdsourcing as ways of engaging with staff, touching in on “wellbeing” and “social safety”, among other aspects of organisational support.

3.3 Recommendations

Below, the committee summarises its recommendations. These recommendations should be read in the spirit of advice from “a critical friend” and are based on CAPHRI’s own reflections on its strategy and actions in the past six years, its future plans, and the committee’s findings as described in section 3.2.

3.3.1 Research quality and research strategy

The committee has three recommendations with regard to the research quality and research strategy. CAPHRI should,

1. Strengthen interdisciplinary coherence within the institute by developing a more coherent conceptual and methodological framework (research vision), based on the defined areas of impact, methodological strengths, theoretical framework, and strategic direction.
2. Give more in-depth attention to fully understand, integrate, and internalise concepts from different disciplines, recognising the institute’s inter- and transdisciplinary approach.
3. Further develop the strategic plans with a greater focus, clear goals related to impact, and articulation of “need” (in terms of scientific approaches) at specific stages from the identification of the problem to the design, implementation, and evaluation of interventions.

3.3.2 Societal relevance

The committee has three recommendations with regard to societal relevance. CAPHRI should,

4. Take leadership, better harvest, and build more broadly on the already 25 years existing tradition in applying living labs to enhance societal impact, given current attention for research in living labs in academia.
5. Frame the objective of stakeholder and citizen involvement in a more productive way (not merely SMARTer, but also provide room for unpredictability, creativity, and out-of-the-box thinking), ensuring that interactions with societal partners are pushed to a higher level.
6. Make better use of its advisory board and formulate a clear mission/role, e.g., help the research institute strengthen its strategy and/or install more specific advisory groups to reflect on the research strategies of the RLs.

3.3.3 Viability

The committee has three recommendations with regard to viability. CAPHRI should,

7. Develop an identity everyone recognises and that translates into similar goals everyone is working for and, in turn, translates into a visible, recognisable branding of the research institute, supporting (inter)national visibility, force, and attractiveness to funders.
8. Put (more) effort in risk management: develop a strategy, with measurable goals, to improve the transparency of not only the research results but also the methodology (such as source data and code).
9. Strengthen incentives for high-quality, high-impact inter- and transdisciplinary output in order to meet the future needs of society and to increase viability.

3.3.4 Open Science and academic culture

The committee has four recommendations with regard to open science and academic culture. CAPHRI should,

10. Help early-career staff develop skills to deliver, lead, and innovate across educational and research activities to ensure that organisational priorities and business cases are appropriately justified, through transparent university schemes that help staff integrate the different components for equitable career development.
11. Actively manage risk related to research integrity, including the need for meticulous analysis of conflicts of interest, focusing on information exchange (how staff can get advice), governance (how the organisation deals with (potential) breaches), and culture. The development of a reflective culture on research integrity within CAPHRI is essential to put the structure into practice.
12. Spend more time/effort on governance concerning research data management, especially with the rapid progression of big and digital data as well as the demand for open science.
13. Create an open and responsible science community with a clear Open and Responsible Science programme that will be implemented in practice.

3.3.5 Education and training

The committee has one recommendation with regard to education and training. CAPHRI should,

14. Adjust the PhD policy such that the quantity and quality of the training as well as the opportunities for the PhD students within the institute will be more equitable, allowing more involvement of PhD representatives to evaluate, monitor, and help develop policy, especially because PhD students seem to be dependent on individual supervisor interests and recommendations.

3.4 Qualitative evaluation of RL 1: Ageing and Long-Term Care (ALTC)

3.4.1 General remarks

The ALTC RL is mainly focused on the field of healthy ageing and daily functioning of older people (irrespective of their living situation, abilities, and place of residence). This research group has published 109 papers per year, on average, over the reporting period and has delivered a total of 44 PhD theses (ranging from 2 to 12 per year) (see p. 6, Self-evaluation report: Part B1). Direct funding has decreased from 5.3 FTEs in 2017 to 4.4 FTEs in 2022 (23% vs. 17% of total funding), while research grants increased from 6.9 FTEs to 10 FTEs, contract research decreased from 10.7 FTEs to 8.3 FTEs, and other funds increased from 0 FTEs to 3.9 FTEs between 2017 and 2022, pointing to less secure funding in future.

3.4.2 Research quality

Overall, the research quality of this RL is excellent, with high-impact publications in the *Journal of the American Medical Association* and *Age and Ageing*, and 23% of the papers having a CNCI score of 2 or higher (see p. 6, Self-evaluation report: Part B1). The research quality is also demonstrated by prestigious personal grants and prizes, e.g., *Journal of the American Medical Directors Association* Morley Award.

3.4.3 Societal relevance

Undoubtedly, the work produced in this RL is of utmost relevance to society due to its impact on policy (e.g., COVID-19 monitoring) and guidelines such as the European Guideline for Sarcopenia. Since 1998, this RL has hosted a cohort study called the National Prevalence Assessment on Care Quality (Landelijke Preventiemeting Zorgkwaliteit, LPZ). The LPZ is being used internationally, and the National Health Service (NHS) indicated that this cohort was one of the NHS innovations in 2018. Furthermore, the Dutch registry for quality of care in Dutch emergency departments has been set up within this RL. Also, the living lab in

Ageing and Long-Term Care Limburg is anchored in this RL. This lab has already existed for 25 years and is a good example of how transdisciplinary research based on a team science approach can be organised. Another strength of the living lab is the involvement of patients and family caregivers, which, in addition to the involvement of practitioners, leads to the development of relevant products for long-term care practice in this RL, such as assessment tools and staff training concepts.

3.4.4 Viability

The viability of this RL is very good. However, with reductions in direct funding and increasingly competitive (inter)national funding opportunities, securing permanent positions may be challenging in future. As the span of control of senior staff is currently already problematic, safeguarding enough senior staff is crucial. Ensuring adequate supervisor-to-PhD-student ratios will require further investment in senior staff as well as training early- and mid-career researchers for future leadership positions.

3.4.5 Recommendations for improvement

- With the loss of some key senior staff members, this RL will need to strengthen its expertise on social gerontology, geriatric medicine, and implementation sciences. Also, innovative research on technology and data sciences will require additional expertise. Recent personal grants do point to talent management that will help mid-career scientists excel and possibly take on more senior roles in future.
- More selective hiring of PhD students and a feasible supervisor-to-PhD-student ratio are needed. Moreover, collaboration with networks to co-organise the supervision of external PhD students and to reduce the workload for CAPHRI senior staff should be strengthened and expanded.

3.5 Qualitative evaluation of RL 2: Creating value-based healthcare (VHC)

3.5.1 General remarks

The VHC RL aims to contribute to the improvement of population health and wellbeing through better health systems, services, and products in all areas of the healthcare chain. Approximately two-thirds of all staff members in VHC are external PhD students. This ratio has increased significantly in the past six years, from about half of all staff in VHC. The self-evaluation notes that “VHC staff members have mixed feelings about this development, as they see both benefits (e.g., possibilities to cooperate with national and international organisations where external PhD candidates are employed) and drawbacks (e.g., increased supervision workload of internal (senior) staff members)”. As with the overall aims of CAPHRI, those of the VHC RL are framed at a high and non-specific level. It would have been better to provide more SMART objectives, providing focus and priority, especially in the context of a high workload and the retirement of experienced staff members, and more competition in VHC-like research (see SWOT, p. 20, Self-evaluation report: Part B2). Furthermore, competition in VHC-like research requires a clear “value proposition” of the RL; the self-evaluation describes much of “how” the VHC RL operates and “what” it does, without being very specific of “why” others would want to commission work from them. The committee heard from leaders that they want the VHC RL to be recognised for its innovation in methodology, including its focus on digital technologies and new ways of paying for care. A clearer statement to describe CAPHRI’s ambition in this area is critical. This would also support the ambition to facilitate a stronger media exposure, as expressed in the self-evaluation.

3.5.2 Research quality

This research group has an impressive amount of scientific output, including 1632 papers published throughout the reporting period (approximately 300 per year). The research quality is high, with high impact publications in the *British Medical Journal* and 13% of papers having a CNCI score of 2 or higher. The topics of the papers chosen as the most important scientific publications were very diverse. The

committee respects the diversity of the research output presented in the selected publications, since it shows the broadness of expertise in the RL. It does, however, make it difficult to identify the major strengths of the RL. VHC should not be reduced to technical value, allocative value, or personal value, but rather it should focus in an integrated way on “societal value”, such as the contribution of healthcare to social participation and connectedness.

3.5.3 Societal relevance

Membership in scientific committees, boards, journal editorship, and civil society advisory bodies ensures that the work of CAPHRI in general, and the VHC RL in particular, has impact on policy development and day-to-day health and social care. The committee was impressed with the breadth of engagement of the VHC staff. With experienced staff retiring, developing staff to take up these roles will be critical to the success of the RL. Most important societal outputs were listed, but it was difficult to assess how these reports improved (public) health. It would have been beneficial to provide clear examples where and how their research contributed to an improvement of health (e.g., through guideline development or implementation of interventions), instead of giving a list of report titles.

3.5.4 Viability

The VHC RL relies to a larger extent on “contact research” (50%) than CAPHRI overall (44%), although it has been declining over the past six years (from 55%). As recognised by the VHC team, the area of VHC is a priority topic for important stakeholders and funding bodies (see SWOT, p. 20, Self-evaluation report: Part B2). This provides significant opportunities for the RL, as long as it manages to focus its work and presents its “unique selling points” (see above).

3.5.5 Recommendations for improvement

- Work towards a clear and coherent vision and strategy.
- Focus on its strengths (max 3). Create milestones for the coming years to improve the visibility of strengths and make strategic choices.

3.6 Qualitative evaluation of RL 3: Functioning, participation, and rehabilitation (FPR)

3.6.1 General remarks

The FPR RL aims to foster and improve patient social and labour participation and well-being. Direct funding (23% of funding in 2017) remained stable (6.37 FTEs in 2017 to 6.6 FTEs in 2022), whereas contract research (48% in 2017) was relatively high and increased over the reporting period (range: 48–66% of funding). The FPR RL has 129 staff members, half of whom are external PhD students. This RL combines different disciplines and settings, including basic research (in movement and web labs), pre-clinical research (living labs, GP), clinical research (rheumatology, rehabilitation, physiotherapy, and orthopaedics), and research on labour and social participation throughout the lifespan. With many clinicians involved, this RL covers the continuum of care from prevention to cure and re-integration and is embedded in (care) networks and living labs, making its scope very broad (see p. 16, Self-evaluation report: Part B3). The broadness of the research scope may be a threat for coherence of the research, as described in the SWOT analysis (see p. 17, Self-evaluation report: Part B3).

3.6.2 Research quality

This research group has published 176 papers per year over the reporting period, which is relatively high compared to the other RLs. This RL has delivered 96 PhD theses (ranging from 5 to 15 per year) (see p. 7, Self-evaluation report: Part B3). The lack of new vacancies for permanent positions is seen as a threat to career attractiveness of talented researchers. The research quality is very high, with high-impact publications in *The Lancet*, but the number of papers having a CNCI score of 2 or higher was not reported,

making it difficult to assess the overall research quality of the refereed articles.

However, the research quality is also demonstrated by prestigious NWO and ZonMw grants and a Marie-Curie fellowship.

This RL is very strict when it comes to contracts; they refuse to do research if the reporting of results is hampered in any way. Less clear is the extent to which data are available to others. The committee was told that data management policies are being implemented with the help of a data steward, but previously gathered datasets have not been set up in this manner. CAPHRI and the RLs are working in the safe storage of data according to FAIR principles, but a lot of work still needs to be done (see section 3.2.5 for the general discussion of open science).

3.6.3 Societal relevance

The cohort facilities across subunits are a strength, but they are also very expensive. Strong regional collaborations and a living lab rehabilitation are key contributors to the RL's possibilities for societal impact.

3.6.4 Viability

This RL certainly has a lot of assets to address future challenges (including epidemio-demographic transitions). This RL's cohort facilities strongly contribute to its viability.

3.6.5 Recommendations for improvement

- Further develop strategic plans with a greater focus and with clear goals to strengthen coherence.
- Look at commonalities in the underpinning paradigms (e.g., focus on “goal-oriented care”) of ALTC RL.
- Further develop and implement data management and research integrity policies.

3.7 Qualitative evaluation of RL 4: Health inequities and societal participation (HISP)

3.7.1 General remarks

The HISP RL aims to reduce health inequities and to increase societal participation in public health to strengthen local and global biosocial ecologies of health. In a previous evaluation report, this RL was named “Inequity, Participation and Globalisation”. This has now shifted to “Health Inequities and Societal Participation”. Historically, this RL is the amalgamation of four research programmes. The previous review committee recognised a serious effort to produce a new RL that replaces the old research programmes rather than accommodates them. The RL leadership explicitly wanted “to make sure that the whole would be more than just the sum of its individual parts”. The current RL illustrates a further development towards more integration, although some “historical streams” are still recognisable: infectious diseases and microbiology, social epidemiology, occupational health sciences, and community development addressing the social determinants of health. This last focus has become stronger, thanks to the appropriate use of living labs and an emphasis on societal participation and citizen involvement and ownership, with special attention for vulnerable, disadvantaged, and less literate groups. HISP is the only RL that explicitly mentions important actual developments like the (in)direct effects on health by climate change, migration, and war. It also explicitly mentions “environmental health”. A challenge for this RL will be how to integrate the actual projects and “new” orientations in future, without creating more fragmentation of the programmes.

3.7.2 Research quality

The research output is excellent and highly relevant (see the paper by Helberg-Proctor on the political development of “ethnicity” in the Netherlands, the paper by Simons on stigma and low socioeconomic status, and the paper by Knibbe on the role of micro public places in inclusion and exclusion). This last

paper is also conceptually very relevant and innovative. Figure 3.1 (see p. 7, Self-evaluation report: Part B4) illustrates the high number of publications with a CNCI greater than 1.

