

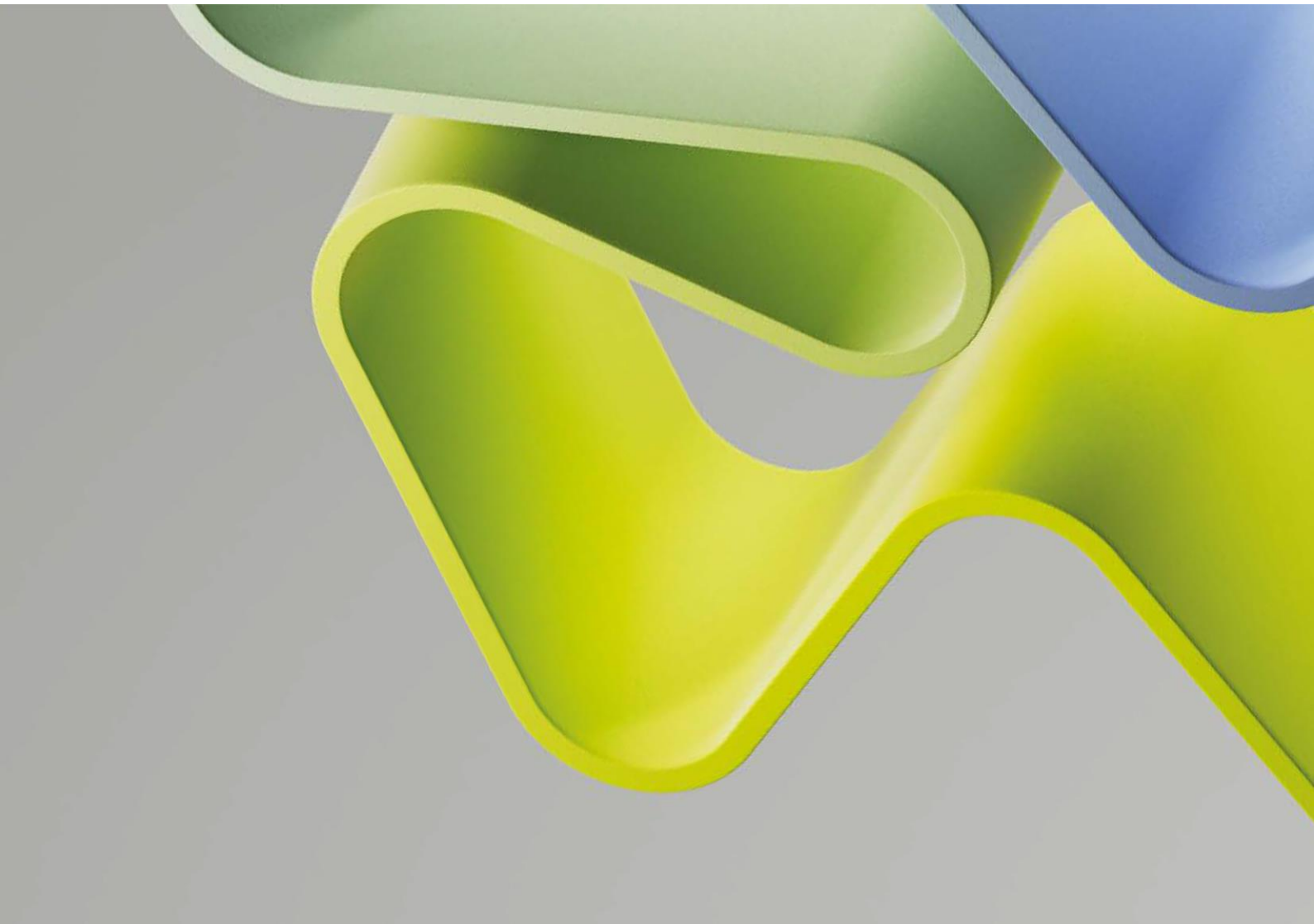
Evaluation of Medicine and Health 2023-2024

