

**Research Assessment**  
**Research Institute Science in Healthy Ageing and healthcare (SHARE)**  
**University Medical Center Groningen**  
**2015-2021**

19 April 2022

## **Summary SEP assessment of the Research Institute Science in Healthy Aging and Healthcare (SHARE)**

SHARE programmes were assessed as very productive, generating increasing numbers of publications and PhDs in topics with clear clinical importance. SHARE's investigation of innovative and DORA proof scientific impact metrics such as the field-weighted citations index is especially applauded. The PRC also praises the new governance structure and close affiliation with AJSPH which have strengthened SHARE's brand as a 'Prevention Institute'. The capacity of SHARE to generate high-quality big-data science and so contribute to Open Science principles has been highlighted, as was the world-leading work of the VALUE program. SHARE's key indicators, ties with non-academic organizations and contribution to policy and public debate demonstrate clear societal relevance. SHARE's research funding has increased substantially over the past years and overall, the funding profile shows stability. PhD training and support is excellent and SHARE has emerged as a successful graduate school, while academic culture on the whole has been assessed as positive, stimulating and collegial.

### **Research quality**

- Support SHARE in fulfilling a leading role in the implementation of Open Science principles given its investment in research cohorts, biobanks, and big data.
- Developing alternative and DORA-proof metrics of research quality which move beyond classical quantitative criteria is encouraged.

### **Societal relevance**

- Develop a more progressive approach to patient involvement through co-design and align indicators of societal relevance across all research programs.

### **Viability**

- Explicitly ingrain the concept of prevention into Institute identity.
- Stimulate interaction among researchers through peer-to-peer support, collaborative applications for grants, and reflection research quality and societal relevance indicators.
- The ratio between senior researchers, postdocs and PhDs could negatively affect career opportunities and research initiatives. High PhD student numbers, long PhD duration and the potential inequality between employed and bursary PhDs are a concern.

CONTENTS

**Assessment of the Research Institute Science in Healthy Ageing and healthcare (SHARE) ... 3**

- 1. Introduction to the Institute ..... 3
- 2. Aims and strategy ..... 4
- 3. Qualitative Evaluation ..... 4
- 4. Recommendations ..... 11

# Assessment of the Research Institute Science in Healthy Ageing and healthcare (SHARE)

## 1. Introduction to the Institute

Research Institute SHARE (Science in Healthy Aging and healthcaRE), founded in 1989 and originating from the Northern Center for Healthcare Research, provides a science platform and research network for multiple UMCG departments and other faculties of the University of Groningen (UG). SHARE aims to be the main UMCG Institute for preventive therapy and medicines: its researchers investigate healthy aging and disease, public health, and healthcare services by connecting researchers from many different fields, including epidemiology, health economics, movement sciences and psychology. An important partner for SHARE and one of the main vehicles for external collaborative initiatives is the Aletta Jacobs School of Public Health (AJSPH). AJSPH is a joint partnership of the University of Groningen, UMCG and the Hanze University of Applied Sciences and aims to support and promote knowledge and expertise on healthy ageing in the Northern Netherlands.

SHARE consists of 9 research programmes, clustered in three domains:

### *Emotion, Cognition and Behavior*

- Interdisciplinary Center for Psychopathology & Emotion Regulation (ICPE)
- Health Psychology Research (HPR)
- Lifelong learning, Education & Assessment Research Network (LEARN)

### *Public Health Services, Epidemiology & Economics*

- Public Health Research (PHR)
- Life Course Epidemiology (LCE)
- Value, Affordability & Sustainability (VALUE)
- Reproductive Origins of Adult Health & Disease (ROAHD)

### *Movement*

- Extremities Pain & Disability (EXPAND)
- Smart Movements (SMART)

SHARE is guided by an interdisciplinary Management Team (MT) with five members, each responsible for specific focus areas. The SHARE Director (Prof. Maarten Postma) chairs the MT and represents SHARE at the monthly GSMS Education Committee. Prof. Mariët Hagedoorn coordinates grant acquisition and monitoring of grants. Prof. Koen Lemmink coordinates branding of SHARE in close collaboration with the Aletta Jacobs School of Public Health (AJSPH). Prof. Nynke Smidt enhances internal communication among the various programmes. Prof. Jochen Mierau represents the AJSPH in the MT. Currently, Birte Klusman represents the PhD Council in the MT. Truus van Ittersum is the policy officer and coordinator of SHARE. The SHARE Educational Committee (chaired by Prof. U Bültmann) is responsible for monitoring the quality of the educational programme and the development of new courses. Participation in SHARE is mainly bottom-up: researchers and clinicians are appointed in departments organized around their medical specialisms or their scientific disciplines. On top of that, they choose a research institute that they feel best covers their research interests. In 2020, the staff of the Institute consisted of 154 tenured members of staff, 41 postdocs (~36 FTE) and 482 PhD students from the various departments and faculties.

