



Care and Public Health Research Institute

A Healthy Society for Everyone

Self Evaluation Report

Part B6: Promoting Health and Personalised Care

1 Mission, strategy and ambition

1.1 Vision, mission, and objectives

Vision

- To promote health and to promote personalised care through integration of scientific theories and evidence with needs and values of individuals.
- To recognise that personalisation and tailoring of prevention and care to the needs of citizens and patients involves active participation and normative reflections of all stakeholders.

Mission

The challenge is to attune population-based methods with highly individualised approaches in health promotion and personalised care, being inclusive for people who are disadvantaged and focusing on implementation issues. We aim to develop and apply theories, interventions and research methods to promote health and to implement personalised care and reflect on relevant ethical implications of developments in public health. Our research focuses on areas such as personalised prevention and health care interventions using innovative eHealth, interprofessional learning, clinical practice guidelines and shared decision-making principles. To optimize societal impact, we collaborate with all relevant stakeholders, such as citizens, patients, health care professionals, scientists and policy makers.

1.2 Strategy and Research Area

Research area

Our research focuses on several areas of interest:

- Investigating (theories about) the **determinants of health behaviour** and health behaviour change.
- Developing and evaluating **health promotion interventions** at various environmental levels (e.g., micro, meso and macro level) and taking into account environmental sustainability.
- Developing and evaluating methods for improving, disseminating, educating and implementing decision support tools for providers and patients, with the aim to improve the **quality of person-centred decision making**.
- Developing and evaluating methods to support **inter-professional collaboration and education in the community**.
- Contributing to the development of an **adequate normative framework** for the handling of ethical issues (of new technologies) in health care and prevention, focusing on the development and implementation of (preventive and therapeutic) personalised medicine, regarding both adults and minors. Challenges that need to be met, illustrated for example by the increasing opportunities for genomic screening in health care, include the concerns about 'medicalisation.' Attuning prevention and care to the needs and values of individuals has the risk of shifting too much responsibilities to individuals, while ignoring societal determinants of health and leading to stigmatising and discriminatory effects.

Improving the **design and analysis of studies in health sciences**, by developing and publishing sound and practical statistical methods and guidelines, and preventing rather than curing statistical problems in health research.

Specific research strategies

The research strategies include a **mix of quantitative and qualitative studies** with national and international partners, aimed at analysing and describing relevant health (care) problems, at developing and evaluating person-centred health interventions, and at developing and evaluating normative frameworks and statistical approaches.

We have gained important insights in the consequences and potential of **participatory approaches involving all stakeholders** in the design (co-creation) and implementation of personalised prevention and care for the individual, (teams of) professionals and the society. This approach is being applied in many projects, with special focus on involving people who are disadvantaged, e.g. people with limited literacy levels. We collaborate with citizens, patients and professionals from a broad variety of backgrounds, to study the complexity and adaptiveness of the community care setting using action research, design-based research and design thinking methodology.

Our research provides the following illustrative examples of deliverables:

- 1 Predictor and change models facilitating personalised and tailored prevention and care. Extensive model testing takes place through both traditional approaches (regression analyses, structural equation modelling) and more advanced techniques (e.g., fuzzy logic, simulation methods)
- 2 Health care and lifestyle interventions based on a combination of evidence- and value-based guidelines and strategies tailored to the communities', teams', or individuals' current and future needs. These interventions address both individual and environmental level factors.
 - a. **Environmental approaches** promote health and support and reinforce healthful behaviours via changes in psychical and social environment in schools, worksites, and communities, but also through the policy environment. For example, through participation in the International Tobacco Control (ITC) Policy Evaluation Project, we study the impact and implementation of smoking policies in various countries.
 - b. **Team directed interventions** such as a web-based tool that supports the assessment of an interprofessional team's strengths and weaknesses in team functioning, and a toolkit for preparing interprofessional education.
 - c. **Personalised prevention and care interventions**, including innovative eHealth infrastructure for collaboration and communication needs, including innovative design-based decision-support and educational strategies such as e-learning and workplace learning for professionals, aimed at informed and where possible shared decision-making.

- 3 An adequate normative framework regarding promoting health and personalised care. The Ethics Section published a Monitoring Report (for the Health Council of the Netherlands) on the ethics of whole genome testing in health care, also used as a basis for Recommendations of the European Society of Human Genetics. The Ethics section recently decided to broaden its focus on the ethics of personalised medicine and to include the ethics of prenatal personalised medicine.
- 4 Up-to-date statistical methods for the design and analysis of studies regarding promoting health and personalised care, such as efficient sample sizes, causal inference, and missing data handling in nested (e.g., cluster randomised and multicentre trials) and longitudinal designs (e.g., prediction and causal inference).

1.3 Specific targets of the past six years (2017-2022)

On the one hand, this mission implies personalised methods that can be translated, disseminated, educated, and implemented on a large scale in interprofessional health care settings applying inclusive and participatory approaches. On the other hand, tailored strategies are needed for reaching larger communities at the meso and macro level to foster a health-promoting climate for both public health and patient care. Consequently, a societal challenge will be to attune population-based methods with highly tailored approaches that are made possible due to recent developments in personalised medicine and patient participation. This mission also calls for innovative, participatory research designs, such as co-creation of interventions with all stakeholders, design-based research and action research.



In the past six years many grant proposals have been written on topics that are illustrative for our mission. We describe some examples based on research objectives in awarded proposals:

Determinants of health behaviour

- What are the effective elements of smoking cessation programs in primary care?
- How can we reduce and prevent health inequalities among women with a lower socio-economic position by a systematic approach towards limited health literacy?

Health promotion interventions

- How can we motivate patients with a lower socio-economic position to reduce their benzodiazepine intake?
- How can we provide efficient and effective support to patients for lifestyle change in order to reduce their cardiovascular risk, using digital (e.g., smartphones) and medical devices (e.g., mobile blood glucose monitors)?

Person-centred decision making

- How can we link patient decision aids to trustworthy guideline recommendations with the aim to improve their use and impact?
- How to train future GPs in skilled person-centred doctor-patient communication in authentic clinical contexts?
- How can we involve all patients in shared decision-making, especially patients with limited health literacy levels?

Interprofessional collaboration and education in the community

- What are organisational conditions for optimal collaboration between health care, social care and citizens?
- Which GP team leadership strategies best support the person centeredness, structure and learning culture within interprofessional primary care teams, and ultimately the person centeredness of care as perceived by frail elderly patients?