3.7.3 Societal relevance

The cohorts and living labs contribute to societal relevance of the research work. The Maastricht study includes a cohort of >9,000 participants with different projects on social networks and (preventive) behaviours, the impact of physical activity on people's health, and the contextual social determinants of diabetes. It is likely that these projects will help to close/reduce the social gap in health and increase our understanding of the role of social connectedness and cohesion, social capital, and financial poverty in social inequalities. Table 3 (see p. 10, Self-evaluation report: Part B4) gives an excellent illustration of the societal relevance of publications. This, complemented by a high degree of interaction with and commitment for people living in poverty, enhances the societal relevance of this RL.

Several questions remain unanswered. First, how do the insights of this RL find their way into the Health Professional Education Programs for different disciplines at UM? Second, is there some cooperation with the Schools for Health in Europe network foundation (SHE)? Finally, is the interaction with local primary care and family medicine sufficiently strong in order to enhance the social accountability of future generations of providers?

3.7.4 Viability

This RL is very optimistic about its viability, considering the enthusiasm of the staff. The quality of the staff is good, the financial position is sound, and the group is well connected in the region and has an extensive international network (Global Health Master Programme). One could wonder if developments in the EU towards more right-wing political representation will have an impact on the funding of "equity"-oriented research projects.

3.7.5 Recommendations for improvement

- Further develop international collaborations with groups working on social inequalities in health (Ghent University, African universities) to create new opportunities.
- Avoid creating more fragmentation given the already wide scope of research interests and new research topics (e.g., on planetary health).

3.8 Qualitative evaluation of RL 5: Optimising patient care (OPC)

3.8.1 General remarks

The OPC RL aims to conduct research that enables doctors and public health workers to deliver care and care-related prevention that is optimally suited to every individual. They do this by identifying new targets for prevention and treatment as well as the development and evaluation of diagnostic tools. The OPC RL conducts research on population-based cohorts to uncover novel prevention targets, with a particular emphasis on strengthening prevention efforts in the region. The committee was impressed by the diversity and impact of the research conducted, mainly the work on the validation and implementation of prediction models. Also, the number of cohort studies performed by this RL serves as an important contribution to science and society. The broad range of research expertise and interests could prove to be a challenge in the next years, particularly with regard to the profiling of the RL and its viability. For example, a joint strategy in the provision of research infrastructure seems only partially realisable.

3.8.2 Research quality

The quality of research is very high, with publications in high-impact journals (*The Lancet*, *New England Journal of Medicine*, and *British Medical Journal*). Approximately 41.5% of the publications by the OPC RL have a CNCI of 1 or higher. The committee did notice that article output decreased in recent years (from

258 in 2017 to 190 in 2022), but the number of PhDs increased. Based on the tables listing scientific contributions in the Strategy Evaluation Protocol, it is rather difficult to assess the scientific contributions of this RL. It would have been helpful if the committee was provided with the reasoning behind the selected most important scientific publications.

3.8.3 Relevance to society

The staff members of the OPC RL are co-authors of advisory reports as well as invited speakers at public events. They serve as advisors and members of civil society bodies, such as the Dutch Health Council. They have a strong relationship with stakeholders in the region to ensure implementation of OPC's research results (e.g., from large cohort studies with unique data). The population-based cohorts managed by the RL (The Netherlands Cohort Study on Nutrition and Cancer, the KOALA birth cohort study, the Lucki birth cohort study, etc.) enable broad research on population-relevant topics. The Research Network Family Medicine enables direct access to research in primary care and thus to the practical development, testing, and implementation of tools and interventions. As such, the expertise of this RL finds its way into political decision-making processes and clinical guidelines. The participants of this RL network at MUMC+ as well as regionally and nationally, indicating its broad impact.

3.8.4 Viability

We assessed the viability of the OPC RL as very good. The large cohort studies and methodological expertise ensure the viability of this RL. It does seem that this RL is currently in a transition phase. Currently, the research topics are quite diverse, which makes it difficult to identify the research focus (and strengths) of this RL. For the next few years, they need to choose what they are going to focus on. It might be challenging to fill the gap in knowledge and experience after the retirement of some professors with a strong track record. How the generational change will be utilised to attract innovative young scientists to the site must also be addressed. Furthermore, this RL receives a rather large amount of direct funding (40%). A potential threat that the committee recognises is consolidation of research funds in future. Securing new research grants may be difficult with the retirement of experienced professors. In principle, however, the work and methodological expertise established in this RL can also make a significant contribution to improving care in future, in collaboration with network partners.

3.8.5 Recommendations for improvement

- Expand existing initiatives to promote competences and networking in order to apply for funding and to support young researchers in building up their own networks.
- Determine which methodological competences are actually viable in future and to focus even more on them as well as to develop a common strategic goal.

3.9 Qualitative evaluation of RL 6: Promoting health and personalised care (PHPC)

3.9.1 General remarks

The PHPC RL aims to develop and apply theories, interventions, and research methods to promote health and personalised care through the integration of scientific theories and evidence with the values of individuals. Research strategies include quantitative and qualitative studies, mixed methods, as well as participatory approaches involving stakeholders in the design and implementation of personalised prevention and care. This RL comprises four units: Health Communication and Health Promotion, Interprofessional Collaboration and Shared Decision making, Health Ethics and Society, and Design and Analysis. A goal of the past six years included the alignment of population-based methods with tailor-made approaches using innovative, participatory research designs. It was unclear to the committee what the purposes of the research units were as well as if and how the structure helped staff to meet the RL objectives and to develop their academic careers.

Despite stating that theories are central to their research, there was little explicit discussion of theoretical explanations of people's behaviour, decisions, and/or engagement with healthcare. Implicit in several articles is the medico-sociological rationale for "professional-patient communication" as the core ingredient within these types of interventions, with components ensuring people's autonomy and patient involvement. However, decision science and health psychology draw on (several) theories to investigate people's decision making and behaviour as well as to identify different components and active ingredients when designing interventions with multiple decision makers to change healthcare practice. It is likely that some of these theories are useful in explaining components needed to enhance people's health literacy, decision making, and behaviour change as well as professionals' clinical reasoning, inter-professional collaboration, and delivery of healthcare.

3.9.2 Research quality

The research output of this RL is high, and articles have been published in both broad high-impact journals, such as *British Medical Journal* and *Nature*, as well as in more focused journals. About 40% of the publications have a CNCI > 1. The research fields with the highest citation scores are in the fields of health promotion (smoking cessation, physical activity, and alcohol use) and shared decision making. The research and outputs presented focused on the teams' expertise in creating standards and guidelines for methods, developing interventions, and adopting interventions in practice.

3.9.3 Relevance to society

The usually collaborative research conducted for and with societal partners as well as memberships in civil society advisory bodies are clear signs of the societal relevance of PHPC research. It is also noteworthy to mention that many of the projects have resulted in innovative products, e.g., guidelines, digital interventions, decision aids, and staff-training products.

3.9.4 Viability

As mentioned in the SWOT analysis (see p. 14, Self-evaluation report: Part B6), "some highly successful senior staff are reaching retirement age"; therefore, this RL is concerned about the possibility of attracting talented new staff in the current job market, which is very competitive while the geographical location of Maastricht is not necessarily an attractor. We understand the concern. Nevertheless, such staff changes provide opportunities to move into new directions, such as more systemic approaches to health promotion, multiple decision-maker support, health literacy, implementation science, and technologies to support the personalization of healthcare.

3.9.5 Recommendations for improvement

- Create a long-term vision on how the PHPC RL should position itself within the field.
- More explicit integration of theoretical frameworks, research methods, and intervention design to ensure that the various objectives of different decision makers in these complex interventions are met.

Annex 1 Bio-sketches of members of the external review committee

Professor Anna Petra Nieboer

Erasmus School of Health Policy & Management (ESHPM), Erasmus University Rotterdam (EUR)

Email address: nieboer@eshpm.eur.nl

<https://www.eur.nl/people/anna-petra-nieboer>

Anna Nieboer is a professor and department head of Socio-Medical Sciences at the Erasmus School of Health Policy & Management, Erasmus University Rotterdam. Her work has focused on quality of care; innovation in health and social care; and wellbeing of community-dwelling, (frail) older people. The author of more than 180 peer-reviewed articles, Nieboer has extensive experience with the evaluation of large-scale, complex, and multidisciplinary interventions and mixed-methods research approaches. Much of her research is aimed at theory building, instrument development, and impacting science and society, especially among vulnerable populations for whom our healthcare system is not optimised. She holds a Master's degree in sociology from the University of Groningen, the Netherlands, and a doctorate from the same institution upon completing the doctoral programme in sociology at the Interuniversity Centre for Social Science, Theory, and Methodology. Fields of interest include well-being, quality of care, innovations in health and social care, healthy ageing, and ageing in place.

Professor Hilary L. Bekker

University of Leeds (UK), School of Medicine

Email address: H.L.Bekker@leeds.ac.uk

<https://medicinehealth.leeds.ac.uk/medicine/staff/120/professor-hilary-l-bekker>

Hilary Bekker is a professor of Medical Decision Making, Leeds Institute of Health Sciences, School of Medicine, University of Leeds (UK). Her research investigates how patient and professionals make healthcare decisions, what factors boost or bias their judgments, and which interventions support multiple stakeholders to Make Informed Decisions Individually and Together in healthcare (MIND-IT, Bekker 2015). She draws on a mix of methods from the decision sciences, health psychology and health services research to design, implement and evaluate these complex interventions facilitating patient involvement in healthcare. She is a steering group member of the International Patient Decision Aid Standards (IPDAS) collaboration, and provides shared decision making and patient decision aid guidance to numerous research project, and health policy organisations (e.g. NHS, NICE, KDIGO).

Hilary joined the School of Medicine, University of Leeds (UK), in 2001 as a Lecturer in Behavioural Science, and was awarded a personal Chair in Medical Decision Making in 2016. Recently she was employed to lead the Research Centre for Patient Involvement, Central Denmark Region (<https://ph.au.dk/en/research-centre-for-patient-involvement/>) (2019-2023). Hilary is a Chartered Psychologist (BPS, 1999), Fellow of the Higher Education Academy (2004), and member of the Society for Medical Decision Making and International Shared Decision Making Society.

Meindert Boysen, PharmD, MSc

National Institute for Health and Care Excellence (NICE)

Email address: Meindert.boysen@nice.org.uk

<https://www.ispor.org/about/our-leaders/meindert-boysen>

Meindert Boysen, PharmD, MSc is Head of International Affairs at the National Institute for Health and Care Excellence (NICE) in England, UK. Until 2020 he was the director for the technology appraisal and the

highly specialized technologies programs at NICE. Meindert is also responsible for the Patient Access Schemes Liaison Unit, and the NICE side of the Cancer Drugs Fund.

Meindert graduated as a pharmacist in the Netherlands and has since completed a master's in health policy planning and financing at the London School of Hygiene and Tropical Medicine and the London School of Economics and Political Science. He has worked in hospital pharmacy, in pharmaceutical industry (Eli Lilly & Co), for the King's Fund, and NICE. In his time at NICE, Meindert has been leading on the move to 'single technology appraisals' on bringing in the program for 'ultraorphan' drugs, on the development of the plans for value-based assessment, on the arrangements for the new cancer drugs fund, and most recently on the proposals regarding consideration of budget impact, fast-track appraisals and highly specialized technologies. The latter two in close collaboration with the commissioner (payer) of care; NHS England. Meindert is a skilled communicator, effective negotiator, and extremely dedicated to ensuring that the programs he leads deliver on their key performance targets and budgets.

Em. Professor Jan De Maeseneer

Head of WHO Collaborating Centre for Family Medicine and Primary Health Care – Ghent University

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<https://research.com/u/jan-de-maeseneer>

Emeritus professor, Head of WHO Collaborating Centre for Family Medicine and Primary Health Care. Jan De Maeseneer (°1952, Ghent) graduated as a Medical Doctor in 1977 at Ghent University (Belgium). From 1978-2017, he has been working part-time as a family physician in the community health center Botermarkt in Ledeborg (www.wgcbotermarkt.be), a deprived area in the city of Ghent. From 1978 to 1981, he worked as a part-time research-assistant in health promotion at the Department of Public Health at Ghent University (Prof. Dr. K. Vuylsteek). In 1989 he was the first MD to obtain a PhD in Family Medicine in Belgium and from 1991-2017, he chaired the department of Family Medicine and PHC. From 2008 – 2017, he was the vice-dean for strategic planning at the Faculty of Medicine and Health Sciences (Ghent University). Further information regarding the extent of his career can be found in his c.v. <https://biblio.ugent.be/person/801000395434>

Prof. dr. Jacqueline E.W. Broerse

Athena Institute, Faculty of Science, Vrije Universiteit Amsterdam

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Professor of innovation and communication in the health and life sciences (with focus on diversity and social inclusion) and Director of the Athena Institute, Fac. of Science, Vrije Universiteit Amsterdam. She holds a master's degree in biomedical sciences (cum laude, 1988) and obtained her PhD degree on the development of an interactive approach to include users in research agenda setting processes on biotechnology (1998). Her current research is focused on (1) methodology development to facilitate public engagement and multi-stakeholder involvement in science (transdisciplinary research, Open Science) and policy (deliberative governance), (2) patient participation in research, care and policy, and (3) understanding and facilitating sustainability system innovations, in order to contribute to more equitable and inclusive innovation processes that address societal challenges. Her research projects are in the domain of (global) health, food and sustainable development. She is coordinator of the EU-funded FOODCLIC project (2022-2027), which aims to contribute to urban food environments that make healthy and sustainable food available, affordable and attractive to all citizens (including deprived and vulnerable groups). Until 2021, she was leader of the Amsterdam Public Health research institute's Global Health Program and still is a member of the program's board. Until 2023 she was Program Director of the research

master's degree program 'Global Health'.