## 2. Aims and strategy

SHARE's mission is to identify determinants and consequences of healthy ageing and disease by working within multidisciplinary research teams in close collaboration with other societal stakeholders. The Institute investigates and evaluates factors and interventions that are related to populations, patients and/or healthcare systems with a focus on the prevention of disease and illness and their sequelae. It aims to increase the knowledge on prevention of and adaptation to disease, by leveraging the societal participation of patients with chronic somatic and mental disease and by evaluating the effectiveness (and cost-effectiveness) of pharmaceutical, medical, lifestyle, physical activity, and psychosocial interventions. SHARE's goal is to be an agile Institute that is able to respond rapidly to developments in science and society (such as COVID19) with appropriate innovative research and build future research capacity.

The Institute mission and vision is supported by various strategies, such as (a) close collaboration with AJSP, (b) the facilitation of multi- and interdisciplinary exchange and cross-fertilization among departments of UMCG, (c) a solid research infrastructure including large population-based cohorts, (d) providing strong support for the next generation of researchers - most notably its PhD students – and, (e) the promotion of problem-based research in close collaboration with societal stakeholders.

In the period under review, SHARE invested in various aspects of the Institute to capitalize on its strengths and opportunities for improvement. Following recommendations of the previous PRC, the Institute focused on improving its governance by introducing a Management Team (MT) consisting of five members, with each member having specific areas of responsibilities, such as grant acquisition, internal and external communication, PhD development, career guidance, and the partnership with AJSPH. In the period under review, SHARE has taken further steps to develop its visibility and 'brand' as a prevention Institute, in close cooperation with AJSPH, with the aim of aligning its profile firmly with one of the foci of UMCG research: 'prevention and the region'.

For the future, SHARE wishes to further foster its function as cross-cutting network, thus enabling more multi- and interdisciplinary (inter)national exchange and collaboration with researchers from different departments, research programmes and faculties. It also aims to further sharpen its brand as a prevention Institute and make use of emergent opportunities of applying AI to "big data" and digital health, which is expected to provide high returns on investment and health and will be of benefit to the UMCG cohorts.

## 3. Qualitative Evaluation

The well-prepared, comprehensive critical reflection and the open nature of the interviews allowed the committee to gain in-depth insight into the quality of research, the societal impact, and viability of SHARE. The committee was very positively impressed with the constructive, inspiring, and insightful conversations it had with all representatives of SHARE. The overall spirit of the evaluation reflected a willingness to be receptive to critical remarks and suggestions for further improvement and a healthy ambition to grow further.

### *Research quality*

In its evaluation of SHARE, the committee encountered a vibrant, open, and collegial research community with a shared commitment to improving public health prevention. The core disciplines represented in SHARE include epidemiology, health economics, movement sciences, developmental

processes, rehabilitation, and psychology. Most of the programmes are large and very productive, generating a large and increasing number of publications and PhDs every year in a wide range of topics with clear clinical or societal importance. SHARE also provides numerous great examples of their capacity to go from basic science to innovation in practice. Overall, SHARE creates substantial scientific and societal value.

### *Governance and branding*

The committee commends SHARE for the addition of an interdisciplinary Management Team with responsibility for dedicated topics and themes. This is a positive intervention which strengthens the implementation of SHARE's overall mission and goals, and allows for a more structured and integrated approach of the research programmes. Given the wide scope and size of the Institute, with many different programmes and partly overlapping themes, the management team is able to strategically facilitate multi- and interdisciplinary exchange and cross-fertilization between research programmes and thus contributes to a stronger and more cohesive research environment. The new governance structure and the close affiliation with Aletta Jacobs School of Public Health (AJSPH) also puts the Institute in a very good position to strengthen its brand as a 'Prevention Institute', and allows for more coordinated peer-to-peer support, talent management and the sharing of best practices with regard to societal impact and patient participation.