Evaluation report – Panel 4e

Research Group: Cancer Registry

Administrative Unit: Cancer Registry of Norway

Institution: Cancer Registry



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Preface

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. The primary aim of the evaluation of medicine and health (EVALMEDHELSE) 2023-2024 is to reveal and confirm the quality and relevance of research performed at Norwegian Higher Education institutions, research institutions (the institute sector) and the health trusts, in an international perspective. Such knowledge is useful for the institutions that participate in the evaluation, for the Research Council who advise the authorities on how research should be developed further, and for the authorities, who set targets and frameworks for research and higher education. Research groups submitted by their administrative unit will be assessed by 18 expert panels organised by research subjects or themes. The expert panels will assess research groups across institutions and sectors based on research group's self-assessments and examples of scholarly output. These research reports will be part of the evaluation of their belonging administrative units.

Abstract

The Cancer Registry of Norway (CRN) is an organisation that aims to gather cancer registration data, and the use it, to help reduce the burden of cancer in Norway.

The CRN has an administrative role in capturing cancer data, as registration is mandated in Norway and no formal academic standing. It seeks, however, to undertake this administrative role in parallel to research and they seek to ensure it is embedded in all their work. They have a large research team consisting of 33 members of research staff and 8 PhD students. This team works in collaboration with many academic groups across Norway and beyond.

The benchmark for the CRN is to deliver research that will help to reduce the cancer burden in Norway.

The group is operating at an international level.

Overall assessment

The Cancer Registry of Norway (CRN) has many strengths. It has a strong team, it is well structured, it is highly collaborative and it is highly research active. Their track record of research outputs is strong.

The CRN could, however, be strengthened further. Areas for improvement include promotion of the use of their data beyond the direct research team to add greater education and societal value. In addition, they could develop their datasets to look at disease recurrence and seek analytical and research interactions so cancer outcomes can be assessed in the light of the increasing levels of multimorbidity in the population. Greater increases in user interaction would also be advantageous and help to ensure the outputs of the CRN translate to meet their aim of helping reduce the cancer burden in Norway.

Grading:

Dimensions	Score
Organisational dimension (How adequate the organisational environment is in supporting the production of excellent research).	3
Quality dimension (Research and publication quality/Research group's contribution)	4/4
Societal impact dimension (Research group's societal contribution/User involvement)	3/3

Recommendations

- Establish targets for sharing and use of the data gathered by the CRN for research and analysis by external researchers and organisations.
- Expand research focus to include other relevant factors to cancer care, and outcomes such as multimorbidity and disease recurrence.
- Establish more focused benchmarking targets that better enable the impact of the research delivered to be translated into a reduced burden of cancer in Norway.
- Consider how the CRN can help build further capacity in cancer epidemiology and health data science and directly translate the evidence produced to impact cancer and health.
- Ensure research is truly integral to all the functions of the CRN.
- Ensure maximum research use of CRN data, both by the CRN team and outside the organisation, to have maximum impact and patient benefit

1. Strategy, resources and organisation.

1.1 Research group's organisation and strategy

The main goal of the Cancer Registry of Norway (CRN) is to gather and use cancer registration data to help reduce the burden of cancer in Norway. These data span the cancer registry, clinical cancer registries and three screening datasets covering breast, cervical and colorectal cancer. Each dataset has its own department. Research is embedded across all of the organisation's functions and is focused on generating evidence to inform:

- Cancer aetiology and prevention
- Screening and early detection
- Cancer survival and patterns of care

Its strategy to deliver these objectives is based on:

- Generating innovative and dynamic registry infrastructure solutions to enable the capture of timely and robust data
- Integrating screening-, registry- and other research datasets to maximise the potential of the data
- Collaborative, multidisciplinary working to ensure strong epidemiological and statistical expertise is deployed to deliver outputs that will help inform cancer care and outcome

The benchmark for the group is to deliver research that will help to reduce the cancer burden in Norway. Researchers within the registry are expected to work to:

- Leverage the use of the cancer registry data to maximum effect
- Foster multidisciplinary and organisational collaborations
- Secure external funding
- Maintain a strong publication record
- Ensure the CRN research and administrative functions are aligned

The CRN has close links to many universities and actively contributes to postgraduate training programmes with initiatives ranging from standard MSc and PhD students to international summer schools.