Dr. Inge M.C.M. de Kok

Erasmus MC, department of Public Health, Erasmus Medical Center Rotterdam

Email address: i.dekok@erasmusmc.nl

As an epidemiologist, Dr. de Kok is an expert in the development and use of microsimulation models to quantify effects of interventions on population health and translate these findings in policy relevant outcomes. Her main area of research is the evaluation of cervical cancer prevention strategies (HPV vaccination and screening), which is still her main research topic. She has evaluated harms, benefits and costs of HPV vaccination and multiple cervical cancer screening methods for national guidelines, but also for various European countries, the U.S., and Ontario. She is a member of the national programme committee for cervical cancer screening, and responsible for the national evaluation of the Dutch cervical cancer screening programme. She is also co-PI in the NCI funded Cancer Intervention and Surveillance Modelling Network (CISNET) and WP leader in two EU funded projects 'EU-TOPIA' and 'EU-TOPIA-EAST'. Recently, Dr. de Kok expanded her area of research towards other diseases, like dementia and mental health problems. In 2018, she received a Veni grant to develop the first population-based microsimulation model for dementia. This model has been used to project how dementia will develop in the near future, and to evaluate effects of primary and secondary prevention of dementia.

Dipl.-Soz. Geront. Verena Leve, MA

Institute of General Practice (ifam), Centre for Health and Society (chs), Medical Faculty, Heinrich Heine University Düsseldorf

Email address: verena.leve@med.uni-duesseldorf.de

Verena Leve (1975), studied English, Philosophy, Sociology (M.A.) and Social Gerontology (Dipl.-Soz. Geront) in Cologne and Dortmund. After working in community-based work with the elderly and at the Dementia Service Centre Cologne, she worked as a research assistant at the Institute of Gerontology at TU Dortmund University from 2006 to 2012. Since 2012, she has worked as a senior researcher at the Institute for General Practice (ifam), Medical Faculty, Heinrich Heine University Düsseldorf and as a lecturer at Rhine-Waal University of Applied Sciences, Kamp-Lintfort. As spokesperson for the research focus "Dealing with health and illness in old age" at ifam and spokesperson for the working group "Qualitative Methods" at the centre for health and society (chs), she has many years of experience in conducting research projects using qualitative methods and developing interventions with peer education elements.

Her current research focusses on dementia care and multimorbid patients in general practice (fitness to drive with dementia (DALzG), Zorg verbindt (INTERREG), Accountable Care in Germany (G-BA Innovation Fund)) and PSY-KOMO - Improving the quality of treatment for severe mental ill people to reduce somatic comorbidity and prevent increased mortality (G-BA Innovation Fund)).

Petra Uittenbogaard, MSc

In 2007 Petra Uittenbogaard (1974) received a master's degree in Health Sciences at Maastricht University. After having worked as a quality manager in the Sint Antonius Hospital in Nieuwegein from 1997 till 2000, she moved back to Maastricht and worked as a policy advisor and organizational consultant in a large organization for elderly care in Heerlen, and as a strategic consultant in various health care organizations.



In 2002 she was contracted as an advisor to the Executive Board of the academic hospital in Maastricht, nowadays Maastricht UMC+. Her project portfolio mainly consisted of projects in the field of strategic alliances, academic cooperation with other regional hospitals and care suppliers in the Maastricht region, organizational development, and projects shared by both hospital and the medical faculty on translational medicine, and the development of a university medical center in Maastricht. In February 2018 she started to obtain a bachelor's degree in primary education at Inholland University of Applied Sciences in The Hague. In April 2020, she completed her aptitude test and bachelor's degree. Since then, she has been working as a primary school teacher and tries to combine her advisory skills and experience with meaningful work in primary (Montessori) education.

Annex 2 Terms of Reference External Review CAPHRI 2017-2022

The board of the Faculty of Health, Medicine & Life Sciences (FHML) hereby issues the following Terms of Reference to the assessment committee of CAPHRI, chaired by Prof. dr. Anna P. Nieboer.

Research assessments in the Netherlands

In the Netherlands, the boards of the universities are responsible for the quality of the research at their institution. As part of their quality assurance cycle, all academic research in the Netherlands is evaluated every six years. The executive board of the relevant university commissions the research assessment and determines which research units are to be evaluated each year. For the coordination of the assessment, the Strategic Evaluation Protocol (SEP) 2021-2027 is used (enclosed in this letter). The main goal of a SEP evaluation is to evaluate a research unit in light of its own aims and strategy. In the self-evaluation, the unit reflects on its ambitions and strategy during the previous six years as well as for the future in a coherent, narrative argument, supported wherever possible with factual evidence. This fact means that there should be a direct relationship between the arguments with regard to the aims and strategy on the one hand and the type of robust data underpinning the self-evaluation on the other. The SEP assessments help to monitor and improve the quality of the research conducted by the research unit. Additionally, the assessments of the research quality and societal relevance of research contribute to fulfil the duty of accountability towards government and society. The boards of the institutes may use the outcomes of the research evaluations for quality assurance purposes and institutional strategy development.

Major changes of the new Strategy Evaluation Protocol (SEP) 2021-2027

The SEP protocol itself is reviewed every six years in order to move along with important developments in research. The new Strategy Evaluation Protocol (SEP) 2021-2027, which was previously called the Standard Evaluation Protocol, provides a new and more flexible framework for assessing the research quality, viability and societal relevance of research units for the period of 2021-2027. Below the main differences between the new and the previous SEP 2015-2021 and what this means for the current research assessment process are highlighted.

- The structure and readability of the new SEP has been improved for all the stakeholders. There is now a greater distinction to what role the Executive Board, research unit or review committee have in this process. The SEP also includes a clear overview of the assessment process in its entirety (chapter 2).
- The new SEP offers more flexibility and leaves room for plurality with respect to the application and interpretation of the different elements, depending on the institutional context, the discipline or field of the research and the nature of the unit, among other things.
- Four new specific aspects are defined: 1) Open science, 2) PhD Policy and Training, 3) Academic Culture and 4) Human Resources Policy. These were previously 1) PhD programmes, 2) Research Integrity and 3) Diversity.
- There are no longer quantitative assessment categories, such as world leading, very good, good and satisfactory. The focus is now largely on a qualitative assessment by the committee, given in the assessment report with sharp, fair, but discerning texts providing clear arguments.
- In addition to the previous criteria defined for the composition of a committee with regards to expertise, knowledge and impartiality, several additional criteria are defined. An international review committee should:
 - Cover the width of the research area;
 - Consist of at least one PhD candidate and one early-/mid-career researcher;

- Be appropriately diverse, in gender as well as cultural, national and disciplinary background.

Objectives of the research assessment of CAPHRI

The committee is requested to assess the quality, relevance to society, strategic targets of CAPHRI as well as the six research lines. The performance of both CAPHRI and its research lines has to be judged on the three SEP assessment criteria below. The evaluation includes a backward-looking and a forward-looking component.

Specifically, the committee is asked to judge the performance of CAPHRI 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;
- 2) societal relevance;
- 3) viability of the unit.

During the evaluation of these criteria, the assessment committee is asked to incorporate four specific aspects. These aspects are 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 aspects are as follows:

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

The main assessment criteria and the four specific aspects are described in detail within the Strategic Evaluation Protocol 2021-2027.

Committee requirements: statement of impartiality

The members of the committee have signed a statement of impartiality. In this statement, the members declare that they have no direct relationship or connection with CAPHRI.

Schedule of the assessment and reporting

The self-evaluation and the site visit form the main sources of information for the committee, on which basis it draws up its report. The self-evaluation (with appendices) of CAPHRI is attached in this letter and additional information about CAPHRI is available on the website.

The site visit at CAPHRI will take place on November 29-30, 2023. CAPHRI will contact you about logistical matters and other relevant issues related to the research assessment approximately two months prior to the site visit. The programme of the site visit is enclosed with this letter.

The committee is requested to report its findings in an assessment report drawn up in accordance with the SEP guidelines and format. The committee is asked to send the dean of the Faculty Board (not to CAPHRI) no more than eight weeks after the site visit. The Faculty Board will, together with CAPHRI, check the report for factual inaccuracies; if such inaccuracies are detected, the committee will ensure that they are corrected. The committee will then send the final version of the assessment report to the Faculty Board.



Attachments:

- SEP protocol 2021-2027
- Self-assessment CAPHRI 2017-2022
- Programme of the site visit

Annex 3 Site visit programme

Programme External Review CAPHRI ERC CAPHRI 29-30 November 2023 Location: MECC/SAAM

Organized by CAPHRI
Care and Public Health Research Institute
Telephone: +31 43 388 2314 / secretariaat-caphri@maastrichtuniversity.nl

Tuesday, November 28, 2023

Afternoon Arrival members External Review Committee in Maastricht
Hotel: NH Hotel Maastricht - Forum 110, 6229 GV Maastricht

17.00	Arrival of the committee
17.30-20.00	Dinner and closed session ERC on procedures and reporting

Wednesday, November 29, 2023

Location: MECC – room 1.3
MECC Maastricht, Forum 100, 6229 GV Maastricht

8.45-9.00	Welcome and installation External Review Committee members by Prof. A. Schols, Dean of the Faculty of Health, Medicine and Life Sciences (FHML). Start of the public morning programme
9.00-9.20	Introduction to FHML and Maastricht UMC+ by Prof. A. Schols
9.20-9.40	Introduction to CAPHRI by Prof. S. Evers
9.40-10.00	Discussion and Q&A
10.00-10.15	Coffee break
10.15-10.45	Interactive session ALTC and Q&A (short 5 min. pitch followed by a discussion) Prof. H. Verbeek, chair Prof. S. Zwakhalen, vice-chair and 2 or 3 other members of the Research Line
10.45-11.15	Interactive session VHC and Q&A (short 5 min. pitch followed by a discussion) Prof. A. Paulus, chair Dr. T. Clemens, vice-chair and 2 or 3 other members of the Research Line
11.15-11.30	Healthy break
11.30-12.00	Interactive session OPC and Q&A (short 5 min. pitch followed by a discussion) Dr. M. Spigt, chair Prof. L. Smits, vice-chair and 2 or 3 other members of the Research Line
12.00-12.30	Interactive session PHPC and Q&A (short 5 min. pitch followed by a discussion) Prof. T. van der Weijden, chair Prof. R. Crutzen, vice-chair and 2 or 3 other members of the Research Line
12.30-13.45	Lunchbreak at SAAM with the Science Commission (with the possibility for the ERC to withdraw for a closed session until 13:45) Prof. A. de Rijk (HISP/Soc.Med.), Chair Science Commission

	Dr. Silke Metzelthin PhD (ALTC/HSR) Dr. Daan Westra PhD (VHC/HSR) Dr. Mickaël Hiligsmann PhD (VHC/HSR) Dr. Tim Boymans MD, PhD (FPR/ORTHO) Dr. Nicole Dukers-Muijters PhD (HISP/GB) Dr. Sander van Kuijk PhD (OPC/EPI) Dr. Monique Mommers PhD (OPC/EPI) Dr. Jesse Jansen PhD (PHPC/HAG)
13.45-14.15	Interactive session FPR and Q&A (short 5 min. pitch followed by a discussion) Prof. R. de Bie, chair Prof. IJ. Kant, vice-chair and 2 or 3 other members of the Research Line
14.15-14.45	Interactive session HISP and Q&A (short 5 min. pitch followed by a discussion) Dr. P. Wolffs, chair Prof. C. Hoebe, vice-chair and 2 or 3 other members of the Research Line
14.45-15.00	Healthy break
15.00-16.00	Research Lines and stakeholders (combined session + members CAPHRI Advisory Board – 1 hour room for discussion) CAPHRI Advisory Board Prof. A. Timen (RadboudUMC) Dr. E. Leers (Zuyd School for Applied Sciences) Prof. J. van Weert (UVA) Prof. P. Jeurissen (RadboudUMC) Dr. R. Goffin (Zuyderland) S. van der Spiegel MD, MBA (DG Sante, European Commission)
16.00-17.00	Closed session ERC - reflection and preliminary conclusions
19.15	Taxi from hotel to restaurant - Informal dinner (Restaurant SOFA, Maastricht)

Thursday, November 30, 2023

Location: MECC – SAAM

Bar bistro SAAM, Forum 100, 6229 GV Maastricht

	Morning session (closed sessions)
8.45-9.00	Welcome + coffee
9.00-9.45	Meeting regarding PhD Policy and Training PhD coordinators and PhD-REPS Francine Schneider- PhD Community Coordinator Chantal Claessens - PhD Administrative Coordinator PhD Representatives: Diogo Lopes Leao (VHC/HSR) Quincy Merx (ALTC/HSR) Chrissy Moonen (HISP/Soc.Med) Ken Peeters (OPC/HAG) Frederike Mulder (FPR/ORT) Lieve Vonken (PHPC/GB)
9.45-10.30	Open science & Academic culture (integrity) Prof. M. Zeegers (OPC/EPI), Chair of FHML Platform Research Integrity Dr. B. Penders (HISP/HES), member of FHML Platform Research Integrity Dr. L. Wynants (OPC/EPI), Chair of the Quality Assurance Committee Dr. D. Shaw (HISP/HES), Quality Assurance Officer
10.30-10.45	Coffee break
10.45-12.00	Strategic Partnerships: -10.45-11.15 Introduction Living Labs and centers – Prof. S. Evers + Q&A -11.15-11.35 CaRe + Leadership Programme + Q&A Prof. O. van Schayck (OPC/HAG), Scientific Director CaRe (Netherlands School of Public Health and CaRe Research) -11.35-12.00 Internationalisation Commission + ASPHER Prof. K. Czabanowska (VHC/IH), Chair Committee International Collaboration
12.00 – 13.15	Lunchbreak at SAAM
13.15-13.45	Closed session ERC + Management Team CAPHRI Prof. S. Evers S. Bulic Prof. H. Verbeek (ALTC/HSR) Prof. S. Zwakhalen (ALTC/HSR) Prof. A. Paulus (VHC/HSR) Dr. T. Clemens (VHC/IH) Dr. M. Spigt (OPC/HAG) Prof. L. Smits (OPC/EPI) Prof. T. van der Weijden (PHPC/HAG) Prof. R. Crutzen (PHPC/GB) Prof. R. de Bie (FPR/EPI) Prof. IJ. Kant (FPR/EPI) Dr. P. Wolffs (HISP/MMI) Prof. C. Hoebe (HISP/Soc.Med.)
13.45-14.15	Closed session ERC + Management Board CAPHRI Prof. S. Evers S. Bulic
14.15-15.00	Healthy break
15.00-15.30	Meeting with the Maastricht UMC+ board Prof. A. Schols, Dean FHML Prof. S. Kremers, Vice-Dean FHML