### *Research environment*

The committee is impressed with the breadth and scope of the SHARE research portfolio. It covers the whole lifespan, ranging from childhood and adolescence to the middle and older age groups. Its focus is on healthy ageing and disease, public health and healthcare services. The documents and conversations with representatives of the Institute testify to strongly developed multidisciplinary and translational research lines, an ongoing investment in collaboration and cross-fertilisation between clinical and non-clinical sciences, and productive connections and collaborations with partners and stakeholders within and outside the Institute/UMCG, including AJSPH. Indeed, multidisciplinary – both as process and as outcome – is an underpinning principle of SHARE and supported by a sustained commitment to an ongoing investment in collaboration and partnership.

The committee greatly appreciates the "life-course perspective" to prevention issues. There were many great examples of research lines incorporating the translational pathway from preclinical, lab-based research to observational clinical studies and trials. Furthermore, this research addressed life-course questions spanning from the preconception period, through infancy, childhood, adolescence, reproductive and working age, aging adulthood, and old age. And a range of important topics are explored, including, for example, physical activity and age, vaccinations over a person's lifetime, mental health issues in various life phases, and early childhood origins of disease later in life.

As a network, SHARE provides benefits for all key researcher groups, and works particularly well for PhD students in promoting interaction and shared learning experiences. The three professorial groups—assistant, associate, and full professors—emphasize these benefits for their PhD students in SHARE in terms of guidance, training, and opportunities for cross-over research as well as for multi- and interdisciplinary collaborations. SHARE emerged as a successful graduate school and thus has the infrastructure and culture that is highly beneficial to early career researchers and more advanced researchers.

Researchers who the committee spoke with are very appreciative of the productive and open academic culture SHARE and the research groups provide, which they describe as fostering a positive, stimulating, and collegial atmosphere, as well as offering 'a real sense of community.' Overall, researchers were very enthusiastic about all aspects of their working environment, and indicated that

they feel supported in their endeavors and have the material and technical facilities they need to execute their research projects. In addition to support from the Research Office, SHARE also provides individual support for grant preparation and submission. These strong features confirm that the Institute indeed offers a versatile, dynamic research environment that is both forward-looking and outward-looking, thereby enabling its researchers to make novel and impactful scientific and societal contributions.

The committee observed that the ratio between senior researchers, postdocs and PhD students varies considerably by programme, and that achieving the optimal balance between senior and junior researchers is sometimes more aspirational than realized. This is a potential weakness, as it could negatively affect the career opportunities and research initiatives of researchers within these particular programmes, who have different workloads with regard to supervision, teaching, and research. These differences require careful (career) support and guidance tailored to the specific circumstances of each researcher and research programme (see also *Viability*). There is also some concern about the large numbers of PhD students, the long duration of the PhD trajectory, and the potential inequality resulting from differences between employed PhD's and PhD's funded by bursaries. The committee were left with the impression that the Institute PhD system, both at UMCG level and at Institute level, may require careful consideration and review in order to achieve a better balance and full potential within the Institute as a whole. It was clear, however, that SHARE leadership recognizes these issues and is fully committed to addressing them.

A point of discussion was that although there is generally productive interaction across disciplines and departments within each individual research programme, the interplay among the three clusters and among the nine research programmes within SHARE could be further developed, or strengthened and improved. The committee found that although there are good examples of interactions between programmes and Institutes, such as between SMART and EXPAND and between ICPE and research Institute B&C, the added value of SHARE for the programmes and departments is not always evident to everyone involved. SHARE could play a role in creating opportunities and conditions for joint strategic thinking and working, creating opportunities for exchange and collaboration between programmes, which is something that needs to be organized at Institute level (see also *Viability*).

#### *Output quality and funding*

All of the nine programmes produce research that is novel and important, aligning with the overall aims of SHARE to improve all aspects of public health, with an emphasis on intervention and prevention research, and generating knowledge regarding healthy aging and disease, and identifying and investigating opportunities for prevention through public health and healthcare services. SHARE researchers engage in productive national and international collaborations, and important partnerships in public health and healthcare with other non-academic organizations, resulting in sustained and significant scientific and societal impact. Nearly all of the programmes are very productive, generating a large number of publications, producing societal impact, and building research capacity, especially through PhDs.