Overall, the self-assessment report suggests CRN is well structured to conduct its research activities and has a cohesive strategy. The benchmarks provided are adequate although further detail around how clinical benefit should be defined and measured would be helpful. This is because the overarching goal stated by the CRN is to help reduce the burden of cancer in Norway but none of the benchmarks provided relate to this. As such, it may be a little difficult to judge the extent to which their strategy and the aims within it has been, or is likely to be, achieved.

A clear goal of the CRN is to capture robust data about cancer cases diagnosed in Norway. The dataset they curate is a hugely rich research resource both for members of the CRN and those external to the organisation. The greatest benefit of these data in reducing the cancer burden of Norway will only be gained if they are used to maximum effect and that will demand their use outside the CRN too. This was not really acknowledged in their strategy. It would be

beneficial, therefore, to have a benchmark around promoting secure sharing of the data to academics and others external to the organisation to ensure their maximum use.

Similarly, the strategy focuses on cancer care and outcomes, but this disease occurs in people who have many other health conditions too. This can make their care and management complex. Furthermore, with people living longer, individuals are now at greater risk of experiencing disease recurrence or being diagnosed with second cancers. Expansion of the research strategy to better recognise these factors would, again, strengthen it.

There appears to be a strong educational culture with numerous PhD and other training opportunities within the CRN as well as many strong collaborations. However, as they are not part of a regular university, they do lack the benefit of access to the many research resources these offer and, perhaps, less interaction between teaching and research than may be ideal. Another concern is access to stable core funding which may hinder longer-term scientific endeavours.

Recommendations to the research group

- Establish targets for sharing and use of data gathered by the CRN for research and analysis by external researchers and organisations
- Expand research focus to include other relevant factors to cancer care and outcomes such as multimorbidity and disease recurrence
- Establish more focused benchmarking targets that better enable the impact of the research delivered to be translated into a reduced burden of cancer in Norway

1.2 Research group's resources

The basic funding for CRN come from a government allocation to maintain its core service of cancer registration. The Government does not, specify what proportion of this budget should be spent on research but research is embedded in all the CRN's functions and it is estimated that about 20% of the core budget is allocated towards it.

To supplement this, the CRN seeks further funding through national and international grants. Over the review period this about to around 164 million NOK. The majority of these funds (around 90%) come from national grants including the Norwegian Cancer Society. International funds have also been won from the European Union and the Nordic Cancer Union. The CRN also has a small portfolio of funding from industrial collaborations. Overall, 68.7% of funding came from competitive funding sources.

These funds are used to support a diverse research team including 7 full time and 7 part time senior researchers, 5 standard researchers, 14 postdoctoral fellows and 8 PhD students. The team appears to be multidisciplinary with strong collaborations both within and beyond the group itself as well as across academia, health care and industry

The group is successful at gaining external research funding, but it also has substantial core funding from the Government. This has advantages and disadvantages. Cancer registry datasets are hugely rich research resources and being responsible for their curation provides the CRN with a competitive advantage to other research groups as they have ready access to the data. This advantage could be used to leverage substantial research funding. However, being based outside the academic system is also a disadvantage given this reduces the access to traditional university research support and services. Even stronger alignment between the CRN and university departments could lead to substantial benefits for all.

Whilst the resources and team described in the report are formidable and impressive, the document does not provide much about the strategy for the continued development of the

team. For example, although many PhD students are supported, is there any mechanism whereby the CRN helps build capacity in cancer epidemiology and health data science?

Recommendations to the research group

- Consider how the CRN can help build further capacity in cancer epidemiology and health data science and directly translate the evidence they produce to impact cancer and health.

1.3 Relevance to the institution

The CRN describe well how they seek to ensure that research informs all aspects of the registry's functions from data capture to data use. This is to be commended, as the value of the data will only be realised if it is used.