15.30-16.30	Closed session of the External Review Committee
16.30-16.45	Public Presentation of preliminary conclusions by the chair of the External Review Committee
16.45	End of programme and informal get together



Annex 4 CAPHRI organogram

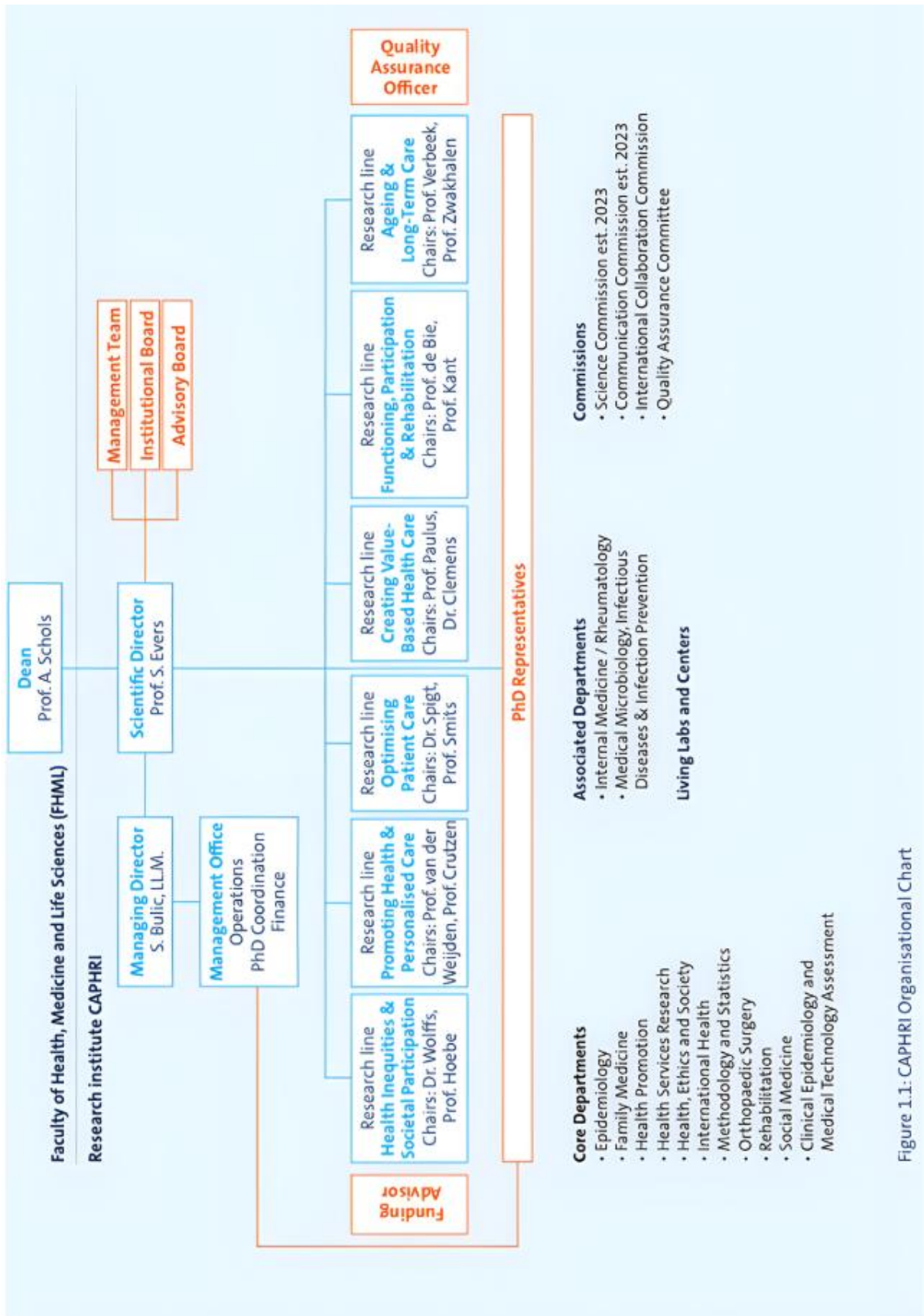


Figure 1.1: CAPHRI Organisational Chart

Annex 5 Composition and funding

Table 2.1 Research staff at CAPHRI level

CAPHRI	2017	2018	2019	2020	2021	2022
Scientific staff FHML ¹	46,3 / 121	48,4 / 127	45,4 / 147	46,7/119	46,0 / 124	48,7 / 128
Scientific staff academic hospital	7,0 / 22	7,0 / 22	6,2 / 18	3,6 / 14	3,1 / 13	3 / 13
Post-docs ²	35,7 / 61	33,8 / 59	36,2 / 73	35,3 / 62	44,6 / 81	43,6 / 73
Internal PhD-candidates ³	70,3 / 76	78,0 / 81	77,2 / 84 *(100)	74,7 / 80	71,8 / 79	64,5 / 70
Total research staff	159,3 / 280	167,2 / 289	165,1 / 322	160,6 / 275	165,4 / 297	159,8 / 284
Support staff (research) ⁴	26,7 / 44	28,0 / 46	29,3 / 69	25,0 / 43	25,9 / 42	24,4 / 39
Support staff (managerial) ⁵	10,0 / 12	9,8 / 12	9,7 / 12	9,7 / 12	8,5 / 11	9 / 12
Total staff incl academic hospital	196,0 / 336	205,0 / 347	204,1 / 403	195,0 / 330	199,7 / 350	193,1 / 335
Total staff excl academic hospital	189,0 / 314	198,1 / 325	197,8 / 385	191,4 / 316	196,6 / 337	190,1 / 322
External PhD candidates ⁶	320	310	340*(323)	353	373	421
Honorary professor ⁷	nb	nb	15	11	16	12

FTE: Sum of actual fte-factors (in fulltime equivalents) labelled on the research programme on 31-dec on any year

#: Number of persons active on the research programme on 31-dec of any year

Comparable with WOPI-categories HGL, UHD and UD; tenured and non-tenured staff appointed at the FHML.

Comparable with WOPI-category 'Onderzoeker' (^{1,2,3,4}), with completed PhD, not belonging to scientific staff (with WOPI-categories HGL, UHD and UD) Standard PhD (employed)

All support staff working on research (research assistants, lab technicians, and other support staff not working at the management office)

Support staff working at the School's management office including the scientific director

External PhD (externally or internally funded but not employed)

Scientific Staff, employed, unpaid professor

Visiting fellows are researchers/professors who visit the research programme for a period of typically one week up to three months to work with research programme staff members.

* There were 100 Internal PhD candidates of which 83 still had a paid position, the other 17 internal PhD Candidates 17 were not employed and therefore shown as external PhD Candidate.

Table 2.3 Funding at CAPHRI level

CAPHRI	2017		2018		2019		2020		2021		2022	
Funding	fte ¹	% ²	fte	%	fte	%	fte	%	fte	%	fte	%
- Direct funding ¹	42,0	28	45,3	28	43	27	44,3	28	41,3	25	40,3	26
- Research funds ²	27,2	18	31,2	19	35,3	22	38,5	25	39,3	24	42,0	27
- Contract research ³	74,7	49	79,8	50	81,3	50	72,5	46	78,7	48	69,5	44
- Other	8,4	5	4,0	2	2,3	1	1,2	1	3,2	2	5,5	3
Total funding (excl. hospital)⁴	152,3	100	160,3	100	161,9	100	156,4	100	162,5	100	157,3	100
Expenditure	k€	%	k€	%	k€	%	k€	%	k€	%	k€	%
- Personnel costs	13.164	76	14.273	79	14.780	79	14.792	83	16.162	84	16.032	81
- Other costs	4.181	24	3.706	21	3.851	21	2.995	17	3.008	16	3.851	19
Total expenditure	17.345	100	17.979	100	18.631	100	17.787	100	19.170	100	19.883	100

¹ Direct funding by FHML/ Maastricht University ('basis financiering' / lump sum budget).

² Research grants obtained in national scientific competition (e.g. grants from NWO, ZonMw and KNAW)

³ Research contracts for specific research projects obtained from external organisations, such as industry, governmental ministries, European organisations, including ERC, and charity organisations

⁴ Funds that do not fit the other categories.

⁵ The funding in fte includes the total research staff but excludes the academic hospital-staff

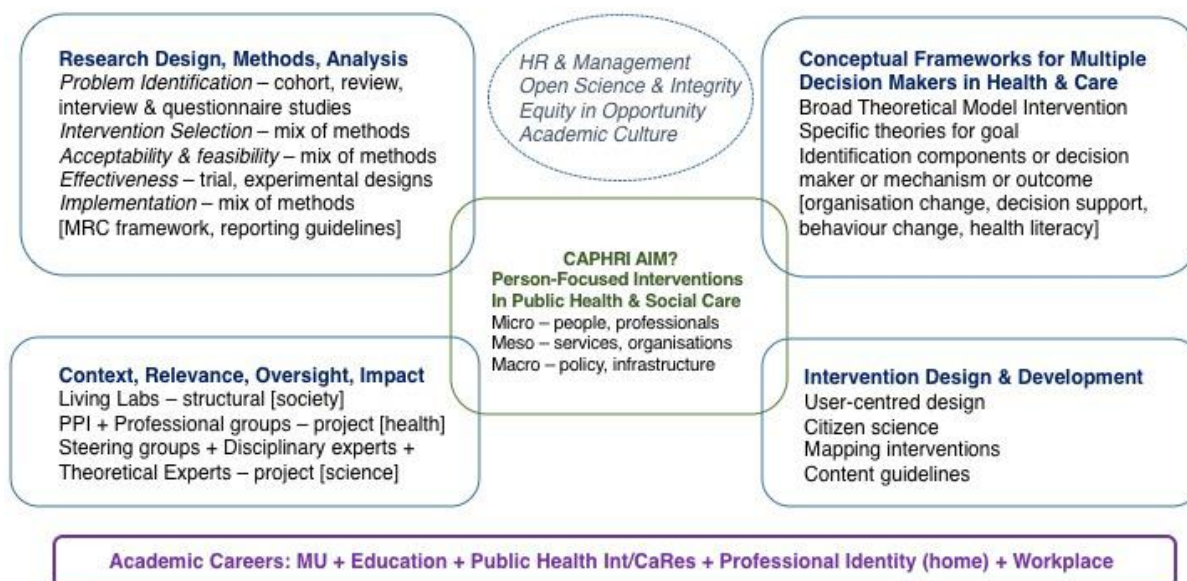
⁶ the funding in % in the research programme should be compared to the total within each research programme

Remark: Funding including clinical research (CTCM/academic hospital or other) is included in table 2.3 (in k€ per year)



Annex 6 Example model to illustrate CAPHRI's activities

Preliminary Observations – External Committee – Nov 2023





Colophon

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This report was finalised on March 17, 2024
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B. CAPHRI Strategic Action Plan (approved February 2025)



Care and Public Health Research Institute
(CAPHRI)

Strategic Action Plan

Based on the recommendations provided by the External Review Committee, based on the Self-Evaluation over the period (2017–2022)



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Preface

During 2022 and 2023, the research community of the Care and Public Health Research Institute (CAPHRI) engaged in a comprehensive self-reflection process, revisiting its mission, vision, and strategy through three strategic meetings. The outcomes of these discussions were synthesized in the Self-Evaluation Report covering the period from 2017 to 2022. In November 2023, an External Review Committee (ERC) conducted a thorough assessment (in line with the SEP protocol) of CAPHRI's performance, drawing on the Self-Evaluation Report and insights from a two-day site visit.

In June 2024, we officially received the ERC's report, following the approval of the Rector Magnificus, Prof. dr. P. Habibovic, of Maastricht University. We are proud to note the words of the ERC chair: *"I speak for the entire committee in congratulating CAPHRI for maintaining a high standard of performance across the following assessment criteria: research quality, societal relevance, and viability."*

The ERC report also offers significant findings and recommendations that will help to shape CAPHRI's future direction. These recommendations form the foundation of this CAPHRI Strategic Action Plan. This plan aims to further enhance the Institute's excellence over the next five years, outlining strategic actions both for CAPHRI as a whole (Chapter 1) and for its individual Research Lines (Chapters 2 through 7). In addition, the plan is designed to strengthen CAPHRI's research activities and align its strategic goals for continued success.

We extend our sincere thanks to all members of the CAPHRI community—from junior researchers to department chairs—whose input was invaluable, particularly those who actively participated in the strategic meeting that shaped this action plan based on the ERC's recommendations. We are especially grateful to the CAPHRI (Vice) Research Line Leaders, the CAPHRI Science Commission, the CAPHRI Advisory Board, and the CAPHRI PhD Coordinator for their key contributions to the development of this Strategic Action Plan.

We hope this Strategic Action Plan will serve as a guiding framework for CAPHRI's future strategy, significantly contributing to the Institute's ongoing efforts to enhance Research Quality & Research Strategy, Societal Relevance, Viability, Open science and academic culture, and Education and Training.