SHARE has demonstrated success as a network that supports and stimulates high-quality and innovative research, and allows its researchers to initiate and participate in internationally competitive investigations. With regard to publication output, the committee sees a steady growth of the number of publications over the past years, from 830 in 2015 to 890 in 2020, but more importantly is pleased to note the increase of open-access publications, which has gone from below 60% to more than 80% in 2020. SHARE is investigating ways of measuring research output in more informative terms as well and to this end has used alternative metrics, including field-weighted citations index (FWCI) and citations. The Field Weighted Citation Impact of SHARE's publications has fluctuated between 2 and 3.5 and this shows that SHARE's outputs perform substantially better than

the global average in their field, in terms of their research being cited. Selected research outputs were examined according to DORA principles and judged original, rigorous, and significant. Furthermore, the active involvement in international networks and the number of international joint publications are other important indicators of research quality.

The committee encourages the Institute to continue shared reflection on how to define and measure research quality, and thus seeking ways to move beyond only classical quantitative criteria for measuring research output. Implementing more consistently shared criteria in line with Declaration on Research Assessment (DORA) principles will help to establish innovative tools and processes for measuring research quality, and support the development of responsible, consistent, and transparent uses of metrics that align with SHARE's academic and scientific values.

Improving research quality also depends strongly on the consistent implementation of Open Science principles and knowledge exchange. The SHARE Institute and its research programmes have tremendous capability to generate high-quality and reliable big-data science that can be shared with other teams locally and globally (such as the ongoing cohort studies). The increased power and reliability of results obtained from large cohorts can form the basis of high quality research, with sharing of data contributing towards Open Science principles. Sharing expertise and working together on the design and analysis of studies will be important for maintaining a high quality of the research, as well as stimulating innovation, staying abreast with scientific developments, and training early career researchers: this all contributes to enhancing the overall quality of SHARE as a research Institute. The committee recommends that SHARE put in place pathways that further strengthen the opportunities for knowledge exchange. Given SHARE's focus on big data, the Institute is ideally positioned to play a leading role in the development and implementation of open science principles.

An excellent example of good practice is the manner in which the programme leaders of VALUE are instrumental in promoting patient-centered health technology assessment, which is on the leading edge of this movement globally. The staff members both develop and improve assessment methodologies and apply them to important clinical and health policy issues. These methodological tools—including cost-effectiveness analysis, simulation modeling, patient-reported health outcomes studies, scenario analyses, preference studies, policy research, and qualitative research—are needed to support evaluations in the other 8 programmes in the Institute. These skills and experience have put the VALUE programme in a good position to support the overall UMCG pillar of prevention, but also demonstrates their global leadership in HTA research.

SHARE's research funding has increased substantially over the past 6 years. This includes € 3.4 million for the SUNI SEA project (which focuses on strengthening healthcare systems in South-East Asia), several large and prestigious European funding programmes (such as EIT, Horizon 2020, ITN/Marie Curie of € 4.1 million for the ENTWINE informal care project) as well as prestigious national funding programmes, such as the Dutch Research Council/ZonMw (e.g., VICI grants, several VENI grants and research/PhD projects), health funds (e.g., research/PhD projects financed by KWF Dutch Cancer Society) and industry (including patents, spin-outs and revenue generation). A relatively large proportion of SHARE PhD students are externally funded (i.e., not based in the UMCG/FEB/GMW), growing from 27% to 30% in 2020. Overall, the committee concludes that the funding profile shows stability with a large proportion of funding from NWO/ZonMw/KNAW, but also from a variety of other sources awarding SHARE's research.

### *Societal relevance*

The research produced by SHARE is, without doubt, relevant and important to public health and society. SHARE has a clear vision and aspiration for societal impact and has translated this into a



highly effective strategy for the dissemination of scientific insight and expertise, thus accelerating the mobilization of knowledge and the societal impact of findings. SHARE's six designated key indicators support this conclusion: collaboration with non-academic organizations; contributions to the public debate; contributions to practice; collaborations with regional spin-offs and SMEs; involvement of members in UMCG cohorts; and active participation in the international academic sphere.