Over the review period the CRN has sought to increase its support to its research team by merging two research support units into a new section of administration and research support. This section currently has 12 members with expertise across research administration, data management and statistics and they seek to support research projects throughout their lifecycle. In addition, through institutional collaborations it has access to many library resources and an on-premises data centre offers a secure analytic environment (with high performance computing facilities provided by the University of Oslo).

Research is described as integral to the CRN's function which is why they can claim major achievements in obtaining timely data and using them to create many high impact outputs. Conversely, however, they also described quite a large research support team and it was not clear why this would be needed if research really was integral to the CRNs general function? Are projects conducted separately and independently by a distinct team from that involved in the core registry function, or are they embedded within it? The latter would be preferable to ensure research findings are translated for maximum impact. This lack of clarity may be a result of the recent transition of the CRN to the Norwegian Institute of Public Health (NIPH). Future plans should ensure clear delineation about organisational roles and greater clarity about responsibilities.

Recommendations to the research group

- Ensure research is truly integral to all the functions of the CRN

2. Research quality

2.1 Research group's scientific quality

The CRN's research activities focus on primary (risk factors and biomarkers), secondary (screening) and tertiary (cancer care) prevention, and on tackling inequalities in care and outcome. In addition, research is also undertaken on data capture and registry infrastructure. They are clearly successful in this area as, over the evaluation period, they report the publication of over 1700 peer-reviewed papers and contribution to numerous monographs and other outputs.

The research projects and outputs from the Norwegian Cancer registry are of a high scientific quality and at the forefront of cancer epidemiology. As such, the CRN makes a substantial contribution to cancer epidemiology, both within Norway and beyond.

The projects cited suggest the CRN researchers are highly collaborative, both nationally and internationally, and are delivering value across a wide subject area with topics ranging from cancer risk to variation in care and outcome. The exact contribution of CRN researchers was not, however, always clear. For example, project 8 is the International Cancer Benchmarking Partnership SURVMARK-2 study. This is based on data from a number of high-income countries with comparable cancer registry datasets and health systems. Much of the analysis is being delivered by scientists from the International Association for Research on Cancer and academics at the University of Leicester in the UK and the Karolinska in Sweden. It is not clear from the report what contribution CRN made. Was it simply provision of a Norwegian dataset or greater input into methods and analysis?

In addition, 1,700 publications over the review period seems a high number. Are these papers all produced by the CRN or are they studies undertaken by others based on CRN data? Both are valuable but, again, it would be useful to understand the specific research contribution of the CRN team and their role in supporting other researchers.

Recommendations to the research group

- Ensure maximum research use of CRN data both by the CRN team and those external to the organisation.

2.2 Research group's societal contribution

The CRN reported it made a strong educational contribution through the expertise provided by its highly collaborative team. The CRN staff support research staff in other institutions, supervise numerous research students and participate in many other training programmes. They also produce, and make routinely available, cancer statistics which are valuable to many including other researchers, policy makers, the hospital sector, students and the press.

Regarding economic, societal and cultural development they report their contribution to the World Health Organisation's Sustainable Development Goal on good health and wellbeing in helping to prevent and treatment cancer. They also state their contribution to making data accessible for researchers external to the CRN.

The publications and products reported by the CRN are all valuable initiatives and demonstrate their enthusiasm in ensuring the data they capture are used to maximum effect. However, there is much more that could be done which would add further value. For example, how many research projects using cancer registry data have been undertaken outside the CRN? The more the data are used the greater their value so this would be a good indicator of tackling the challenges of GDPR than more simply discussing the challenges. Demonstrating wider use would make a strong educational and societal benefit.

Likewise, if a study is undertaken, or routine statistics produced that identify variation in an aspect of care, how are the data used to help inform interventions to tackle those inequalities? Such work may be happening, but it wasn't discussed in the report so understanding the societal impact the CRN is having is challenging.

Very little information was included in the report around user involvement in CRN research. Expansion of this area would be of benefit.

Finally, greater clarity in the report would have been valuable on how the evidence the CRN generates is translated to driving improvements in care and outcome. For example, project 9 states it has revealed variation in access to treatment and survival. It is important that such variation is addressed so how is the CRN working to ensure its data, and its research, helps meet its overarching aim of reducing the cancer burden in Norway.