On behalf of the CAPHRI community,

Silvia Evers

Scientific Director, Care and Public Health Research Institute

Professor of Public Health Technology Assessment

November 2024

1. Action plan for improvements on a CAPHRI Level

1.1 Research Quality & Research Strategy (CAPHRI overall)

Recommendation	Our reaction and strategic actions
1. Strengthen interdisciplinary coherence within the institute by developing a more coherent conceptual and methodological framework (research vision), based on the defined areas of impact, methodological strengths, theoretical framework, and strategic direction.	Based on this recommendation, CAPHRI has initiated a discussion on whether it is necessary or feasible to develop a unified conceptual and methodological framework that encompasses the entire research vision, given the institute's significant diversity. Several CAPHRI researchers argue that the differences in methodologies and conceptual models should be viewed not as a limitation, but as a strength that reflects the richness and heterogeneity of CAPHRI's research. Nevertheless, we recognize the importance of further exploring the viability of such a model. Key prerequisites for this model are that it must be: • Comprehensive • Independent of other specific organizations • Reflect the inter- and transdisciplinary nature of the CAPHRI research • Enhance CAPHRI's research rather than constrain it. Moreover, many CAPHRI members emphasize that there is already a strong synergy across Research Lines, which should be more effectively communicated. Common themes include the direct involvement of stakeholders, methodological rigor (both in qualitative and quantitative research), and a strong emphasis on diversity and societal impact. Strategic actions To explore the possibility of developing a coherent conceptual and methodological framework within CAPHRI, we propose the following steps: 1. Consult CAPHRI researchers/CAPHRI advisory board: Engage CAPHRI researchers through the research leaders and the CAPHRI advisory board to gather suggestions for potential comprehensive models that could unify the institute's research approach. 2. Review by the Science Commission: Task the CAPHRI Science Commission with reviewing the proposed models and evaluating their suitability for the diverse research conducted within the institute. 3. Evaluate feasibility: Based on the reviewed models, assess whether it is feasible to implement a single coherent conceptual and methodological framework that can accommodate the entire research institute. 4. Develop the framework: If the assessment concludes that a unified model is possible (step 3), proceed with the development of such a framework to guide CAPHRI's research strategy. This process ensures a collaborative and thorough approach, allowing for input from the wider CAPHRI community while addressing the institute's diverse research needs.
2. Give more in-depth attention to fully understand, integrate, and internalise concepts from different disciplines, recognising the	The consensus within the CAPHRI community is that our inter- and transdisciplinary research efforts are more extensive than what was reflected in the Self-Evaluation Report and two-day site visit, likely because the presentation was structured around individual Research Lines. However, there remains significant potential to further expand collaboration — both within

institute's inter- and transdisciplinary approach.	CAPHRI and with external academic institutions and care organizations. By enhancing these partnerships, we can broaden the impact of our research. Strategic actions To address this, we need to make the inter- and transdisciplinary work already taking place at CAPHRI more visible—both within and across Research Lines, institutes, Maastricht University faculties, and departments. By clearly highlighting these collaborations, we can identify further opportunities to strengthen and expand this work. This should also be an important focus in our internal and external communications, such as in case reports. To foster deeper collaboration, we propose the following actions: • Enhance CAPHRI's inter- and transdisciplinary approach: Organize an annual CAPHRI Research Day dedicated to fostering deeper understanding and integration of concepts from different disciplines. This event would focus on in-depth discussions, facilitating the exchange of knowledge and methodologies across fields, and reinforcing CAPHRI's commitment to inter- and transdisciplinary collaboration. • Increase the number of content wise contributions at the Institute Council and in the CAPHRI newsletters: e.g. organize more presentations at the CAPHRI research council meetings showcasing innovations of new initiatives and research leaders, creating more opportunities for cross-connections and collaboration. This latter can be done for instance by actively communicating and stimulating the participation of inaugural lectures, symposia, etc. • Enhance visibility of ongoing projects: Provide more insight into current CAPHRI projects by regularly featuring new projects in the CAPHRI newsletter, drawing attention to their scope and potential for inter- and transdisciplinary cooperation. • Having liking-pins from each Research Line/Department in each CAPHRI commissions, especially in the Communication Commission in order to stimulate awareness of each other's research. • Stimulate collaboration between CAPHRI colleagues: Encourage collaboration between leaders, joint (PhD) projects, and shared appointments between Research Lines to deepen collaboration and resource sharing. • Visualize Interdisciplinary Connections: Develop an interactive "Junction Map" that illustrates the interdisciplinary coherence across CAPHRI's research. This map could be featured on the website, offering a dynamic overview of CAPHRI's activities, making it easier for researchers and collaborators to find relevant projects and initiatives. To facilitate the drawing of such a map we stimulate each unit to identify a number of unique keywords for their unit, using the systems of the Maastricht University Library.
3. Further develop the strategic plans with a greater focus, clear goals related to impact, and articulation of “need” (in terms of scientific approaches) at specific stages from the identification of the problem to the design, implementation, and evaluation of interventions.	At CAPHRI, we develop strategic plans on a three-year cycle, ensuring that each iteration is more focused, sets clearer goals, and places a stronger emphasis on needs and impact (see Chapter 6 of the Self-Evaluation Report, Part A). Strategic Actions: • Highlight project impact: In future strategic plans, we will explicitly outline the impact of various projects, with a clear focus on addressing specific societal needs and impact. These will be showcased in case studies, differentiated by local/regional, national, and international levels. Additionally, we will make a more explicit distinction between societal impact and scientific impact to provide a more comprehensive evaluation of our work. • Maintain disciplinary diversity: To ensure the continuity and richness of our research, we recognize the importance of maintaining a

	diversity of disciplines within the CAPHRI community. In the future action plans of CAPHRI's Research Lines, we will ask Research Line leaders to consider this disciplinary diversity as a key factor in achieving our strategic goals.
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1.2 Societal Relevance (CAPHRI overall)

Recommendation	Our reaction and strategic actions
4. Take leadership, better harvest, and build more broadly on the already 25 years existing tradition in applying living labs to enhance societal impact, given current attention for research in living labs in academia.	While we take great pride in our living labs as facilitators of societal impact, we recognize that the concept of a uniform living lab model may not be suitable for all CAPHRI researchers. Particularly for those working in methodological groups, alternative forms of collaboration may be more effective. At CAPHRI, our primary organizational structure revolves around Research Lines rather than living labs, which are viewed as interactive connections between the CAPHRI's academic community, care organizations, policymakers, and other stakeholders. Additionally, CAPHRI researchers emphasize the delicate balance that must be maintained between societal relevance for external parties and research integrity for our academic community. It is crucial that we navigate this balance thoughtfully to uphold the standards of our research while effectively addressing societal needs. Strategic Actions: • Explore and expand living labs: Conduct in-depth research into the living lab model to understand what works for whom and under which circumstances, using a realist evaluation approach. This exploration will help identify opportunities to enhance existing living labs or develop new ones tailored to specific contexts. • Strengthen communication: More effectively communicate that living labs are a key asset for societal collaboration. Emphasize the wealth of knowledge available regarding the living lab concept to foster broader understanding and engagement. • Encourage other active researcher involvement: Actively promote the participation of researchers in the development of research agendas and policy reports. By involving researchers in these processes, we can ensure that their insights and expertise are integrated, enhancing the relevance and impact of our work.
5. Frame the objective of stakeholder and citizen involvement in a more productive way (not merely SMARTer, but also provide room for unpredictability, creativity, and out-of-the-box thinking), ensuring that interactions with societal partners are pushed to a higher level.	CAPHRI researchers already proactively involve stakeholders/ citizens, also allowing for unpredictability, creativity, and out-of-the-box thinking. However, while the importance of checking on stakeholder needs is recognized, the best ways to improve this is not straightforward. Additionally, we acknowledge that there may be variations in how different projects and groups approach stakeholders' engagement. Strategic Actions: • Develop guidance and training: Create comprehensive guidance and training resources focused on citizen and stakeholder participation. These materials will be shared within CAPHRI and beyond, fostering a culture of learning from one another's practices and strengthening stakeholder and citizen involvement across the institute. • Incorporate patient/citizen representatives: Encourage the inclusion of a patient or citizen representative (e.g., from organizations like

	Burgerkracht) in CAPHRI projects and on the CAPHRI Advisory Board. This will ensure that the perspectives of those directly impacted by our research are consistently represented and considered. • Consider structural collaboration with social partners: Explore opportunities for ongoing collaboration with social partners, particularly through models such as living labs. This structural approach can enhance the relevance and applicability of our research in real-world settings. • Promote citizen science: Actively stimulate the use of citizen science throughout the CAPHRI community. By engaging citizens in the research process, we can enrich our studies and foster a deeper connection between our research and the communities we serve.
6. Make better use of its advisory board and formulate a clear mission/role, e.g., help the research institute strengthen its strategy and/or install more specific advisory groups to reflect on the research strategies of the RLs.	The CAPHRI Advisory Board, established only last year, is still in the process of optimizing its role and impact. Currently, we hold two meetings annually—one online and one in person—but we've encountered challenges in fully engaging all members due to logistical issues, such as distance and busy schedules. The Research Lines have collectively expressed that establishing more specific advisory groups per Research Line is not preferred as this may lead to inefficiency and unnecessary bureaucracy. Strategic Actions: We anticipate that the role of the CAPHRI Advisory Board will grow in the coming years. To ensure its effectiveness, we propose the following: • Clarify expectations: Work closely with the Advisory Board to clearly define and agree on the expectations of its members. This will help identify how the board can best support CAPHRI's overall strategy as well as the individual Research Lines in a more targeted and efficient manner. • Explore alternative models, also looking at other research institutes: Consider exploring alternative models of engagement, such as creating explicit connections between individual Advisory Board members and specific Research Lines. For instance, by aligning one or two board members with a particular Research Line, we could foster deeper, more focused support while minimizing the need for additional layers of bureaucracy.

1.3 Viability (CAPHRI overall)

Recommendation	Our reaction and strategic actions
7. Develop an identity everyone recognises and that translates into similar goals everyone is working for and, in turn, translates into a visible, recognisable branding of the research institute, supporting (inter)national visibility, force, and attractiveness to funders.	We believe this recommendation should be addressed alongside the points in 1.1 Research Quality and Research Strategy. Despite CAPHRI's research diversity, several CAPHRI core values consistently shine through, such as stakeholders involvement, inter- and transdisciplinary research, methodological rigor, diversity and societal impact: Inclusivity and focus on tangible societal benefits are key. Additionally, CAPHRI is committed to advancing care and public health, maintaining independence, and emphasizing conceptual thinking and theoretical rigor in all its work.

	Strategic Actions: • Strengthen branding: To enhance our branding, we have established a communication commission. Instead of focusing solely on CAPHRI as an "entity," we aim to emphasize the content and added value of our research. To support this, we plan to develop branding guidelines for staff, including standard logos, presentation templates, and manuals for posters, reports, and other materials. • Evaluate CAPHRI logo: The CAPHRI logo has been a point of ongoing discussion due to potential associations with religion (the cross) or being perceived as a healthcare provider. In the coming years, we will evaluate the need for a change, especially as we gain more clarity on the integration of MUMC+ and UM and their respective branding strategies. • PhD student onboarding: To better integrate PhD students, we plan to develop an onboarding session, to introduce the PhD to CAPHRI and its core values and mission, ensuring a shared understanding across the research community. • Transfer the International Collaboration Committee: To increase (inter)national visibility, we will expand our International Collaboration Committee into a Collaboration Committee tasked with developing a strategy to enhance CAPHRI's global profile and foster strategic partnerships both nationally and internationally.
8. Put (more) effort in risk management: develop a strategy, with measurable goals, to improve the transparency of not only the research results but also the methodology (such as source data and code).	At both UM and FHML levels, actions are being taken to enhance risk management. CAPHRI not only adheres to the risk management policies set by higher authorities but also takes a proactive approach in this, often initiated by the CAPHRI Quality Assurance Committee. Strategic Actions: • Enhance Scientific Risk Management: CAPHRI will continue to develop initiatives to expand risk strategies, aiming to increase the transparency and reliability of our research. These initiatives, driven by the CAPHRI Quality Assurance Committee, will be based on periodic friendly reviews of each project of a research unit. As healthcare researchers, we believe there is much to learn from adjacent fields such as data science and computer science, particularly in ensuring that research is reproducible and replicable. • Expand Financial Risk Management: To ensure sustainability, CAPHRI will enhance its annual risk analysis for each unit, focusing on factors such as earning capacity, internal PhD numbers (per FTE for first-stream funding), and financial reserves. Additionally, each project will be reviewed to assess risks related to its continuity and long-term sustainability.
9. Strengthen incentives for high-quality, high-impact inter- and transdisciplinary output in order to meet the future needs of society and to increase viability.	As previously mentioned, producing high-quality, high-impact inter- and transdisciplinary output is a top priority for us. Several strategic actions to enhance this are outlined under Recommendation 1.1 (Research Quality & Research Strategy) and 1.2 (Societal Relevance). CAPHRI believes that incentives should prioritize and reward quality over quantity, a principle that is not always fully reflected in the current university financial incentive systems.