SHARE has strong ties with non-academic organizations and contributes substantially to the public debate. This underscores the high societal relevance of the science being conducted by SHARE. Collaborations vary from regional, national and international alliances, networks and organizations for various forms in healthcare (such as palliative, mental and informal care), close alliances with the municipalities and the Province of Groningen, to collaboration with regional and local hospitals as well as with health care insurers, national and international pharmaceutical companies. SHARE researchers take the lead in the National Research Center for Insurance Medicine and are founders and members of the EuroQol group, a European collaboration which has resulted in the development of a standardized non-disease specific instrument to describe and value health-related quality of life. Also, the economic relevance of the scientific work undertaken by SHARE members is evident from the collaborations with regional spin-offs and small-to-medium sized entities (SMEs).

SHARE's contribution to public debate, practice, and policy making is apparent through its many professional committee memberships, with a selection of over 100 such memberships included in the review documentation. Many SHARE members hold positions on editorial boards of peer-reviewed journals. Additionally, the impact on practice through contributions to guidelines is significant. SHARE has, for example, contributed to guidelines for the assessment of psychological aspects in oncology, including breast cancer (HPR); occupational guidance developed by the NVAB (Netherlands Foundation on Work & Occupational Health); guidelines regarding maternal mortality, and chronic diseases and work (PHR); pregnancy and hypertension; pregnancy and nutrition and perinatal mortality (ROADH). Another remarkable example of societal relevance is the introduction and implementation of physical activity programmes into school classes (SMART). Finally, the panel really appreciated the success of the interactive exhibition organized by LCE, which is a fantastic example of engaging with the local community, and is proof of their efforts to introduce diverse innovative approaches to dissemination (e.g., interactive exhibit "How to get to 100 – and enjoy it") at SHARE.

As mentioned with regard to research quality, SHARE's strong role in developing UMCG-based as well as external patient cohorts is proof of its great potential for and realization of societal impact, working with real-world data in order to improve public health in a wide range of domains. SHARE is closely involved with UMCG cohorts GECKO, TRAILS, Lifelines, and Eurocat, and has led or helped initiate other cohorts outside of UMCG, such as the Academic General Practitioner Development Network (AHON) which includes routinely collected primary care data from a dynamic cohort of patients registered with general practices in the northern region of the Netherlands (research programme LCE); PHR leads in a number of domain-specific cohorts including C4Youth/TakeCare (on child and adolescent social and mental health care) and LOLLIPOP (on preterm birth), while ROADH is involved in the Pace consortium (Pregnancy and Childhood Epigenetics). Another good example is ICPE's participation in longitudinal data sets (Trails, Nesda, World Mental Health Survey Initiative).

The committee encountered many great examples of patient engagement and stakeholder involvement in SHARE's research. However, although many programmes involve patients in their research, these patients are not always involved as co-designers or consultants through all phases of the research, including in the initial design and set-up of the research project. Researchers indicated that they are aware that many of their colleagues invest in patient involvement and external partnerships, but that coordinated exchange at Institute level is missing. The committee believes that SHARE could benefit from a more consistent, progressive, and nuanced approach to patient

involvement. The committee supports SHARE researchers in their wish for a stronger alignment of methods of patient involvement within SHARE. Expertise and professional guidance is available through many (international) organizations, including NIHR (UK) and other funders; Cochrane; and dedicated article series (e.g. BMJ). Also, sharing best practice in patient and public involvement across research programmes could benefit the Institute as a whole.

The Netherlands is in the process of changing the way in which research quality is measured and valued, with granting agencies and the SEP focusing more on qualitative criteria and societal relevance as important indicators for quality. Societal relevance is a very strong feature of SHARE. However, it does not yet have an optimal and consistent approach for providing evidence of this impact. The manner in which societal relevance is defined and measured differs across research groups, and impact does not seem to be monitored in a consistent manner. There are some beautiful examples of societal relevance and impact, but also examples which seem to be mostly about media exposure, which does not necessarily lead to actual impact. SHARE's research groups could make a big step forward by finding ways to monitor impact - both quantitatively and qualitatively - in a concrete and consistent manner. SHARE would thus benefit even more from the societal impact they have, and be a shining example for others, by drawing out and evidencing what they achieve.