Recommendations to the research group

- Promote maximum use of the data captured by the CRN to have maximum impact and benefit
- Consider how registry data can be used most effectively to help address the burden of cancer in Norway

Appendices

Evaluation of Life Sciences in Norway 2022-2024

Evaluation of Medicine and Health 2023-2024

Mandate Expert panels

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. The Portfolio board for Life Sciences in the Research Council of Norway has decided to carry out an evaluation of medicine and health in 2023-2024 as the second of two evaluations within Life Sciences. The evaluation of biosciences takes place in 2022-2023.

1. The objective of the evaluation

The primary aim of the evaluation of Life Sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), by the institute sector and by health trusts.

The results of the evaluation will be used as recommendations to the institutions, the Research Council, and the ministries.

2. Tasks of the expert panels

The panels are requested to:

- evaluate the strategy, resources and organisation of/for the research groups.
- evaluate research production and quality of the research groups.
- grade and write a short evaluation text to the evaluated research groups.

Each of the expert panels will write a brief report with evaluations of the different research groups as well as specific recommendations.

3. Time schedule

Digital panel meetings will take place in the period March 15. - June 15. 2024.

Deadline for submitting panel report to the Research Council: June 15. 2024.

4. Miscellaneous

Other important aspects of Norwegian life sciences research that ought to be given consideration.

EVALMEDHELSE 2023-2024 – Panel group description – January 2024

Panel group	Description	Panel no.
Group 1 PHYSIOLOGY Physiology-related disciplines (human physiology), including corresponding translational research	Anatomy, physiology, embryology, nutritional physiology, pathology, basic odontological research, exercise physiology, neurobiology, toxicology, pharmacology, medicinal chemistry, chemistry, biology, pathology.	Panel 1a Panel 1b
Group 2 MOLECULAR BIOLOGY Molecular Biology, including corresponding translational research	Microbiology, bacteriology, inflammation and infection disease research, forensic medicine, genetics, immunology, vaccine development, microbiological diagnostics, pharmaceutical microbiology, cell biology, molecular medicine and -biophysics, medical biochemistry, omics, organoids, imaging, toxicology, pathology, drug development, cancer research, translational research, systems biology, personalized medicine, biomarkers, oncology, genetics, genomics, epigenetics, proteomics, bioinformatics-/statistics, computational science, AI, biology, virology, radiology, ionisation, molecular biology, microbiology, pharmacology, pharmacogenomics, regenerative medicine and related subjects.	Panel 2a Panel 2b Panel 2c
Group 3a CLINICAL RESEARCH	Clinical Research, including surgery and translational research within: paediatrics, women's health, gynaecology, otorhinolaryngology, head and neck surgery, oncology, haematology, radiology and medical imaging.	Panel 3a_1 Panel 3b_2
Group 3b CLINICAL RESEARCH	Clinical Research, including surgery and translational research within: general medicine, emergency medicine, anaesthesiology, neurology, geriatric medicine, rehabilitation medicine, cardiology, nephrology/urology, endocrinology, pulmonary medicine, orthopaedics, rheumatology, Infection, gastroenterology.	Panel 3b_1 Panel 3b_2 Panel 3b_3
Group 4 PUBLIC HEALTH Public Health and Health-related Research	Public health, community research, epidemiology, preventive medicine, mental health, behavioural research and ethics, medical statistics, environment, nutrition, preventive medicine, physiotherapy, sports medicine, implementation research, public health, health care services research, global health, nursing	Panel 4a Panel 4b Panel 4c

	sciences, rehabilitation sciences, public health systems, digital health care services, ICT, HTA, health competence, genetic and epigenetic epidemiology, non-communicable diseases, pharmacology, nursing research, professional research, occupational medicine.	Panel 4d Panel 4e Panel 4f
Group 5 PSYCHOLOGY Psychology and Psychiatry	Clinical psychology, personality psychology, developmental psychology, cognitive psychology, biological psychology and forensic psychology, psychiatry, including geriatric psychiatry, child and adolescent psychiatry and biological psychiatry, social-, community- and workplace psychology, organizational psychology, developmental psychology, behavioural and health psychology, health promotion and well-being.	Panel 5a Panel 5b