1.4 Open science and academic culture (CAPHRI overall)

10. Help early-career staff develop skills to deliver, lead, and innovate across educational and research activities to ensure that organisational priorities and business cases are appropriately justified, through transparent university schemes that help staff integrate the different components for equitable career development.	Aligned with the <i>Recognition & Rewards</i> programme, FHML and CAPHRI aim to acknowledge and reward the diverse contributions of academic staff, valuing their unique skills and talents, whether in research, education, leadership, societal impact, or, where applicable, patient care. CAPHRI also supports early-career staff in developing the skills needed to excel, lead, and innovate across both educational and research activities. This approach ensures organizational priorities and business cases are well-founded and transparent, supported by equitable university frameworks that integrate these components into career development. Strategic Actions: • Ensure effective implementation of development boards: FHML and CAPHRI have introduced development boards to foster open, fair, and personalized career development dialogues for academics. These boards, , provide a platform for discussions on career growth, guided by new academic career profiles. However, CAPHRI recognizes that development boards alone are insufficient and must be supplemented to promote equitable career development. • Empower early-career professionals: CAPHRI aims to provide early-career researchers with more responsibility and a stronger voice within the institute, such as including post-doc representatives in the Science Commission and exploring the formation of a PhD council which will replace the meeting of the PhD reps (representatives). • Enrich the PhD training: Ensure that PhD training plans encompass not only research skills but also education, societal impact, and leadership development. Provide more opportunities for PhDs to engage in societal impact activities beyond the traditional impact chapter at the end of their PhD. • Explore mentorship programs: Investigate the possibility of creating intervision or mentorship programs for postdocs and assistant professors at the department or CAPHRI level. • Share Best Practices: Actively Share Best Practices within the CAPRI community regarding Recognition and Rewards, the organisation of projects, Research Lines and departments, etc.. • Develop management and policy skills: Offer early-career researchers opportunities to gain experience in management and policy by including them in committees such as the Science Commission and inviting them to CAPHRI's financial meetings, including the spring (annual statement) and autumn (budget) sessions. • Promote transparency in career opportunities: Encourage senior members of the CAPHRI community to be open about the limited vertical career opportunities within academia while facilitating alternative horizontal or non-academic career path.
11. Actively manage risk related to research integrity, including the need for meticulous analysis of conflicts of interest, focusing on information exchange (how staff can get advice), governance (how the organisation deals with (potential) breaches), and culture. The development of a	At the faculty level, the Platform Scientific Integrity (PSI) includes a representative from CAPHRI to promote a culture of awareness around scientific integrity at FHML/MUMC+. PSI advises stakeholders and develops systems for educating and implementing scientific integrity across research activities. They foster open discussions on integrity among researchers, support staff, and students. PSI members serve as informal contacts and organize workshops within their groups. They've also developed separate roadmaps for staff, PhD candidates, and students to address integrity concerns. Additionally, PSI updates the Maastricht UMC+ Research Code. Strategic actions

reflective culture on research integrity within CAPHRI is essential to put the structure into practice.	Enhance awareness of research integrity: in addition to the strategic actions outlined in recommendations 8 and 13, CAPHRI aims to enhance awareness of research integrity by organizing dedicated meetings on the topic. These meetings will encourage active engagement across the CAPHRI community and promote meaningful discussions among staff (within and across Research Lines) about what constitutes good research, particularly in interdisciplinary contexts.
12. Spend more time/effort on governance concerning research data management, especially with the rapid progression of big and digital data as well as the demand for open science.	At the CAPHRI level, this recommendation addresses a critical aspect in light of current developments. At the faculty level, several initiatives are underway to professionalize research data management governance (e.g., Keten Onderzoeksondersteuning, Data Expertise Centre). Strategic Actions: - Ensure effective implementation of research data governance initiatives: CAPHRI actively monitors the implementation of faculty initiatives related to research data governance by distributing information. CAPHRI's quality officer, quality assurance committee, and the data science committee (which includes CAPHRI researchers) all play a key role in this process. - Connect CAPHRI researchers to relevant expertise: Managing coordinators of each Research Line will help facilitate access to and collaboration with support groups—such as legal experts and data stewards—early in the project to ensure maximum efficiency and visibility.
13. Create an open and responsible science community with a clear Open and Responsible Science programme that will be implemented in practice.	CAPHRI is committed to fostering an open and responsible research community through the implementation of a clear Open and Responsible Science programme. Strategic Actions: - Strengthen CAPHRI's open and responsible research culture: Organize an annual CAPHRI Research Day focused on academic culture and open science, including topics such as social safety and well-being. - Support faculty initiatives: Monitor the implementation of faculty initiatives to create an open and responsible science community, such as actively stimulating open science by stimulating CAPHRI researchers to sign up to Taverne (You share, we take care!) Which makes it legal to share paywalled articles of CAPHRI researchers with the world via the UM Research Information - Broaden the scope of open and responsible science: CAPHRI views open and responsible science as more than adhering to bureaucratic requirements (e.g., open access publications). We aim to explore this concept more comprehensively, incorporating participatory approaches, involving study participants and stakeholders in the research process, and emphasizing societal relevance.

1.5 Education and Training (CAPHRI overall)

14. Adjust the PhD policy such that the quantity and quality of the training as well as the opportunities for the PhD students within the institute will be more equitable, allowing more involvement of PhD representatives to evaluate, monitor, and help develop policy, especially because PhD students seem to be dependent on individual supervisor interests and recommendations.	In response to this recommendation, CAPHRI has initiated discussions on whether a policy change is needed to standardize the quantity and quality of the PhD training. The current policy, strongly emphasizes autonomy for candidates and supervisory teams in composing personalized training trajectories consisting of high-quality courses for personal and/or professional development in line with the needs of the PhD candidate and her/his/their project. Given both the diversity of PhD trajectories and backgrounds, we value the current policy. Our actions will therefore focus on fostering equity for all candidates within the current policy. Strategic Actions: • Provide guidance in composing personal PhD training plans: the new UM PhD regulations stress the importance of having a Training and Supervision plan (TSP) and within CAPHRI we expect all teams to compose the basis for this plan within the first three months of each trajectory. During the trajectory, this is regarded as a 'living document' where candidates can plan the development of project specific competencies, skills and knowledge, as well their development into an academic professional functioning in an international scientific context. Using input from our PhD representatives, we will invest in <i>guidance</i> for PhD candidates to compose their TSP (e.g., by offering workshops). The focus will be on meeting the needs of the PhD students, rather than solely following supervisors' recommendations. • Explore option to formulate minimum quality standards for the PhD training: In collaboration with PhD representatives, we will explore the feasibility of setting minimum standards for PhD training at CAPHRI to reduce variability. This minimum standard will include the mandatory courses offered by Maastricht University (Research Ethics & Integrity, Open Science, and Science Communication), and could further be expanded with initiatives, such as onboarding training (Recommendation 7) and having the possibility to follow training in education, societal impact, and leadership (Recommendation 10). • Clarify financial and time investment expectations: To reduce reliance on individual supervisors, CAPHRI will actively communicate to PhDs that supervisors should pre-allocate a budget for training. PhD teams should also discuss early on the time commitment for PhD training and teaching responsibilities, empowering PhDs in their discussions with supervisors and encouraging them to make the most of opportunities that align with their career paths.
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2. Action plan for improvements Ageing and Long-Term Care (ALTC)

Recommendation	Our reaction and strategic actions
1. With the loss of some key senior staff members, this RL will need to strengthen its expertise on social gerontology, geriatric medicine, and implementation sciences. Also, innovative research on technology and data sciences will require additional expertise. Recent personal grants do point to talent management that will help mid-career scientists excel and possibly take on more senior roles in future.	Prof. Daisy Janssen holds the new chair for geriatric medicine; she is involved in both our Research Program and within our Living Lab. We will continue to support our mid-career staff in their development and leadership towards more senior roles and to increase their expertise. Next to supervision by senior staff, individual training and personal leadership development training is offered. Some of our mid-career staff have a strong interest in implementation science and social gerontology and will take on that expertise and set up collaboration in the field (both on a national as well as international level). Furthermore, in the Methodology and Statistics department a new colleague has joined with expertise on data science. This will support our team led by Dr. Sil Aarts; also support staff has joined with more technical skills.
2. More selective hiring of PhD students and a feasible supervisor-to-PhD-student ratio are needed. Moreover, collaboration with networks to co-organise the supervision of external PhD students and to reduce the workload for CAPHRI senior staff should be strengthened and expanded.	All our PhD students have teams of supervisors (usually 3 or 4) and are supported within a network of collaborators. Within our assessment procedure we focus both on methodological as well as professional skills (e.g. communication, collaboration). Within the team we clearly identify roles and expectations, not only at the start of the PhD trajectory, but also continuously during the 4 years. For example, using so called process evaluations within the team discussing each role within the team. In addition, we work with a buddy system within several departments, in which a more senior PhD student helps a starting PhD student serve as an additional contact person for mainly practical issues. We have internal full-time PhD students but also many external (part time) PhD students, who work in a clinical position in our living lab (e.g. long-term care organisation or hospital) and do their PhD in 1 or 2 days a week. This is usually a longer trajectory with a different rate of supervision (similar teams, but meetings more spread out over the year). We invest in our leadership and supervision teams by mutual learning (intervisie) groups as part of the Team Dynamics working group at our department. Daily supervisors have intervisie in which they can discuss on the job cases in which they need advice. This is very positively evaluated and helps in reducing work load, as it helps people in reflecting their role and skills.

3. Action plan for improvements Creating value-based healthcare (VHC)

Recommendation	Our reaction and strategic actions
1. Work towards a clear and coherent vision and strategy.	To work towards a clearer and more coherent (future) vision, mission and strategy for our Research Line, the following actions are planned for the upcoming years: a. First, to establish the need and potential directions for change of the current vision and mission, we will organize meetings with different stakeholders. These include meetings with the staff of VHC, with the research unit leaders and with stakeholders within Caphri (and if needed with external stakeholders). Second, based on the outcomes of these discussions (and awaiting - and aligning with - the future vision of Caphri), we will update the current vision and mission of VHC as well as the way in which they are formulated (i.e. 'more SMART'). b. To position a clearer and more coherent strategy within VHC (and CAPHRI and beyond), we will engage into activities (e.g. thematic meetings) to (further) increase the collaboration between the different VHC research units. The main aim of these thematic meetings is to discuss overarching themes (e.g. sustainable care) and show how the different research units work on these themes (e.g. in some units, researchers might work on economic sustainability. In other units, researchers might work on ecological sustainability or a sustainable workforce). Other illustrated examples of overarching themes might be prevention, patient participation, digitalisation and/or big data. In this way, we can identify spearheads within the Research Line, better show the connections between the different research units as well as increase the coherence within VHC. This will also allow us to formulate more coherent strategies that (better) cover all research units and the main themes and strengths of VHC.
2. Focus on its strengths (max 3). Create milestones for the coming years to improve the visibility of strengths and make strategic choices	Following the recommendation of the external review committee, the following actions are planned for the upcoming years: a. Together with the staff members of VHC (including the research unit leaders and representatives of the staff groups (PhDs; Postdocs; assistant/associate/full professors)), we will first critically discuss and look deeper at the different strengths, opportunities and unique selling points of VHC. b. Together with the indicated staff members, and based on the list of strengths, opportunities and unique selling points and the reasons why these are important, we will rank these and select the most important ones (also in the context of the mission, vision and strategy of VHC); To increase the visibility, the selected strengths will be formulated smarter by including certain milestones and will also be communicated with the VHC staff to showcase their importance.

4. Action plan for improvements Functioning, Participation, and Rehabilitation (FPR)

Recommendation	Our reaction and strategic actions
1. Further develop strategic plans with a greater focus and with clear goals to strengthen coherence.	The Research Line recognises that the scope of the Research Line FPR is broad and that several stakeholders are involved, including health care centres in the region. This is a strength but may threaten the coherence of the Research Line. Therefore, in collaboration with the regional partners, the Research Line wants to develop further strategic plans with a greater focus and with clear goals to strengthen coherence.
2. Look at commonalities in the underpinning paradigms (e.g., focus on “goal-oriented care”) of ALTC RL.	Within the Research Line, the different research groups and research partners use different conceptual models and paradigms. In the upcoming years we want to look at commonalities in the underpinning paradigms and come up with a limited number of conceptual models that can be applied by all researchers in the Research Line.
3. Further develop and implement data management and research integrity policies.	Much of the research within the Research Line is based on data obtained through observational research (Cohorts, patient cohorts and RCT's). The Research Line recognises the value of these data, record linkage and data pooling but wants to safeguard the privacy of study subjects and research integrity at any time. Therefore, the Research Line together with CAPHRI, wants to further develop and implement data management and research integrity policies.

5. Action plan for improvements Health Inequities and Societal Participation (HISP)

Recommendation	Our reaction and strategic actions
1. Further develop international collaborations with groups working on social inequalities in health (Ghent University, African universities) to create new opportunities.	We agree with the reviewers that our international collaborations are a key component in the research of HISP and the current suggestion highly fits the plans for HISP. We plan to highlight our network of international collaborators more explicitly in our self-evaluation and elaborate how different partners strengthen our research. We have chosen to focus many of our collaborations in areas where equal (access) to healthcare is highly under pressure, or where inequalities in health are large. Examples of this are shown by our collaborations with partners in for example Colombia, Thailand, India and Russia (see included 2024 publications). In our opinion, performing this research in settings under pressure, provides additional input for our methodological and ethical developments, as well our considerations regarding participation (e.g. participation can be limited in unsafe settings or can limit willingness to provide informed consent). Many of the current connections have been set up in the past 5-10 years and currently are leading to more intensive fruitful collaborations. By building upon the current network (also by including our HISP colleagues and their networks) we aim to generate to new opportunities. A current example of this is our application for a Marie Curie Training network including different HISP departments as well as several of our international partners. Nikulkin, V., & Zvonareva, O. (2024). The Trading Zones of Patient Participation: Public Issue Formation in Nondemocratic Situations. <i>Science, Technology, & Human Values</i>, 0(0). Wallis ND, Cadena Camargo Y, Krumeich A. Adolescent pregnancy amongst displaced women in Bogota: playing between the barbs of structural violence-a qualitative study. <i>Reprod Health</i>. 2024 Aug Yang R, Penders B, Horstman K. Connecting efficiency and responsiveness in China: public sentiments and stakeholder perspectives towards COVID-19 crisis governance. <i>Disasters</i>. 2024 Aug
2. Avoid creating more fragmentation given the already wide scope of research interests and new research topics (e.g., on planetary health).	Also this suggestion is fully in line with the plan of our research line. We have been and remain strongly focused on actively creating more cohesion and synergy between our research. We believe that specifically our interdisciplinary approaches to complex health challenges lead to deeper understanding of these challenges and will ultimately contribute to innovative solutions and insights. To further avoid fragmentation, the research line addresses this topic specifically within its staff and research meetings, and organizes discussions on specific areas of our work to promote inter- and transdisciplinary collaboration. Additionally, new researchers are actively introduced to our research topics and stimulated to collaborate and find connections within our research line and our extended network. Also, recently we made the difficult decision to discontinue our line of medical history research, in order to bring further focus in our research topics. Finally, although we are not in advance excluding specific research topics (e.g. planetary health) as we believe that our broad view on health challenges is part of our strength, our efforts to increase cohesion and collaboration are inherently focusing the research topics that our research line addresses.