### *Viability*

The committee commends SHARE for its governance structure and ways of working together. The management team is well organized, reflects a range of disciplines and expertise, and good decisions have been made in terms of the division of individual responsibilities and areas of leadership. This really appears to have paid off, in particular, in terms of improving visibility, offering an integrated, coherent leadership structure (beyond representing the different research programmes), increasing grant income, and providing strong support for PhDs and other ECRs. Viability also depends on the continued structural and financial support for their research efforts. Based on overall research funding, the viability of SHARE remains sound, according to the committee, with acquisition of substantial funding from a variety of sources. Significant funding comes from national funding organizations (NWO, ZonMw, KNAW) and European grants, as well as from contract research with industry and other partners. This diversified portfolio of funding sources helps mitigate policy changes in governmental programmes or economic changes that affect the industry or charitable organization.

The SWOT included in the Self Evaluation Report (SER) is helpful and clearly identifies strengths and opportunities related to prevention, interdisciplinary research, use of big data (real-world, routinely collected data and from cohorts), and focus on topic areas of international interest (mental health, infectious diseases, lifestyle, women and children's health). These areas of research are highly relevant to public health, primary, and secondary care, and this offers many opportunities for growth and development in the future. The cohorts will offer a great resource for future research, and are an important part of the research infrastructure. Furthermore, all of the programmes signal a commitment to improving population health - both in the Netherlands and globally - through rigorous scientific research. Researchers in the individual programmes in SHARE benefit from this shared vision, aspiration, and commitment.

In their brief programme descriptions and presentations in the (SER) most programmes described goals and strategy for the next 6 years in very broad terms (e.g., continuing to attract talented researchers, increasing national and international visibility, strengthening collaborations, supporting further innovation and increasing quality and impact of research). These are all adequate and aligned with aims and branding across the sub-groups (e.g., multidisciplinary, practice-based, real world, prevention). It would benefit the programmes to formulate more specifically what their research

priorities are, where they see opportunities, and how they can demonstrate how their research is unique and can contribute to addressing important (expected) topics or areas of public health.

SHARE's strategic goal is to continue to mature as a 'Prevention Institute.' This is a recent development, and in adopting this focus or branding at this point, the prevention profile seems to be more of an implicit than explicit goal. Although many research programmes do indeed share an interest in issues of prevention, the concept of prevention is not necessarily experienced as the most important common denominator or organizing principle among the SHARE researchers involved. It would benefit the Institute if they could strengthen their identity as a Prevention Institute at all levels, making this more consistent and explicit. SHARE is in a very good position to achieve this, according to the committee.

As mentioned in terms of research quality, there are many good examples of increasing productivity and increasing collaborations among the research programmes, but it is not always clear how much interaction there is among the three major clusters. The committee assumes that the interaction is probably less about research collaboration and more about shared methodology, values, and commitment, including the joint desire to support the learning and interaction of their PhD students. The committee recognizes that the clustering of research programmes creates opportunities for interdisciplinary and multidisciplinary collaborative research. For example, there appears to be a strong synergy between LCE and ICPE in terms of research design and methods, albeit in a different topic area (healthy ageing versus mental health), and it seems important to collaborate and join forces where this has added value (e.g., sharing expertise, joint supervision of PhDs, or identifying opportunities to attract funding for postdocs). This collaboration may already happen, but ICPE is not specifically mentioned as an important collaborator in LCE's strategy.

Therefore, to further ensure its viability, SHARE could invest more in stimulating and facilitating interaction at Institute level. It could proactively invest in collaboration among researchers at all levels, advanced (assistant, associate and full professors) as well as early career levels (PhD's and postdocs) —for example, by (a) providing a platform for peer-to-peer support, (b) offering support for collaborative applications for grants and funding, and (c) promoting more structural and shared reflection on the indicators for research quality and societal relevance. This can contribute to increasing the visibility of SHARE both within UMCG as well as for external partners.

The position and career path of the postdocs is a point of concern for the committee. The Dutch labor and funding system does not allow for sufficient funding and support of postdocs, relative to PhD's, leading to a 'leaky pipeline'. The consequence is that postdocs have little stability and career perspectives: very few can be offered a permanent contract and/or a tenure track position. This is disadvantageous for the postdocs themselves, and poses a risk to the continuity, sustainability, and quality of the research programmes. It also creates a high workload for assistant professors (e.g. supervising a large number of PhDs alongside their 50% teaching activity) without support from early career research postdocs.