Panel group 4 PUBLIC HEALTH

Expert panel 4e

Name	Title	Institution
Per-Olof Östergren (chair)	Professor	Lund University
Henrik Toft Sørensen*	Clinical professor	Aarhus University
Tarani Chandola	Professor	University of Hong Kong / Manchester University
Eva Morris	Professor	Big Data Institute, Oxford University

Henrik Toft-Sørensen had a conflict of interest with the evaluation of multiple research groups, see the table below. This meant that for those evaluations he did not have access to the self assessments or survey data and he did not participate in the discussion of the research group, nor did he participate in the preparation and completion of the evaluation report.

Institution	Administrative unit	Name of research group
Cancer Registry	Cancer Registry of Norway	Cancer Registry
FHI	Division of Mental and Physical Health	Physical Health and Aging
FHI	Division of Mental and Physical Health	Department of Chronic Diseases
FHI	Division of Mental and Physical Health	Centre for Disease Burden
FHI	Centre for Fertility and Health	Centre for Fertility and Health
UiB	Dept of Global Public Health and Primary Care	Section for epidemiology and medical statistics
UiT	Department of Community Medicine	Epidemiology of Chronic disease



Evaluation of Medicine and Health (EVALMEDHELSE) 2023-2024

Self-assessment for research groups

Date of dispatch: **15. September 2023**
Deadline for submission: **31. January 2024**

Updated: **13. October 2023**

Institution (name and short name): _____

Administrative unit (name and short name): _____

Research group (name and short name): _____

Date: _____

Contact person: _____

Contact details (email): _____

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Introduction

The primary aim of the evaluation is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), the institute sector and the health trusts. These institutions will henceforth be collectively referred to as research performing organisations (RPOs). The evaluation report(s) will provide a set of recommendations to the RPOs, the Research Council of Norway (RCN) and the responsible and concerned ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research and society at large.

You have been invited to complete this self-assessment as a research group. The self-assessment contains questions regarding the group's research- and innovation related activities and developments over the years 2012-2022. All submitted data will be evaluated by expert panels.

Deadline for submitting the self- assessment to your administrative unit – 26 January 2024

The administrative unit will submit the research groups' completed self-assessments and the administrative unit's own completed self-assessment to the Research Council within 31 January 2024. Please submit completed self- assessment to the administrative unit no later than 26 January 2024.

Please use the following format when naming your document: [short name of the institution]_[short name of the administrative unit]_[short name of the research group], e.g. *UiT_DepPsy_Short name of the research group*.

For questions concerning the self-assessment or EVALMEDHELSE in general, please contact RCN at evalmedhelse@forskningsradet.no.

Thank you!

Guidelines for completing the self-assessment

- Please read the entire self-assessment document before answering.
- The evaluation language is English.
- Please link to websites/documents in the self-assessment where relevant.
- Please be sure that all documents linked to in the self- assessment are written in English and are accessible.
- The page format must be A4 with 2 cm margins, single spacing and Calibri and 11-point font.
- The self-assessment follows the same structure as the [evaluation protocol](#). In order to be evaluated on the two evaluation criteria described in the evaluation protocol, the research group must answer all questions.
 - ⇒ Provide information – provide documents and other relevant data or figures about the research group, for example strategy and other planning documents, as well as data on R&D expenditure, sources of income and results and outcomes of research
 - ⇒ Describe – explain and present using contextual information about the research group and inform the reader about the research group.
 - ⇒ Reflect – comment in a reflective and evaluative manner how the research group operates.
- Data on personnel should refer to data reported to DBH on 1 October 2022 for HEIs and to the yearly reporting for 2022 for the institute sector and the health authorities. Other data should refer to 31 December 2022 if not specified otherwise.
- It is possible to extend the textboxes when filling in the form. **NB!** A completed self- assessment form cannot exceed 25 pages (pdf file). Expert panels are not requested to read more than the maximum of 25 pages. Pages exceeding maximum limit of 25 pages **might not** be evaluated.
- Submit the self- assessment as a pdf (max 25 pages) to the administrative unit within **26 January 2024**. Before submission, please be sure that all text are readable after the conversion of the document to pdf. The self- assessment should be sent from the administrative unit to evalmedhelse@forskningsradet.no within **31 January 2024**.