Adequate normative framework

- How to responsibly implement personalised medicine, especially genomic screening, at different stages of the life-cycle (preconception, prenatal, postnatal), taking account of relevant normative values and principles?
- How do we respect the autonomy of patients who are unwilling or unable to engage in shared decision-making?

Adequate statistics and designs for studying reliability and agreement of measurements

- How to choose among different statistics to assess reliability and agreement of measurements?
- How to calculate sample sizes for different types of reliability and agreement studies?

2 Description of the Research Line's organisation, composition and financing

2.1 Organisation and embedding of the Research Line

The Research Line 'Promoting Health and Personalised Care' is one of six Research Lines within CAPHRI. Figure 2.1 presents an organisation chart of the research line. Until September 2019 the Daily Board consisted of prof. Hein de Vries and prof. Trudy van der Weijden, meeting every week. Next to this the Daily Board meets every month with representatives of the four units depicted in Figure 2.1 (prof. Hein de Vries, prof. Trudy van der Weijden, prof. Guido de Wert, and dr. Math Candel). Per October 2019, the position of chair is fulfilled by prof. Trudy van der Weijden, and the position of vice chair by the then newly appointed prof. Rik Crutzen. They have switched roles in 2021 to create possibilities for leadership roles for 'next generations.' With the various units, there are also separate meetings to discuss progress and future research plans. Finally, PHPC organises three sessions per year to

discuss new research plans with all PHPC members. Often at an early stage with the aim to explore and stimulate ideas for joint proposals across units.

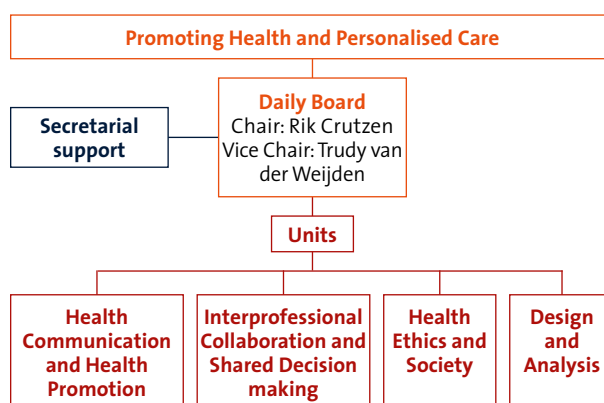


Figure 2.1 Organisation of the Research Line PHPC

2.2 Composition

Table 2.2: Research staff at Research Line level (2017-2022)

Research staff	2017	2018	2019	2020	2021	2022
	#/fte	#/fte	#/fte	#/fte	#/fte	#/fte
Scientific staff FHML ¹	27/8.6	29/8.0	27/7.5	33/8.0	26/6.8	30/7.5
Scientific staff azM	-	-	-	-	-	-
Postdocs ²	8/3.9	10/4.4	6/2.9	5/3.6	8/5.5	13/7.5
Internal PhD candidates ³	21/18.2	19/17.9	16/14.4	16/14.6	13/12.7	14/13.1
	56/30.7	58/30.3	49/24.8	54/26.2	47/25.0	57/27.9
External PhD candidates ⁴	78	93	82	91	72	79

¹ Categories Prof / Assoc. Prof / Assist. Prof; tenured and non-tenured staff appointed at the FHML.

² Category Researcher (¹, ², ³, ⁴), with completed PhD, not belonging to scientific staff (note ¹)

³ Standard PhD (employed)

⁴ External PhD (externally or internally funded but not employed)

2.2 Financing

Table 2.3a: Funding at Research Line level (2017-2022)

Funding	2017		2018		2019		2020		2021		2022	
	Fte	% ⁶	Fte	%	Fte	%	Fte	%	Fte	%	Fte	%
Direct funding ¹	7.4	24%	7.2	24%	7.0	28%	7.3	29%	6.6	28%	7.1	25%
Research grants ²	3.8	12%	3.7	12%	2.7	11%	2.6	10%	5.2	22%	8.3	30%
Contract research ³	18.6	61%	19.3	64%	14.3	58%	15.4	61%	12.0	50%	11.2	40%
Other ⁴	1.0	3%	1.1	4%	0.8	3%	0	0%	0.2	0%	1.2	5%
Total funding⁵	30.7	100%	30,3	100%	24.8	100%	25.3	100%	24.0	100%	27.9	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

Table 2.3b: Research Grants at Research Line Level (2017-2022)

Funding	Order	Grant title	Principal Investigator	2017	2018	2019	2020	2021	2022
Grants	30952209N	ZonMw CRE-OPT	M. van den Akker	€249.470					
	30952213N	NWO Replication	G. Nagelhout	€149.987					
	30952220N	ZonMw Ethiek PM	G. de Wert		€161.594				
	30952222N	ZonMw BEST	E. Hoving			€49.525			
	30952223N	ZonMw Context	E. Giroldi			€249.960			
	30952228N	ZonMw J-IDM	E. Hoving			€390.150			
	30952230N	ZonMw Rookgedrag	G. Nagelhout				€49.665		
	30952233N	ZonMw SENSE Crutzen	R. Crutzen				€160.000		
	30952234N	Aspasia Vanbelle	S. Vanbelle				€150.000		
	30952237N	ZonMw GP Leadership v Dijk	A. van Dijk - de Vries				€249.975		
	30952239N	ZonMw Risk Communication	T. van der Weijden				€70.000		
	30952241N	ZonMw Efficacious	M. Willemsen					€249.970	
	30952243N	ZonM Working Element	R. Crutzen					€172.149	
	30952246N	ZonMw Multimorbidity	T. van der Weijden					€483.375	
	41150637018N	ZonMw PINCOR	J. Burgers						€339.678
Grants Total				€399.457	€161.594	€689.635	€679.640	€ 905.494	€339.678
Contracts	30952210N	PROPERmed	M. van den Akker	€23.813					
	30952212N	PhD traject Jafer	R. Crutzen	€80.000					
	30952214B	SENSE RIVM Crutzen	R. Crutzen	€39.704					
	30952215N	H2020 SCALA	H. de Vries	€546.758					
	30952218N	H2020 SCALA MANAGEMENT	H. de Vries		€325.625				
	30952221N	d-HealthyLife	H. de Vries		€100.500				
	30952224N	Longfonds Tobacco	M. Willemsen			€445.518			
	30952225N	PhD traject Moafa	N. de Vries			€88.000			
	30952226N	LGB GmbH Crutzen	R. Crutzen			€122.500			
	30952227N	Kootstra Abidi	H. de Vries			€60.929			
	30952229N	EIT E-PRO Hoving	E. Hoving			€14.998			
	30952231N	OPEN Crutzen	R. Crutzen				€212.000		
	30952232N	SURF INTER-ACTIE	L. van Bokhoven				€64.625		
	30952235N	LETHE Crutzen	R. Crutzen				€287.023		
	30952236N	NIHR Crutzen	R. Crutzen				€28.000		
	30952238N	CHAFEA ALHAMBRA	H. de Vries				€336.730		
	30952240N	Zelfst. leren SBOH	A. Timmerman					€200.000	
	30952242N	KWF Oncology	T. van der Weijden					€240.000	
	30952244N	Marie Curie SOS TIPS	R. Crutzen					€253.052	
	30952245N	DARTBAC-PHPC	S. Kremers					€255.000	
	30952247N	Samen Beslissen ZINI	M. van Bokhoven					€191.440	
	41150633004N	Phd KU Leuven	G. van Breukelen						€-
	41150636013N	KWF tobacco retail	G. Nagelhout						€230.180
	41150637016N	LIME 2.0 PHPC	T. van der Weijden						€32.000
	41150637017N	SBOH Van Bokhoven	M. van Bokhoven						€233.052
Contracts Total				€690.275	€ 26.125	€731.945	€928.378	€1.139.492	€495.232
Grand Total				€1.089.732	€587.719	€1.421.580	€1.608.018	€2.044.987	€834.910