UMCG is aware of this and has initiated a special programme in support of its postdocs. SHARE could contribute as well, for example by offering its postdocs mentorships and other forms of support (such as optimal support for grant and fellowship writing for postdocs and assistant professors) that are aligned with the specific challenges faced within the research programmes of the Institute. Given the large differences in numbers and opportunities for postdocs in the different programmes, SHARE can offer a strategy for their career development, attuned to its needs as an Institute. This will help to mitigate possible disadvantages and inequalities in workload when it comes to supervision responsibilities. This, too, is where DORA principles come into play regarding a prioritizing of quality over quantity and the emphasis on inclusive and positive work cultures.

To conclude, the committee wishes to emphasize that potential points of improvement identified during the site visit are in many cases already under consideration by SHARE and that there are strategies under development to tackle potential challenges and observed threats amongst the teams but also in discussion with relevant organizations. This indicates that the Institute is critical, reflective, and agile, and willing to confront and embrace those aspects that require more attention and improvement in order to achieve its goals.

#### 4. Recommendations

##### *Research quality*

- The committee recommends that SHARE put in place pathways that further strengthen the opportunities for knowledge exchange and the consistent implementation of Open Science principles. Given SHARE's investment in research cohorts, biobanks, and big data, it is ideally positioned to fulfill a leading role in the implementation of Open Science principles.
- The committee encourages the Institute to continue shared reflection on how to define and measure research quality, and thus to move beyond classical quantitative criteria for measuring research output. Developing shared criteria in line with Declaration on Research Assessment (DORA) principles will help to establish innovative tools and processes for measuring research quality, and support the development of responsible, consistent, and transparent uses of metrics that align with SHARE's academic and scientific values.

##### *Societal relevance*

- SHARE would benefit from a more consistent, progressive, and nuanced approach to patient and public involvement. Many research programmes involve patients or lay partners in their research, but not always as co-designers or consultants throughout all stages of the research, including in the initial design and set-up of a research project. The committee advises a stronger alignment of methods of patient and public involvement within SHARE and the sharing of best practices between programmes.
- Though societal relevance is a very strong feature of SHARE, it does not yet have an optimal approach for evidencing and measuring impact. The committee recommends that SHARE find ways to monitor and measure impact - both quantitatively and qualitatively - in a concrete and consistent manner. It may be useful to look to academia for options that would fit with SHARE activities. SHARE would thus benefit even more from the societal impact they have, and be a shining example for others, by drawing out and evidencing what they achieve.

##### *Viability*

- SHARE's strategic goal is to continue to mature as a 'Prevention Institute.' Though many research programmes do indeed share an interest in issues of prevention, the concept of prevention is not necessarily experienced as the most important common denominator among SHARE researchers. The committee recommends strengthening its identity as a prevention Institute at all levels, making this more consistent and explicit.
- SHARE can invest more in stimulating and facilitating interaction at Institute level. It could proactively invest in collaboration among researchers at all levels, advanced (assistant and associate and full professors) as well as early career levels (PhD's and postdocs) —for example, by (a) providing a platform for peer-to-peer support, (b) offering support for collaborative applications for grants and funding, and (c) promoting more structural and shared reflection on the indicators for research quality and societal relevance. This can contribute to increasing the visibility of SHARE both within UMCG as well as for external partners.

- The committee observes that the ratios between senior researchers, postdocs, and PhD students vary considerably across programmes, and that an optimal balance between senior and junior researchers is sometimes missing. This is a potential weakness that could negatively affect the opportunities for and quality of research of researchers within these particular programmes, who have different workloads with regard to supervision, teaching and research. The committee recommends careful (career) support and guidance tailored to the specific circumstances of each researcher and research programme.
- The precarity of early career researchers at UMCG is a particular point of concern for the committee and poses a possible threat to the viability of its institutes, including SHARE. It recommends that SHARE invests in mentorship and other forms of support for its postdocs that are aligned with the specific challenges faced within the research programmes of the Institute. Given the large differences in numbers and opportunities for postdocs in the different programmes, SHARE can offer a strategy for their career development, attuned to its needs as an Institute, while leveraging the cross-university opportunities for support in their individual disciplines.