Please note that information you write in the self assessment and the links to documents/websites in the self-assessment are the only available information for the expert panel.

In exceptional cases, documents/publications that are not openly available must be submitted as attachment(s) to the self- assessment (pdf file(s)).

1. Organisation and strategy

1.1 Research group's organisation

Describe the establishment and the development of the research group, including its leadership (e.g. centralised or distributed etc.), researcher roles (e.g. technical staff, PhD, post docs, junior positions, senior positions or other researcher positions), the group's role in researcher training, mobility and how research is organised (e.g. core funding organisation versus project based organisation etc.).

Table 1. List of number of personnel by categories

Instructions: Please provide number of your personnel by categories.

For institutions in the higher education sector, please use the categories used in DBH, <https://dbh.hkdir.no/datainnhold/kodeverk/stillingskoder>. Please add new lines or delete lines which are not in use.

	Position by category	No. of researcher per category	Share of women per category (%)	No. of researchers who are part of multiple (other) research groups at the admin unit	No. of temporary positions
No. of Personnel by position	Position A (Fill in)				
	Position B (Fill in)				
	Position C (Fill in)				
	Position D (Fill in)				

1.2 Research group's strategy

a) Describe the research group's main goals, objectives and strategies to obtain these (e.g. funding, plans for recruitment, internationalization etc.) within the period 2012-2022.

b) Please describe the benchmark of the research group. The benchmark for the research group should be written by the administrative unit in collaboration with the research group. The benchmark can be a reference to an academic level of performance (national or international) or to the group's contributions to other institutional or sectoral purposes.

Example: A benchmark for a research group is related to the research groups' aim which again is included in the strategy for the administrative unit. A guidance for the administrative unit to set a benchmark for the research group(s) can e.g. be: What do the administrative unit expect from the research group(s)?

c) Describe the research group's contribution to education (master's degree and/or PhD).

d) Describe the support the host institution provides to the research group (i.e., research infrastructure, access to databases, administrative support etc.).

1.3 Relevance to the institutions

Describe the role of the research group within the administrative unit. Consider the research group's contribution towards the institutional strategies and objectives, and relate the research group's benchmark to these.

1.4 Research group's resources

Describe the funding portfolio of the research group for the last five years (2018-2022).

Table 2. Describe the sources of R&D funding for the research group in the period 2018-2022.

	2018 (NOK)	2019 (NOK)	2020 (NOK)	2021 (NOK)	2022 (NOK)
Basic funding					
Funding from industry and other private sector sources					
Commissioned research for public sector					
Research Council of Norway					
Grant funding from other national sources					
International funding e.g. NIH, NSF, EU framework programmes					
Other					

1.5 Research group's infrastructures

Research infrastructures are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. [These](#) include major equipment or sets of instruments, knowledge-related facilities such as collections, archives or scientific data infrastructures, computing systems communication networks. Include both internal and external infrastructures.

- Describe which national infrastructures the research group manages or co-manages.
- Describe the most important research infrastructures used by the research group.

1.6 Research group's cooperations

Table 3. Reflect on the current interactions of the research group with other disciplines, non-academic stakeholders and the potential importance of these for the research (e.g. informing research questions, access to competence, data and infrastructure, broadening the perspectives, short/long-term relations).

Interdisciplinary (within and beyond the group)	About 1/3 page
Collaboration with other research sectors e.g. higher education, research institutes, health trusts and industry.	About 1/3 page
<u>Transdisciplinary</u> (including non academic stakeholders) <i>Transdisciplinary research involves the integration of knowledge from different science disciplines and (non-academic) stakeholder communities with the aim to help address complex societal challenges.</i>	About 1/3 page

2. Research quality

2.1 Research group's scientific quality

Describe the research profile of the research group and the activities that contribute to the research group's scientific quality. Consider how the research group's work contributes to the wider research within the research group's field nationally and internationally.