3 Research Quality and Societal Relevance

3.1 Research quality

3.1.1 Research products for peers

Main categories of research output at Research Line level

Table 3.1a: Main categories of research output (2017-2022)

Since 2021 FHML is using the KUOZ categories for the P&C reports regarding publications. Publications classified as KUOZ category A 'Refereed journal article' are presented below. Please note that - in contrast to KUOZ reports - items do not have to be printed to be included for P&C reports; e-publications are also included.

Research output	2017	2018	2019	2020	2021	2022
Refereed journal articles	214	225	188	195	270	239
PhD theses involved/accounted	13/10.3	13/9.5	12/10.7	14/11.7	11/9.5	18/16

Most important scientific publications

Table 3.1b Most important scientific publications (2017-2022, top-10)

Year	Publication
2017	Elwyn G, Durand MA, Song J, Aarts J, Barr PJ, Berger Z, Cochran N, Frosch D, Galasiński D, Gulbrandsen P, Han PKJ, Härter M, Kinnersley P, Lloyd A, Mishra M, Perestelo-Perez L, Scholl I, Tomori K, Trevena L, Witteman HO, Van der Weijden T. A three-talk model for shared decision making: multistage consultation process. <i>BMJ</i> . 2017 Nov 6;359:j4891. doi: 10.1136/bmj.j4891. PMID: 29109079; PMCID: PMC5683042.
2017	Crutzen R, Peters GY. Scale quality: alpha is an inadequate estimate and factor-analytic evidence is needed first of all. <i>Health Psychol Rev</i> . 2017 Sep;11(3):242-247. doi: 10.1080/17437199.2015.1124240. Epub 2015 Dec 28. PMID: 26602990.
2018	Rivron N, Pera M, Rossant J, Martinez Arias A, Zernicka-Goetz M, Fu J, van den Brink S, Bredenoord A, Dondorp W, de Wert G, Hyun I, Munsie M, Isasi R. Debate ethics of embryo models from stem cells. <i>Nature</i> . 2018 Dec;564(7735):183-185. doi: 10.1038/d41586-018-07663-9. PMID: 30542177.
2018	van Breukelen GJP, Candel MJJM. Efficient design of cluster randomised trials with treatment-dependent costs and treatment-dependent unknown variances. <i>Stat Med</i> . 2018 Sep 20;37(21):3027-3046. doi: 10.1002/sim.7824. Epub 2018 Jun 10. PMID: 29888393; PMCID: PMC6120518.
2019	O'Donnell A, Anderson P, Jané-Llopis E, Manthey J, Kaner E, Rehm J. Immediate impact of minimum unit pricing on alcohol purchases in Scotland: controlled interrupted time series analysis for 2015-18. <i>BMJ</i> . 2019 Sep 25;366:l5274. doi: 10.1136/bmj.l5274. PMID: 31554617; PMCID: PMC6759563.
2019	van der Weijden T, Dreesens D, Faber MJ, Bos N, Drenthen T, Maas I, Kersten S, Malanda U, van der Scheur S, Post H, Knops A. Developing quality criteria for patient-directed knowledge tools related to clinical practice guidelines. A development and consensus study. <i>Health Expect</i> . 2019 Apr;22(2):201-208. doi: 10.1111/hex.12843. Epub 2018 Nov 11. PMID: 30417517; PMCID: PMC6433309.
2020	Ruiter RAC, Crutzen R. Core Processes: How to Use Evidence, Theories, and Research in Planning Behavior Change Interventions. <i>Front Public Health</i> . 2020 Jun 24;8:247. doi: 10.3389/fpubh.2020.00247. PMID: 32671010; PMCID: PMC7326771.
2021	Mastenbroek S, de Wert G, Adashi EY. The Imperative of Responsible Innovation in Reproductive Medicine. <i>N Engl J Med</i> . 2021 Nov 25;385(22):2096-2100. doi: 10.1056/NEJMs2101718. PMID: 34818487.
2022	Geboers C, Candel MJJM, Chaloupka FJ, Nagelhout GE, de Vries H, Van den Putte B, Shang C, Fong GT, Willemsen MC. Trends in individualised affordability of factory-made cigarettes: findings of the 2008-2020 International Tobacco Control (ITC) Netherlands Surveys. <i>Nicotine Tob Res</i> . 2022 Nov 22;ntac259. doi: 10.1093/ntr/ntac259. Epub ahead of print. PMID: 36410657.
2022	Metz G, Peters GY, Crutzen R. Acyclic behavior change diagrams: a tool to report and analyze interventions. <i>Health Psychol Behav Med</i> . 2022 Dec 9;10(1):1216-1228. doi: 10.1080/21642850.2022.2149930. PMID: 36518605; PMCID: PMC9744208.