6. Action plan for improvements Optimising Patient Care (OPC)

Recommendation	Our reaction and strategic actions
1. Expand existing initiatives to promote competences and networking in order to apply for funding and to support young researchers in building up their own networks.	As acknowledged by the assessment committee, our research enables (primary care) doctors and public health professionals in the Netherlands to provide care and care-related prevention in a distinctive way. In the coming years, the retirement of several experienced and successful staff members presents both challenges and opportunities within our Research Line. We want to invest with new vacancies in the areas of prediction modeling and etiology of lifestyle-related diseases, leveraging also the available cohorts. In the area of family medicine and primary care, where new vacancies will also emerge, there will be important changes and opportunities in the areas of personalized medicine and the collaboration with primary care networks, especially for research within the established framework Appropriate Care (kader Passende Zorg). New staff members will be selected for their ability to secure research funding. These new researchers will be integrated into the existing research themes, allowing them to be embedded within the established cohorts, data infrastructure, local healthcare network, and funding connections. The balance between time spent on research acquisition, teaching, and supervision will be closely monitored through annual personal development reviews.
2. Determine which methodological competences are actually viable in future and to focus even more on them as well as to develop a common strategic goal.	The Research Line has a strong track record of teaching basic principles of epidemiology and primary care research, both in a broad context across various curricula and through more specialized courses. In addition, we aim to continue our efforts to accommodate requests from the hospital and primary care networks to conduct research, which requires the broad application of research methodologies as well as tailor-made methodology. Nonetheless, we also recognize the need to constantly develop specific areas to stay at the forefront of future methodological advancements. We regularly hold meetings for all staff involved in the Research Line, and in the coming years, a key focus within these meetings will be exploring ways to integrate our methodological expertise through collaborative research projects and specialized, shared teaching initiatives.

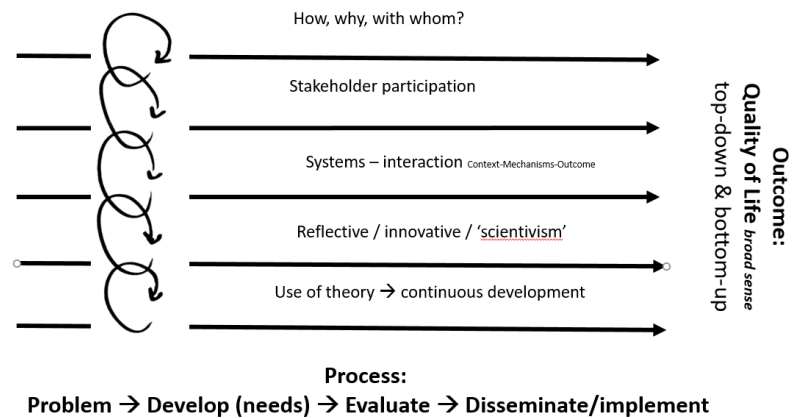
7. Action plan for improvements Promoting Health and Personalised Care (PHPC)

Recommendation	Our reaction and strategic actions
1. Create a long-term vision on how the PHPC RL should position itself within the field.	The vision, mission and objectives of PH&PC (<i>see between brackets in italics</i>) are well aligned with the current societal debate and agreements between various formal stakeholders in the field of prevention and care. In 2023, municipalities and GGDs, health insurers and the Ministry of Health, Welfare and Sport signed the Healthy and Active Living Agreement (Gezond en Actief Leven Akkoord GALA). The GALA agreement describes how a healthy generation will grow up in a healthy living environment with a strong social network in 2040. In 2022, the Dutch 'Kader Passende Zorg' [Framework Appropriate Care] was published, and the Integral Care Agreement (Integraal Zorg Akkoord) was signed by municipalities, major healthcare parties such as the Dutch Federation of University Medical Centres and the Ministry of Health, Welfare and Sport. The objectives of these agreements are at the heart of PH&PC's research, in particular the following objectives related to the change of focus from illness to health, and achieving appropriate care: - Reducing health disparities (<i>investigating determinants of health behaviour</i>); - Creating healthy physical living environments that encourage people to exercise and socialise (<i>using participatory approaches involving all stakeholders</i>); - Promoting healthy lifestyles (<i>developing and evaluating health promotion interventions</i>); - Strengthening psychological resilience and mental health; - Adding value to people's health through effective, evidence- and practice-based interventions with proportionate use of resources and personnel (efficient and climate-neutral) (<i>improving the design and analysis of studies in health sciences, developing an adequate normative framework</i>); - Deciding on formal care in a shared decision-making process with the patient/client and those close to the patient/client (<i>person-centred decision making</i>), while integrating biomedical aspects of health with other areas of life (<i>interprofessional collaboration</i>).
2. More explicit integration of theoretical frameworks, research methods, and intervention design to ensure that the various objectives of different decision makers in these complex interventions are met.	We made a start with formulating a response to the visitation committee's recommendations during 2 PH&PC retreats (March 1 and May 23). During the first retreat the participating PH&PC researchers articulated how they believed in cross fertilisation and complementarity rather than actual integration of theoretical frameworks, research methods, and intervention design. We therefore began to sketch out a framework in which we can position our different theories and methods as 'building blocks'. As we are not aiming for a theory of everything, we took a commonly used approach, Intervention Mapping, as a starting point to distil building blocks based on the perspectives underlying this approach. We identified building blocks, see below, and discussed how we can complement or reinforce each other given these building blocks. Remaining questions: - Perhaps we should limit this work of integrating theoretical frameworks to collaboration theory only: How can we reinforce each other's work?

	- Are we doing this work for our Research Line only, or might CAPHRI in general benefit from this exercise? Other Research Lines may have the same need for integration of different theoretical frameworks.
	Intervention Mapping Steps Building blocks as mentioned in our discussions Within our field of research we aim to facilitate: • Teams of policy makers to organize prevention (eg healthy schools/planetary health), • Health care professionals to make patient-centred decision making, • Citizens to choose healthy behaviors. We use (or intend to use) the following building blocks: - <u>Systematic</u> approach, using all ecological levels (from individual citizens to society as a whole). - <u>Systems</u> thinking, we study interactions between people and between people and (various levels in) systems. - <u>Prioritisation</u> of research objectives to have the greatest impact on the most desirable outcome. Is this what we want? Is it implementable? Is it equitable? - <u>Empirically supported ethics</u> which combines and critically aligns empirically identified preferences of stakeholders regarding health and wellbeing with broader ethical aims such as the reduction of health disparities, the empowerment of people's autonomy and agency, the fair allocation of responsibilities for health and the promotion of a holistic, non-overmedicalized view of health and health care. Ethical reflections are needed in defining most desirable outcomes. Whose interest are we serving? (<i>E.g. History shows that prenatal screening, - how can you be against it? - was primarily driven by the elimination of Down syndrome; E.g. lowering thresholds for disease labelling and treating a risk factor as a disease leads to overmedicalization; E.g. population screening in general has several ethical issues</i>). - <u>Participation</u> of all stakeholders to explore multiple perspectives (importantly the end-users, but also policy makers, funders; individual versus collective interests). - <u>Existing theory and evidence</u>, as a tool. But sometimes we need further theoretical development, eg driven by goals in a NWO research call, the most desirable outcome of our studies may be a theory. - <u>Closing the loop</u> (development, evaluating efficacy, implementation, evaluating effectiveness) and investigating not only <i>if</i> it works but also <i>how</i> it works (Context Mechanism Outcome).

- Mixed methods, developing statistical approaches and qualitative data analysis.
- Being a 'scientivist' to influence the societal debates and scientific agendas.
- Effective methods for communicating science to the public.

This is a first draft of a visual representation of our aims, building blocks and process:



C. CAPHRI organogram and general numerical overview

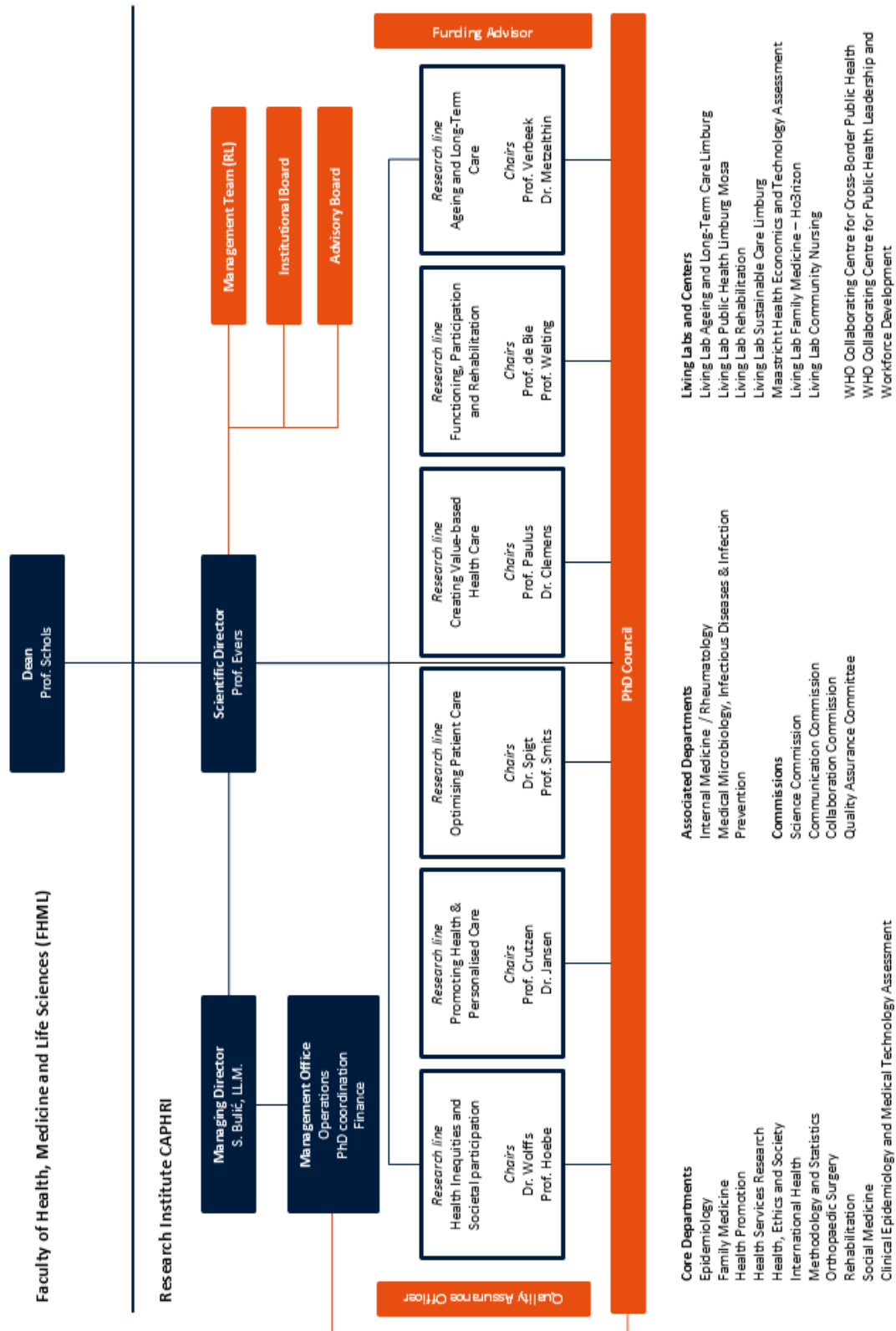


Table 1 Research staff at CAPHRI level

FTE/#

	2023	2024	2025
Scientific Staff FHML	53 / 131	53 / 132	54.9 / 140
Scientific staff academic hospital	3.1 / 13	3.1 / 13	3.6 / 16
Post-docs	36.5 / 60	38.1 / 66	49.4 / 78
Internal PhD candidates	63.9 / 72	64.9 / 72	67.4 / 76
Total research staff	156.4 / 276	159 / 283	175.2 / 310
Support staff (research)	26.7 / 46	26.2 / 44	25.2 / 44
Support staff (managerial)	10 / 13	9.5 / 11	9.5 / 11
Total support staff	36.7 / 59	35.7 / 55	34.6 / 55
Total staff incl academic hospital	193.1/335	194.7/338	209.8/365
Total staff excl academic hospital	190.1/322	191.7/325	206.2/349
External PhD candidates	398	425	427
Honorary professor	21	21	17

Table 2 Funding including clinical research (MUMC+/CTCM)

	2023 (k€)		2024 (k€)		2025 (k€)	
	FHML	MUMC+/CTCM	FHML	MUMC+/CTCM	FHML	MUMC+/CTCM
Research funds	4,403	89	4,604	1,680	6,803	755
Personal	0				41	
General	4,403		4,604		6,762	
Contract Research	5,128	1,974	4,725	937	5,287	1,185
EU Personal	0		0		0	
EU General	1,027		962		1,189	
Charity	796		593		1,123	
Other	3,305		3,170		2,975	
Subtotal	9,531	2,063	9,329	2,617	12,090	1,940
Total	11,594		11,946		14,030	

Table 3 Major grants (contracts above €500,000) and prestigious personal grants 2023 - 2025

RL	Year	Funding bodies	Department	Project Title	Project leader	Grant €
ALTC	2023	EU- Horizon Europe Pillar II	HSR	Horizon EU_Raphael	Daisy Janssen	536,331
ALTC	2024	ZonMw	HSR	ZonMw Wijkverpleging	Sandra Zwakhalen	851,812
VHC	2023	EU- Europe	HSR	EU Encanto	Mickaël Hiligsman	506,875
VHC	2025	MUMC	HSR	GGZ Transformatieplan	Daan Westra	745,831
FPR	2023	NWO	Orthopedie	NWO-Oainject	Tim Welting	921,185
FPR	2023	ReumaNL	Orthopedie	LLP14 II	Tim Welting	500,000
FPR	2023	MUMC	Orthopedie	Weijerhorst 2	Tim Welting	1,200,000
FPR	2023	ReumaNL	Reumatologie	Care in Rheumatology Practice	Annelies Boonen	504,223
FPR	2025	Ministerie	Orthopedie	Artrose en Reumatoide Arthritis	Tim Welting	5,221,690
OPC	2024	KWF	HAG	KWF - MetAddon	Maria Everdingen	908,415
OPC	2024	ZonMw	Epidemiologie	ZonMw VIDI Wynants	Laure Wynants	849,990
PHPC	2024	NWO	GB	NWO-NWA Dutch Systems	Matty Crone	614,586
PHPC	2024	NWO	GB	NWO-LANA Dukers	Rik Crutzen	839,103
PHPC	2024	ZonMw	HAG	ZonMw AW HAG	Loes van Bokhoven	2,235,000

Table 4 Number of graduates 2023 - 2025

Graduation year	PhD's #	PhD's # CAPRHI affiliated
2023	61	56.08
2024	72	65.36
2025	70	6.,5
Total	203	185.94

D. Actions undertaken by the CAPHRI Research Lines

The evaluation committee has provided recommendations for each Research Line. This appendix contains a follow-up to these recommendations in the last three years.