Please add a link to the research group's website:

Short version

Table 4. List of projects

Instructions: Please select 5-10 projects you consider to be representative/the best of the work in the period 1 January 2012 – 31 December 2022. The list may include projects lead by other institutions nationally or internationally. Please delete tables that are not used.

Project 1 -10: <i>Project title/Project period (year from – year to)</i>	Project owner(s) (project leaders organisation)	
	Total budget and share allocated to research group	
	Objectives and outcomes (planned or actual) and link to website	

Table 5. Research group's contribution to publications

Instructions: Please select 5-15 publications from the last 5 years (2018-2022) with emphasis on recent publications where group members have a significant role. **If the publication is not openly available, it should be submitted as a pdf file attached to the self-assessment.** We invite you to refer to the Contributor Roles Taxonomy in your description: <https://credit.niso.org/>.

Cf. Table 1. List of personell by categories: Research groups up to 15 group members: 5 publications. Research groups up to 30 group members: 10 publications. Research groups above 30 group members: 15 publications.

Please delete tables that are not used.

Publication 1 -15: <i>Project title/Journal/Year/DOI/URL</i>	Authors (Please highlight group members)	
	Short description	
	Research group's contribution	

Table 6. Please add a list with the research group's monographs/scientific books.

Please delete lines which are not used.

1	Title - Authors (Please highlight group members)- link to webpage (if possible)
2	

2.2 Research group's societal contribution

Describe the societal impact of the research group's research. Consider contribution to education, economic, societal and cultural development in Norway and internationally.

Table 7. The research group's societal contribution, including user-oriented publications, products (including patents, software or process innovations

Instructions: Please select 5–10 of your most important user-oriented publications or other products from the last 5–10 years with emphasis on recent publications/products. For each item, please use the following formatting. Please delete lines which are not used.

3. Challenges and opportunities

Information about the strengths and weaknesses of the research group is obtained through the questions above. In this chapter, please reflect on what might be the challenges and opportunities for developing and strengthening the research and the position of the research group.

Short version

Scales for research group assessment

Organisational dimension

Score	Organisational environment
5	An organisational environment that is outstanding for supporting the production of excellent research.
4	An organisational environment that is very strong for supporting the production of excellent research.
3	An organisational environment that is adequate for supporting the production of excellent research.
2	An organisational environment that is modest for supporting the production of excellent research.
1	An organisational environment that is not supportive for the production of excellent research.

Quality dimension

Score	Research and publication quality	Score	Research group's contribution Groups were invited to refer to the Contributor Roles Taxonomy in their description https://credit.niso.org/
5	Quality that is outstanding in terms of originality, significance and rigour.	5	The group has played an outstanding role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
4	Quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence.	4	The group has played a very considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
3	Quality that is recognised internationally in terms of originality, significance and rigour.	3	The group has a considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
2	Quality that meets the published definition of research for the purposes of this assessment.	2	The group has modest contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
1	Quality that falls below the published definition of research for the purposes of this assessment.	1	The group or a group member is credited in the publication, but there is little or no evidence of contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.

Societal impact dimension

Score	Research group's societal contribution, taking into consideration the resources available to the group	Score	User involvement
5	The group has contributed extensively to economic, societal and/or cultural development in Norway and/or internationally.	5	Societal partner involvement is outstanding – partners have had an important role in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
4	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is very considerable given what is expected from groups in the same research field.	4	Societal partners have very considerable involvement in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
3	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is on par with what is expected from groups in the same research field.	3	Societal partners have considerable involvement in the research process, from problem formulation to the publication and/or process or product innovation.
2	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is modest given what is expected from groups in the same research field.	2	Societal partners have a modest part in the research process, from problem formulation to the publication and/or process or product innovation.
1	There is little documentation of contributions from the group to economic, societal and/or cultural development in Norway and/or internationally.	1	There is little documentation of societal partners' participation in the research process, from problem formulation to the publication and/or process or product innovation.

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