The most important scientific publications consist of a mix of publications in flagship journals (e.g., *BMJ*, *Nature*) and publications in more focused journals that contribute strongly to use of research product by peers (see next section) or that report on exemplary practices within the field (e.g., the International Tobacco Control (ITC) Policy Evaluation Project).

3.1.2 Use of research products by peers

Figure 3.1 provides an overview of the Category Normalised Citation Impact (CNCI) of our Research Line. The CNCI is the ratio of citations received by an output, against the average

for other outputs of the same age, publication type and subject area. The strength of this indicator is that it corrects for differences in citation frequencies that are attributable to age, document type and subject area, which makes it suitable for benchmarking.

A CNCI of 1 means that a publication is cited as frequent as the world average regarding its publication year, document type and subject area. Since citation distributions are heavily skewed - 20% of outputs receive 80% of citations - we plotted the CNCI in a histogram with bins, that take this into account.

The figure shows that 39% of our publications have a CNCI >1 and are cited more frequently than the world average. Of our publications, 1.7% is cited >8 times the world average. The Centre of Science and Technology Studies (CWTS) has developed a citation-based classification algorithm that clusters publications based on their cited and citing relationships. When looking at the micro level clustering of topics, then the number of publications concerning ‘smoking cessation’ score highest. Publications concerning ‘physical activity’, ‘alcohol’, and ‘shared decision making’ contribute most to the CNCI. These topics reflect the research area of our Research Line.

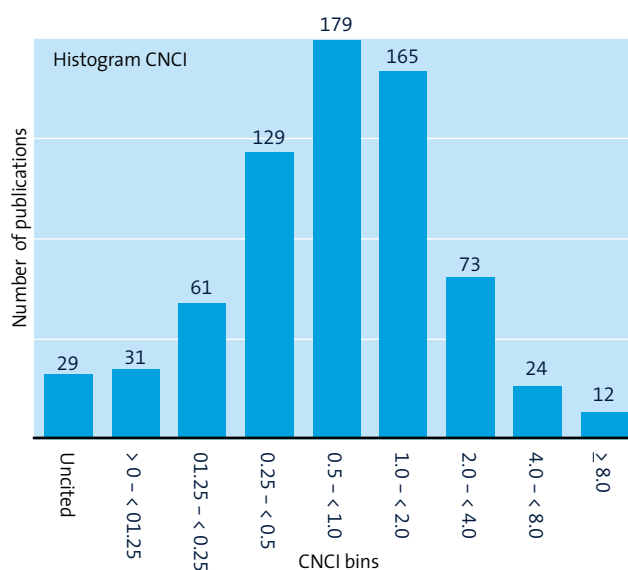


Figure 3.1 Category normalised citation impact

3.1.3 Marks of recognition from peers Scientific Awards or Public Societal prizes

Table 3.1a: Most important scientific awards or public societal prizes (2017-2022, top-10)

Year	Name	Scientific Awards/Public Societal prizes
2017	A. Oenema	Recognition as one of the Top-authors in the field of e- and m-health for healthy eating and physical activity, by the ISBNPA special interest group on e- and m-health.
2017	R. Crutzen	Honorary Principal Research Fellow in Behaviour Change, Centre for Technology Enabled Health Research (CTEHR), Coventry University, United Kingdom
2017	G. Nagelhout	G. Nagelhout; Young Professional Award 2017, European Cancer League (ECL) and European Conference on Tobacco or Health (ECToH)
2019	K. Peetoom	The Catharina Pijls Thesis Award (2019)
2019	S. Beurskens	Melanie Kleynen received the annual Dissertation award, Royal Dutch Society of Physical Therapy (KNGF)
2020	L. van Bokhoven and A. van Dijk (Zorgnetwerk Elsoo)	John Horder Team Award 2020, The Center for the Advancement of Interprofessional Education (CAIPE) and The Royal Society of Medicine from the United Kingdom
2020	R. Crutzen	Honorary Professorial Fellow within Melbourne School of Psychological Science, University of Melbourne, Australia
2020	N. Bartelink	“CaRe Award 2020” Cum Laude PhD thesis <i>“Evaluating health promotion in complex adaptive school systems: The Healthy Primary School of the Future”</i> .
2021	E. Steenaart	CAPHRI Dissertation Award
2022	N. Dukers-Muijrs	Dissertation award for Volker Hackert. Mapping Underestimation in Q Fever: Insights from a Major Cross-border Outbreak in the Meuse-Rhine Euroregion. University Maastricht/CAPHRI and PHS South Limburg. 7 Sept. 2021. Promotors: Christian Hoebe and Thomas Krafft. Copromotor: Nicole HTM Dukers-Muijrs (CAPHRI Dissertation award 2022)

Research grants

Table 3.1b: Research grants awarded to individuals (2017-2022)

Year	Name	Type of grant
2018	K. Cheung	Kootstra Talent Fellowship
2019	L. Abidi	Kootstra Talent Fellowship
2019	K. Cheung	VENI - grant (not accepted because of transfer to Brunel University London)
2020	S. Vanbelle	ASPASIA - grant (NWO)
2021	S. Zörgő	EU Marie Curie Fellowship

3 Research Quality and Societal Relevance

Invited lectures

Table 3.1c: Most important invited lectures (2017-2022 top-10)

Year	Name	Which organisation	Name event	Name lecture/workshop
2017	Jako Burgers	Royal College of General Practitioners	Annual Primary Care Conference Liverpool 12-14 Oct	Keynote: Are Dutch GPs happier than their UK colleagues, and if so, why?
2018	Guido de Wert	American Society of Human Genetics	Annual Congress, Vancouver	Germline genome editing: Recommendations of ESHG and ESHRE
2019	Sophie Vanbelle	International Society for the Measurement of Physical Behaviour	Invited plenary presentation at the International Conference on Ambulatory Monitoring of Physical Activity and Movement (ICAMPAM)	Workshop: Measuring error without error: reliability, agreement and validity of performance tests
2019	Rik Crutzen	University of Melbourne	Invited colloquium, resulting in visiting professorship at Melbourne University	Evolutionary learning processes as the foundation for behaviour change
2019	Trudy van der Weijden	European Association of Psycho-Somatic Medicine	International EAPM conference 21-06-2019 Rotterdam	Key note Shared Decision Making
2019	Gerard van Breukelen	KU Leuven	Leuven Statistics Days, Belgium	Keynote Efficient sample sizes for trials with clustered data: how to deal with unknown and heterogeneous variance parameters, and with cluster size variation, in the design stage?
2021	Jako Burgers	European GP Research Network	92 nd meeting (digital) April 30	Keynote What matters most? Development of a research agenda for general practice
2022	Trudy van der Weijden	CEBAM	International conference 20 years CEBAM, Brussel	Patient participation in decision making
2022	Rik Crutzen	ECO	Invited plenary presentation at European Congress on Obesity	Digital technology approaches to prevention and treatment of obesity
2022	Sarah Stutterheim	RESET	Invited talk at the HIV & Mental Health Symposium, Rotterdam, the Netherlands.	An intervention to reduce self-stigma in people with HIV