D1. Ageing and Long-Term Care (ALTC)

The evaluation committee provided two recommendations with respect to the Research Line Ageing and Long-Term Care (ALTC).

Recommendation 1: *“With the loss of some key senior staff members, this RL will need to strengthen its expertise on social gerontology, geriatric medicine, and implementation sciences. Also, innovative research on technology and data sciences will require additional expertise. Recent personal grants do point to talent management that will help mid-career scientists excel and possibly take on more senior roles in future”*

We are working on strategic plans to compensate for the loss of key senior staff. This has led to the following concrete actions. Prof. Daisy Janssen has taken over the chair of prof. Jos Schols on the topic of geriatric medicine; Prof. Jeroen Hendriks has joined our Research Line with his chair in Nursing Science at MUMC, who has also an excellent focus on implementation of interventions in clinical practice. We have included Dr. Bart Spaetgens, associate professor on the topic of geriatric medicine in the hospital, in our research program and exploring future possibilities for his development. Furthermore, we are actively seeking collaboration within and outside CAPHRI on the topics of social gerontology, public health, implementation sciences and artificial intelligence. Concrete actions are through collaboration with other departments in the faculty and other faculties such as the Faculty for Science and Engineering and the School for Business and Economics. We are collaborating more with the other CAPHRI Living Labs to strengthen expertise.

All our mid-career researchers have followed a two-year Public Health and Care leadership programme to support their skill development, supporting and enabling them to take on more leadership roles. They also all participate in the intervision programme for mid-career (assistant/associate professors) at our department Health Services Research to further support in their development. With some, we are working towards taking on more senior roles. For example, Dr. Silke Metzelthin, associate professor, has taken on the role of chair for the Dutch Gerontology Society and Dr. Judith Meijers was appointed as an endowed lector at Zuyd University of Applied Sciences, with a focus on leadership and implementation in nursing science.

Recommendation 2: *“More selective hiring of PhD students and a feasible supervisor-to-PhD-student ratio are needed. Moreover, collaboration with networks to co-organise the supervision of external PhD students and to reduce the workload for CAPHRI senior staff should be strengthened and expanded”*

We continue with supervision teams for PhD students of three or four persons, including senior and mid-career staff. Our associate professors have been granted with the Ius so that they can act as first supervisors as well. Furthermore, within our network we have also included several co-supervisors with a PhD degree and academic responsibilities from care organizations. Moreover, several of our CAPHRI trained PhDs obtain positions as practice-based linking pins within long-term care organizations. This facilitates in supporting PhD students in their work.

Supported within our department Health Services Research, we continue the team dynamics processes for our PhD students and have annual process meetings with all our PhD's. Our PhD students participate in

the structural courses provided by our department in research skills, and transferable skills such as communication and general collaboration skills. Furthermore, as Research Line management we have started structural meetings with the PhD representative for the ALTC line in particular.

D2. Creating Value-Based Healthcare (VHC)

The evaluation committee provided two recommendations with respect to the research line Creating Value-Based Healthcare (VHC). Based on the guidelines for this midterm review and the action plan, this document gives a follow-up on these recommendations so far.

Recommendation 1: *“Work towards a clear and coherent vision and strategy”*

We organized several strategic meetings to discuss and establish the need for and potential directions of change in the (future) vision and mission of the Research Line. These included meetings with senior and junior staff members of VHC, with the leaders of the different VHC research units, and with members of the management teams of related departments and/or CAPHRI (when applicable). Based on these meetings, a full revision of the vision and strategy in the short term was considered less desirable, because of uncertainties in the future. Therefore, it was decided by the Research Line leaders to first have a critical look at the objectives and start with a textual update of the vision and strategy. To position a more coherent strategy, stimulating further collaboration between the different research units was considered important. We therefore organized thematic meetings with the VHC staff to discuss unit overarching research themes (e.g. on digital and data-driven health(care)). Staff members of the different VHC research units presented their related research and discussed ways to enhance connections, coherence and collaboration opportunities. The outcomes of these meetings will be used to critically review the objectives, more clearly formulate the mission and strategy and stimulate further cooperation within the Research Line in the upcoming years.

Recommendation 2: *“Focus on its strengths (max 3). Create milestones for the coming years to improve the visibility of strengths and make strategic choices”*

During several strategic meetings, we discussed this recommendation with the research unit leaders and representatives of the staff groups (PhDs; Postdocs; assistant/associate/full professors). During the meetings it was emphasized that VHC has important strengths including the quality, quantity and relevance of its research, a well-skilled staff, strong methodological expertise and its attention for future developments, its multidisciplinary nature and its strong links with policy, practice and education. Narrowing down to 3 strengths and creating related milestones was therefore considered less desirable, also considering the aforementioned (expected) constraints and uncertainties. However, a clearer categorization of the strengths and improving the visibility and formulation of the unique selling points of VHC might be helpful to get a stronger focus. We therefore organized a follow-up meeting in which staff members were asked for suggestions and potential possibilities in this respect. The outcomes of these meetings will be used to get a clearer focus on the strengths and increase the visibility and formulation of these strengths and of the unique selling points of VHC in the upcoming years.

D3. Functioning, Participation, and Rehabilitation (FPR)

The committee formulated three recommendations on which we will reflect below.

Recommendation 1: *“Further develop strategic plans with a greater focus and with clear goals to strengthen coherence”*

Recommendation 2: *“Look at commonalities in the underpinning paradigms (e.g., focus on “goal-oriented care”) of ALTC RL”*

Regarding these two recommendations, the scope of the Research Line is indeed broad and ranges from fundamental research to reintegration. However, all the research units in FPR embrace the bio-psychosocial paradigm operationalized by the International Classification of Functioning Disability and Health (ICF) as developed by the WHO. The bio-psychosocial paradigm, hence, acts as the glue and the focus for all FPR research units, and moreover gives a common framework for research, teaching, care and communication.

Recommendation 3: *“Further develop and implement data management and research integrity policies”*

The cohort facilities across subunits of the Research Line are a strength. Further strengthening and implementation of data management and research integrity policies will continue in alignment with the CAPHRI-wide initiatives and planned activities described earlier in this midterm review. These developments are being carried out in close collaboration with the Faculty of Health, Medicine and Life Sciences (FHML). Within the Research Line, these policies and initiatives will be further embedded and implemented in daily research practice and ongoing methodological development.

In 2026, an exploration started to combine all expertise on data management, data storage, and research integrity within FHML into a so-called Research Support Centre. The Research Line will actively contribute to this initiative and make use of the combined expertise to further strengthen its own research practices and support structures.

D4. Health Inequities and Societal Participation (HISP)

The HISP team was encouraged by the recommendations which were in line with the developments within the Research Line.

Recommendation 1: *“Further develop international collaborations with groups working on social inequalities in health (Ghent University, African universities) to create new opportunities”*

In the past three years the Research Line has further expanded its network of international collaborations in areas of social inequalities of health. First, the team has built upon our existing network of partners in settings where equal (access) to healthcare is under pressure or where there are distinct inequalities in health. For example, drawing on HISP unique capabilities, important research on health inequalities in hard-to-access non-democratic locations such as Russia has been carried out. Collaborations with partners in Colombia, Thailand and India as well as collaborations stemming from our Global Health teaching networks have been built upon or strengthened and resulted in several joint grant proposals. Second, the team has had a strong focus on health and health inequalities in border regions in the past decade. Also in this area, our international network has been strengthened in the past few years. Specific activities and opportunities illustrating this were an international KNAW-funded workshop in 2024 entitled “Periphery at the Center” organized by a transdisciplinary team of HISP researchers with participants originating from several international cross-border regions. Noteworthy in 2025, our international network was boosted by the recognition and establishment of a WHO Collaborating Center Regions for Health and Cross-border Public Health led by the Department of Social Medicine in collaboration with Living Lab Public Health Mosa, and associated with HISP. The center focuses on cross-border public health specifically in the areas of infectious disease control, mental welfare of youth and environmental health.

Recommendation 2: *“Avoid creating more fragmentation given the already wide scope of research interests and new research topics (e.g., on planetary health)”*

Also this recommendation supported the efforts made in the earlier and most recent years by the HISP researchers to create synergy within the team. These efforts included the joint research meetings, addressing and connecting the different research topics within HISP, the restart of the HISP newsletters, informing researchers of each other’s work, as well as the making of a glossy magazine that presents the HISP Research Line for a broader group of stakeholders in academia and beyond. We also made efforts in the improvement of the onboarding procedure of new researchers within HISP, to encourage connections and collaborations within HISP. In the past three years our efforts to create synergy resulted in the development of 8 joint research proposals submitted specifically by interdisciplinary teams within HISP. A noteworthy example of this was the start of a ZonMw-funded project on the Graphic communication for improved infection prevention in centers for people with intellectual and developmental disabilities. This project connects researchers and expertise from 3 different departments within HISP working on a transdisciplinary project to develop tools specifically for this under-studied group. Finally, we believe that amidst the ongoing global geopolitical turmoil, HISP transdisciplinary methodologies and unique capabilities of accessing and studying situations of oppression and exclusion, are even more salient.

D5. Optimising Patient Care (OPC)

The evaluation committee had two main recommendations; (1) invest in young researchers while keeping network and funding capacity and (2) increase focus in methodological themes.

Recommendation 1: *“Expand existing initiatives to promote competences and networking in order to apply for funding and to support young researchers in building up their own networks”*

Over the past few years, the Research Line has undergone substantial changes. The retirement of several senior staff members resulted in the loss of experienced and highly successful researchers. At the same time, this transition created opportunities to recruit a new generation of young researchers. We successfully appointed new researchers within both the Department of Epidemiology and the Department of Family Medicine. Funding potential and networking capacity were explicit criteria in these recruitment decisions, and we will continue to prioritize the development of a strong fundraising mindset. Where possible, newly appointed staff will take over and further develop the networks and opportunities of retiring colleagues, including existing collaborations with specific research or clinical groups and memberships in funding or advisory committees.

Recommendation 2: *“Determine which methodological competences are actually viable in future and to focus even more on them as well as to develop a common strategic goal”*

Building on this renewed research capacity, we were also able to adopt a more strategic approach to our methodological themes. Whereas previously staff within the Research Line largely pursued independent research topics, the current structure allows for clearer prioritization and strengthening of selected methodological areas. New staff were appointed with expertise in cohort studies, prediction modelling, prevention in primary care, and data analysis in general practice. In addition, we organised dedicated team meetings to critically assess our methodological profile and to define priority areas for consolidation and growth. As a tangible outcome, we are currently developing a series of methodology-focused webinars aimed at disseminating expertise within the CAPHRI community and strengthening our visibility and coherence in key methodological domains.

D6. Promoting Health and Personalised Care (PHPC)

Based on the two specific recommendations for Promoting Health and Personalised Care (PHPC) during the previous external review, we (1) sharpened our ideas on how to position ourself within the field and (2) made a more explicit integration of theoretical frameworks, research methods, and intervention design to ensure that the various objectives of different decision makers in these complex interventions are met.

Recommendation 1: *“Create a long-term vision on how the PHPC RL should position itself within the field”*

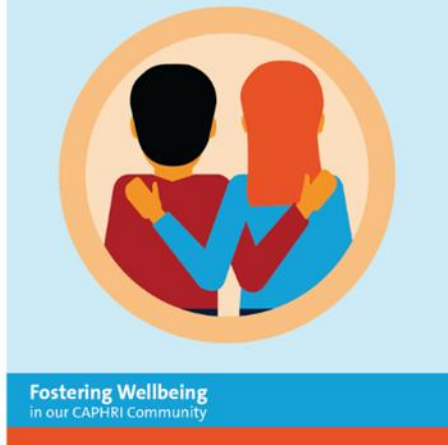
We are well aligned with the current societal debate and agreements between various formal stakeholders in the field of prevention and care. Despite political turmoil that might affect, for example, the Healthy and Active Living Agreement (Gezond en Actief Leven Akkoord GALA) and the Integral Care Agreement (Integraal Zorg Akkoord), we believe that PHPC is well-positioned at the heart of societal challenges related to the change of focus from illness to health, and achieving appropriate care. Examples of these are reducing health disparities, creating healthy environments, strengthening psychological resilience and mental health, and deciding on formal care in a shared decision-making process with the patient/client and those close to them.

Recommendation 2: *“More explicit integration of theoretical frameworks, research methods, and intervention design to ensure that the various objectives of different decision makers in these complex interventions are met”*

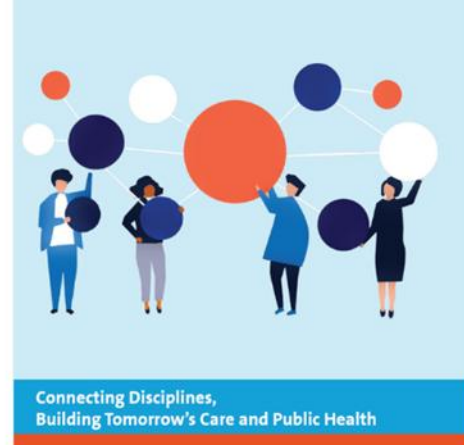
We had two PHPC retreats. During these retreats, we articulated how we believed in cross fertilisation and complementarity rather than actual integration of theoretical frameworks, research methods, and intervention design. We therefore began to sketch out a framework in which we can position our different theories and methods as ‘building blocks’. As we are not aiming for a theory of everything, we took a commonly used approach, Intervention Mapping, as a starting point to distil building blocks based on the perspectives underlying this approach. We identified building blocks (e.g., embracing a participatory approach, using theory and evidence, and adopting a socio-ecological approach) and discussed how we can complement or reinforce each other given these building blocks.



Research Day 2024
19 June



Research Day 2025
18 June



Maastricht University

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