Memberships of scientific committees, boards or editorships

Table 3.1d: Most important memberships of scientific committees, boards or editorships (2017-2022 top-10)

Year	Name	Which organisation	Which role
2009-2024	Jelle Stoffers	European Journal of General Practice	Editor-in-Chief (currently 3 rd 5-year term)
2017-now	Jako Burgers	Adviescommissie Kwaliteitsstandaarden (AQUA), Z orginstituut Nederland	Chair
2017-2019	Trudy van der Weijden	Netherlands Organisation for Health Research and Development (ZonMW) programme committee "Kwaliteitsstandaarden"	Chair
2017-2023	Rik Crutzen	Health Psychology Bulletin	Editor-in-Chief
2018-now	Sophie Vanbelle	Biometrical Journal	Associate editor
2017-now	Hein de Vries	Psychology & Health	Associate editor
2020-now	Nanne de Vries	NWA-committee for route Health and Prevention	Member
2020-2021	Jako Burgers	WONCA Europe Conference	Chair Scientific Committee
2022	Rik Crutzen	European Health Psychology Society Conference	Scientific Committee member
2022 - now	Shahab Jolani	Methodology: European Journal of Research Methods for the Behavioral and Social Sciences	Associate editor

3.2 Relevance to society

3.2.1 Research products for societal target groups

Public events

Table 3.2a: Public events: lectures/workshops for health care professionals and/or general public/patients (2017-2022 top-10)

Year	Name	Public event
2017	Trudy van der Weijden	Conference Swiss Society of general internists. Lausanne 03-05. Key note Guidelines and shared decision making.
2017	Wybo Dondorp	PAOG Jeugdgezondheidszorg Maastricht 28 maart 2017 Lecture 'Drang en dwang in het belang van het toekomstige kind? Ethiek van prenatale en preconceptionele kinderbescherming'
2017	Ciska Hoving	Bijeenkomst KWF Vrijwilligers Heerlen-Hoensbroek. Workshop on Rokers Steunen met Stoppen (KWF-financed projects).
2017	Jos Kleijnen	European Centre for Disease Prevention and Control - Stockholm - 13 - 16 March 2017 4-Day Course: Evidence based methods and tools for decision-making in public health with special emphasis on infectious diseases.
2018	Hein De Vries	eitHealth Brussels: workshop motivation and health behaviour
2018	Rahim Taghziadeh Asl	Workshop in strengthening capacity for HIA for the team of experts from the Ministry of Health of Iran
2019	Trudy van der Weijden	Nationaal Oncozon symposium. 23-05. Samen beslissen in oncologie: Richtlijnen, MDO en opleiden.
2020	Trudy van der Weijden	VGcT najaarscongres (Wet Ver cognitief gedragstherapeuten). 05-11 Evidence-based werken is het blootleggen van onzekerheid. Patient participatie in richtlijn ontwikkeling
2022	Rik Crutzen	1 ^e Henk Garretsen lezing (The first person to be invited to deliver this named lecture after Henk Garretsen was knighted.). Topic: Participatie, systeemdenken en nog een crisis
2022	Guido de Wert	Is kiembaanmodificatie ethisch verantwoord? Lecture at Dutch Health Council

Most important societal publications/outputs

Table 3.2b: Most important societal publications/outputs per year of the research programme (2017-2022, top-10)

Year	Publications/outputs
2017	Henk Jochemsen, Wybo Dondorp, Guido de Wert. Menselijke organen kweken in dieren: een ethische discussie. www.rijksoverheid.nl/documenten/rapporten/2017/03/01/menselijke-organen-kweken-in-dieren-ee-ethische-discussie
2018	Jany Rademakers WHO Health evidence network synthesis report 57
2018	Steenart, E., Crutzen, R., & De Vries, N.K. (2018). Geen bezwaar tegen de nieuwe donorwet, maar wel nog meer verantwoordelijkheid. Tijdschrift voor Gezondheidswetenschappen, 96 134-135.
2019	van Dongen J, van Bokhoven L, Goossens W, Daniëls R, van der Weijden T, Beurskens S. Steeds complexere zorg vraagt om teamwerk. Huisarts Wet 2019; 62:DOI: 10.1007/s12445-019-0305-6.
2019	Rapporten KWF kankerbestrijding Slim in de zon. <ul style="list-style-type: none"> • Thoonen, K., Willems, M., Schneider, F., De Vries, H., & Van Osch, L. (2017). 'Slim in de Zon': Eerste nameting. Maastricht: Vakgroep gezondheidsbevordering • Thoonen, K., Van Lierop, M., Schneider, F., De Vries, H., & Van Osch, L. (2018). 'Slim in de Zon': Tweede nameting. Maastricht: Vakgroep gezondheidsbevordering • Thoonen, K., Winkens, B., Schneider, F., De Vries, H., & Van Osch, L. (2019). Eindrapportage 'Slim in de Zon'. Maastricht: Vakgroep gezondheidsbevordering
2021	Baghus A, Timmerman A, Giroldi E, Henselmans I, Muris J, Van der Weijden T. Tips voor aiossen en opleiders over Lereren van Samen Beslissen. Huisarts Wet 2021;64:DOI:10.1007/s12445-021-1174-3.
2022	Crutzen, R. (2022). Participatie, systeemdenken en nog een crisis. Tijdschrift voor Gezondheidswetenschappen, doi: 10.1007/s12508-022-00359-6.
2022	Gezondheidsvoorlichting en gedragsverandering: Een planmatige aanpak (Brug, Van Assema, Kremers & Lechner). 10 th (!) edition of Handbook for future health professionals.
2022	Sanne van Hout - Onverwacht. A book aimed at the general public to provide insight into the difficult choices surrounding prenatal screening.
2022	Book for educational purposes: Tan F.E.S., Jolani S. (2022). <i>Applied linear regression for longitudinal data</i> . New York: Chapman & Hall/CRC.

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3.2.2 Use of products by societal groups

Advisory reports

Table 3.2c: Advisory reports for policy makers and/or clinical guidelines (2017-2022, top-10)

Year	Name	Advisory reports
2017	Henk Jochemsen, Wybo Dondorp, Guido de Wert.	Contributions to European Guidelines/Recommendations: De Wert, Van der Hout over Ethics/Preconception Carrier Screening (on behalf of ESHRE) De Wert et al Germline Genome Editing (on behalf of ESHRE & ESHG)
2017	Jos Kleijnen	“Evaluation of NIHR investment in Cochrane infrastructure and systematic reviews” National Institute for Health Research, UK
2017	Trudy van der Weijden	Zorginstituut Nederland. Rapport Leidraad voor ontwikkelen van keuzehulpen bij en lekenversies van richtlijnen voor de klinische praktijk.
2017	Jany Rademakers	Nederlandse Vereniging Ziekenhuizen (NVZ). Garritsen, H., Boer, D. de, Gaag, M. van der, Rademakers, J. De toegankelijkheid en bruikbaarheid van patiëntenportalen voor mensen met lage gezondheidsvaardigheden: inzichten voor het Versnellingsprogramma
2018	Karlijn Thoonen	State of the art report on current sun safety policy at recreational areas in the Netherlands
2019	Jako Burgers	NHG-Standaard Cardiovasculair risicomanagement
2019	Jako Burgers	NHG-Standaard Depressie Angst
2020	Ree Meertens	Advisory report ‘Gespoten pur-schuimisolatie en gezondheid’, The Hague: Health Council of the Netherlands, 2020; publication no. 2020/24. (I was involved as a member of the committee)
2021	Gera Nagelhout	Advisory report for Ministry of Health; Kok, L., Nagelhout, G. E., Poole, N., & Smits, T. (2021). Beperken tabaksverkoop tot tabaksspecialzaken [Limiting tobacco sales to tobacco specialty shops]
2022	Gera Nagelhout	Advisory report for Ministry of Health, Ministry of Social Affairs, Ministry of Justice, and six municipalities; Jansen Lorkeers, L., 't Hooft, S., Lenkens, M., Wits, E., & Nagelhout, G. E. (2022). Midden en Oost-Europese werknemers in kwetsbare posities. Handvatten voor preventie en terugdringen van dakloosheid en verslaving [Middle and Eastern European employees in vulnerable positions. Guidelines for prevention and reducing homelessness and addiction]

Collaborative projects

Table 3.2d: Collaborative projects implemented with/for professionals, non-scientific organisations, companies or public entities (2017-2022, top-10)

Year	Project	Non-scientific partner organisation
2016-2018	Leidraad ontwikkeling keuzehulp bij klinische praktijk richtlijn, o.l.v. Trudy van der Weijden	Zorginstituut, Patiëntenfederatie NL, FMS, NHG, V&VN www.zorginzicht.nl/ontwikkeltools/ontwikkelen/leidraad-hoe-maak-ik-keuzehulp-bij-richtlijn
2017-2019	Onrust bij Ouderen: een wijkgerichte aanpak'. Development and implementation of tools for interprofessional care for elderly patients with delirium	Stichting Zorgnetwerk Elsloo. Implementation project funded by CZ and VGZ
2017-2022	“Scale up SCALA of Prevention and Management of Alcohol Use Disorders and Comorbid Depression in Latin America H2020 Project; Project author and coordinator)	Ministries of health, municipalities and civil society organisations in Colombia, Mexico and Peru.
2017-2019	Beter omgaan met beperkte gezondheidsvaardigheden in de curatieve zorg; kennis, methoden, tools	Pharos, Patiëntenfederatie Nederland, AMC Zorgsupport, ZonMw
2018- 2023	Financial incentives for successful smoking cessation: An implementation study to increase reach and adoption among companies and their employees with a low socioeconomic status	SineFuma, Pharos, Zuyderland Medisch Centrum, Trimbos-instituut, Long Alliantie Nederland, Centre for Motivation and Change, Heartbeat Ventures, NVAB, HumanCapitalCare, Zilveren Kruis, InGuide, Brandweer Zuid-Limburg, SBCM
2020-current	SaNAE-study. Prospective cohort on changes in social networks and impact on health in middle aged and older people.	Public health service South Limburg, Public Health service Limburg North, Academic Workplace Public Health Limburg
2022	Involving all patients in decision-making Multimorbidity and limited health literacy. (J. Rademakers en T. van der Weijden)	Patiëntenfederatie NL - NHG
2022-current	Limburg4Zero 'Integral Approach to HIV prevention' including a home-care programme for sexual health.	Public health service South Limburg, Public Health service Limburg North, COC, GPs, MUMC+, Academic Workplace Public Health Limburg
2022- 2026	The next step in smoking prevention: the reduction of tobacco retail outlets, a comprehensive policy evaluation	The Investigative Desk.
2018-2020	ZonMw-Consortium Ethical and legal issues of personalised medicine (ELSI-PM)	Citizens and professionals

Patents or Spin-offs

Table 3.2e: Patents or spin-offs (2017-2022)

Year	Name	Describe patent/spin-off	Title patent/spin-off	Status patent/spin-off
2019	Math Candel	A menu-driven computer programme for sample size calculation for two-level cost-effectiveness trials	SamP2CeT	Paper has been published on this program, which is freely available as supplement to the paper
2020	Sandra Beurskens, Anneke van Dijk	The Co-creation Impact Compass supports choices concerning suitable co-creation methods in each phase of a project. It is aimed at researchers, project leaders, teachers and students.	Co-creation Impact Compass	Active
2019	Sophie Vanbelle	R-programme to compare dependent kappa coefficients. Kappa coefficients can be calculated on multilevel data and can be calculated between pairs of observers and between several observers	multiagree	Programme is referred to in paper, and available from: https://github.com/svanbelle
2022	Samvel Mkhitarian, Nanne de Vries, Rik Crutzen	A Python module for constructing and analyzing fuzzy cognitive maps	FCMpy	Paper: https://peerj.com/articles/cs-1078/ GitHub: https://github.com/SamvelMK/FCMpy

3.2.3 Marks of recognition by societal groups

Memberships of civil society advisory bodies

Table 3.2f: Memberships of civil society advisory bodies (2017-2022, top-10)

Year	Name	Which advisory body	What kind of membership
2018	Jako Burgers	Adviescommissie Kwaliteitsstandaarden (AQUA), Zorginstituut Nederland	Vice chair
2018	Jako Burgers	Richtlijnadvies en Autorisatiecommissie (RAC) Nederlands Centrum Jeugdgezondheid	Chair
2018	Ree Meertens	Dutch Health Council (Gezondheidsraad)	Member advisory permanent committee Public health (beraadsgroep Volksgezondheid)
2018	Wybo Dondorp	Lid Gezondheidsraad	
2018	Patricia van Assema	Committee Interventions for adults of the Dutch Recognition System, National Institute for Public Health and the Environment of the Ministry of Health, Welfare and Sport (RIVM)	Committee Member
2018- 2022	Jany Rademakers	Advisory board College Beoordeling Geneesmiddelen (CBG)	Member
2020-current	Rik Crutzen	Ministry of Health, Welfare and Sport (VWS)	Chair of Task Force Behavioural Sciences
2020- 2022	Gera Nagelhout	Scientific board Platform31 (knowledge and network organisation for cities and regions in the Netherlands)	Member
2021	Francine Schneider	Stuurgroep Huidkankerzorg	Member
2022	Rik Crutzen	VeiligheidNL	Board of Trustees

3 Research Quality and Societal Relevance

3.3 Case studies

PHPC	The OPEN project: Online access to medical information in primary care: the patient's perspective	Introduction of new technological possibilities is investigated together with multiple partners, combining perspectives of patients, professionals, and data from the Dutch GP Information System (HIS)
PHPC	Learning to talk about alcohol consumption; Prevention of heavy drinking in Latin America (SCALA)	Scaling up a screening and intervention programme that proved successful in the past and adapting it to the local context in three countries
PHPC	Shared Decision-Making benefits all patients	Implementation of personalised care, including innovative co-creation or design-based strategies

⁰¹ | www.maastrichtuniversity.nl/research/caphri/our-research/promoting-health-and-personalised-care/online-access-medical

⁰² | www.maastrichtuniversity.nl/research/learning-talk-about-alcohol-consumption

⁰³ | www.maastrichtuniversity.nl/research/caphri/our-research/promoting-health-and-personalised-care/implementation-shared-decision



4 Collaborations, strategic partnerships and infrastructure

Collaborations, partnerships and infrastructure reflect our research focus as highlighted in the areas of interest in section 1.2. To make this more tangible, we provide examples with a focus on a specific area of interest, on various levels, ranging from regional to national to international. A national example of a *collaborative effort* focuses on improving the **quality of person-centred decision making**. This is done by means of research on the implementation of the 'integrated oncological decision model' (IODM) in oncology networks. KWF granted nearly €1M for a consortium of 4 centers (Leiden University Medical Center, Maastricht University Medical Center, University Medical Center Groningen and Zuyderland Medical Center). Trudy van der Weijden leads the Maastricht part of the study that aims to further develop the IODM, fitting the routines of the care teams in daily practice.

Information regarding three domains will be gathered in the oncological care pathway, to serve the decision-making process from the start:

- 1 guidelines-based treatment options, with advantages and disadvantages;
- 2 general health status, and;
- 3 patients' goals and preferences. We hypothesize that with the integration of all information in the IODM, treatment decisions will more often differ from recommendations of the MDT that are often only based on medical technical information (i.e., increased discordance). The information is integrated, interpreted, and used for deliberation among the health care professionals and with the patient, to serve a process of SDM over time. The chosen study design is an experienced based co-design of the final IODM and implementation strategies tailored to the needs of the end users, and a stepped wedge trial with process and effect-evaluation.

The contribution to the development of an **adequate normative framework** for the handling of ethical issues (of new technologies) in health care and prevention is an international example. Guido de Wert led this *collaborative development* of the Recommendations of the European Society of Human Genetics (ESHG) regarding Opportunistic Genomic Screening (OGS), which are a professional standard. From a normative perspective, the distinguishing characteristic of screening is not so much its context (whether public health or health care), but the lack of an indication for having this specific test or investigation in those to whom screening is offered. Screening entails a more precarious benefits-to-risks balance. The ESHG continues to recommend a cautious approach to opportunistic screening. Proportionality and autonomy must be guaranteed, and in collectively funded health-care systems the potential benefits must be balanced against health care expenditures. With regard to genome sequencing in pediatrics, ESHG argues that it is premature to look for later-onset

conditions in children. Counselling should be offered and informed consent is and should be a central ethical norm.

A third example is *the strategic partnership* in the region with Zuyd University of Applied Sciences, embodied in part time appointments of talented Zuyd researchers in our Research Line, such as Albine Moser and Emmylou Beekman. The project LIME (Limburg Meet; www.limeconnect.nl) nicely reflects this strategic partnership. LIME was founded so that the province of Limburg, Zuyd University of Applied Sciences, the University of Maastricht, and the Brightlands campuses together with health-care professionals, patients, and the industry can both improve health-care and make it more efficient. Rik Crutzen is the responsible person from Maastricht in a project that centers around the idea of **interprofessional collaboration and education in the community**. The aim of the project is to implement relevant measurement of clinical and lifestyle aspects supported by eHealth in primary care in such a way that it is of added value to both health professionals and patient. This is done by means of an intensive co-design process together with twelve care organisations within the province of Limburg. Four types of health professionals within these organisations are actively involved in this project: practice nurses, speech therapists, occupational therapists, and physiotherapists.

The final example is the International Tobacco Control (ITC) Policy Evaluation Project in which Marc Willemsen and Hein de Vries lead the Dutch efforts in this regard. The ITC project enabled an *infrastructure* to study the impact and implementation of smoking policies in various countries. This infrastructure is exemplary for other **health promotion interventions** at macro environmental levels. The ITC Project is the first-ever international cohort study of tobacco use. This initiative was started in 2005 and meanwhile, in 2022, ITC Surveys are being conducted in 31 countries inhabited by over 50% of the world's population, over 60% of the world's smokers, and over 70% of the world's tobacco users across all 6 WHO Regions. Consistency in survey measures across ITC countries enable cross-country comparisons to measure differences in strength of policy implementation and impact over time.

5 Trends, SWOT, strategic plans and viability

5.1 Trends, SWOT and strategic plans

5.1.1 Trends

As the research of the Research Line focusses on several areas, it is important to take a broad-ranging outlook on relevant trends in the coming years:

- Multiple lifestyle health promotion, including hygienic and physical distance behaviour in times of infectious epidemics, is becoming increasingly important, both on population as well as on patient level.
- Increased emphasis on the role of informed and shared decision-making and goal setting, both for patients with health problems, as well as for prevention and creating value for the society.
- Integration of prevention and personalised care in the larger chain of public health and realising supportive health-promoting policies to foster a supportive and sustainable environment for promoting health and personalised care for the general population and specific at-risk populations.
- Increased emphasis on the importance of interprofessional collaboration and learning, especially in complex care decision-making to facilitate person-centred care for people with complex care needs.
- Increased emphasis on multi-stakeholder involvement for developing and executing projects on public health and primary care, requiring more intensive preparation and meetings.

- Increased emphasis on the role of digital interventions and how best to implement them.
- Democratisation of professional knowledge may enable higher-educated clients/patients, but it may have adverse effects with regard to the vulnerable subgroup of clients/patients that suffer from limited literacy. This development may further challenge the principle of equity.
- With the increasing emphasis on research integrity, sound methodological and statistical practices become a more important part of the research process.
- Increased emphasis on personalised prevention and care will pose new challenges for statistical analyses, such as uncovering person-treatment interactions and how to best deal with study attrition.
- The inherent and vexing moral issues in new health care technologies (e.g., pre-conceptional developments) and shifts in health care make systematic ethical reflections, normative frameworks, and moral guidelines ever more important, both nationally and internationally.
- By providing health care, conducting research and teaching, university medical centres unfortunately also contribute to the climate crisis (e.g. the health care sector is responsible for about 7% of the national footprint in terms of the emission of CO₂-equivalent). They intend to change this situation, for greener health care, research and education.

5.1.2 The SWOT analysis

Table 5.1: SWOT analysis of the Research Line

Strengths	Weaknesses
<ul style="list-style-type: none"> • Good staff quality reflected by continuous acquisition, number and quality of PhDs and scientific publications • Epistemic diversity within Research Line, also cover a wide methodological spectrum and is reflected in multidisciplinary projects • Many PhDs are shared projects in which we collaborate with other CAPHRI Research Lines or other schools • Appealing to various external parties (stakeholders, staff, students) on the national level • Societal impact due to collaboration with organisations in a variety of domains (health promotion, clinical practice guidelines, shared decision-making, health literacy, ethics) • Many research projects result in tangible products, such as interventions, guidelines, and decision aids 	<ul style="list-style-type: none"> • Some highly successful senior staff are reaching retirement age and we have to attract new staff in a competitive job market - and moving to Maastricht implies mobility of staff and their families • Difficulty recruiting qualified statistical staff • Sometimes we are competing against each other in prestigious individual grant schemes (e.g., Veni, Vidi, Vici) within our domain • Everyday demands sometimes result in less attention for long-term vision on how we should position ourselves within the field
Opportunities	Threats
<ul style="list-style-type: none"> • Further facilitate the mutual strengthening of the various inputs from the unit members • Multiple lifestyle behaviour, informed and shared decision-making and realising a healthy context (e.g., via policies) are upcoming themes at both the societal and scientific levels (Integraal Zorg Akkoord) • Our expertise fits perfectly to the call for innovative, participatory research designs (NFU 'Onderzoek dat er toe doet', RVS 'Zonder context geen bewijs') • Collaboration with various regional organisations, such as Zuyd University of Applied Science (e.g., in Kennis- en Innovatieagenda Zuidoost-Nederland) • Prevention is receiving more attention at a national level (e.g., through Sectorplan Preventie) • Euregional position of Maastricht University (e.g., euPrevent is a regional network that focusses on promotion health) 	<ul style="list-style-type: none"> • Many other research institutes within the Netherlands are 'suddenly' also paying attention to prevention - we do collaborate with them, but we could suffer from first-mover disadvantage • Parties in the field (e.g., National Health Care Institute, municipalities) are sometimes more in need of more service-oriented research (direct application, brief time period) - and we may not be an attractive partner • Most research funding is available for applied research, which is beneficial to our Research Line, but fundamental research is also needed for scientific progress

5.1.3 Strategic plans

- 1 We will actively recruit new staff members through our (inter)national network. In the short run (i.e., this year), for example, there will be a senior position available for a Professor in Health Promotion.
- 2 In meetings of our Research Line, we will join forces at the stage of proposal development in order to strengthen the collaboration and to avoid competing against each other.
- 3 We will exploit upcoming opportunities provided by the 'Sectorplan Preventie' and 'Integraal Zorg Akkoord' to shape, not only follow, a long-term vision concerning prevention and shared decision-making.
- 4 We will explore whether we can embed more fundamental aspects of research in existing projects and in our future acquisition activities.

5.2 Viability

Our Research Line consists of several viable research elements (e.g., eHealth, shared decision-making, interprofessional collaboration, and ethical reflections). Our Research Line also has a multi-disciplinary team with strong national and international collaborations with research groups as well as with several national organisations and NGOs. Several senior researchers have a strong track record in acquisition. Besides attracting new senior staff (see strategic plans), we also aim to transfer these skills to the early- and mid-career research members. This inclusion is a vital part of the capacity-building

process that we aim to reinforce in our Research Line, which will result in an increased number of successful national and international collaborations, and maintenance of the current acquisition level.

Within our Research Line, we profit from the mixed-methods and multidisciplinary perspectives on research, which is increasingly adopted by the staff. The epistemic diversity within our Research Line is a driving force that is viable to innovate research projects and crucial to optimally benefit from cross-fertilisation across units. In closing, we share two recent examples of this cross-fertilisation. First, within the unit Health, Ethics and Society, we recently appointed an Assistant Professor whose work focusses on ethical challenges concerning eHealth. This research touches upon certain fundamental aspects concerning the applied work within the unit Health Communication and Health Promotion. Second, Intervention Mapping is a systematic approach to develop, implement, and evaluate health promotion interventions. This approach is well-established within the unit Health Communication and Health Promotion. One of its fundamental principles is the use of a participatory approach. This methodology aligns nicely with developments within the unit Interprofessional Collaboration and Shared Decision-Making where implementation science models, co-creation, and design thinking methodology are gaining popularity. Hence, we are confident about the viability of and potential for innovations in our Research Line in the next years.





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