Forskningsrådet

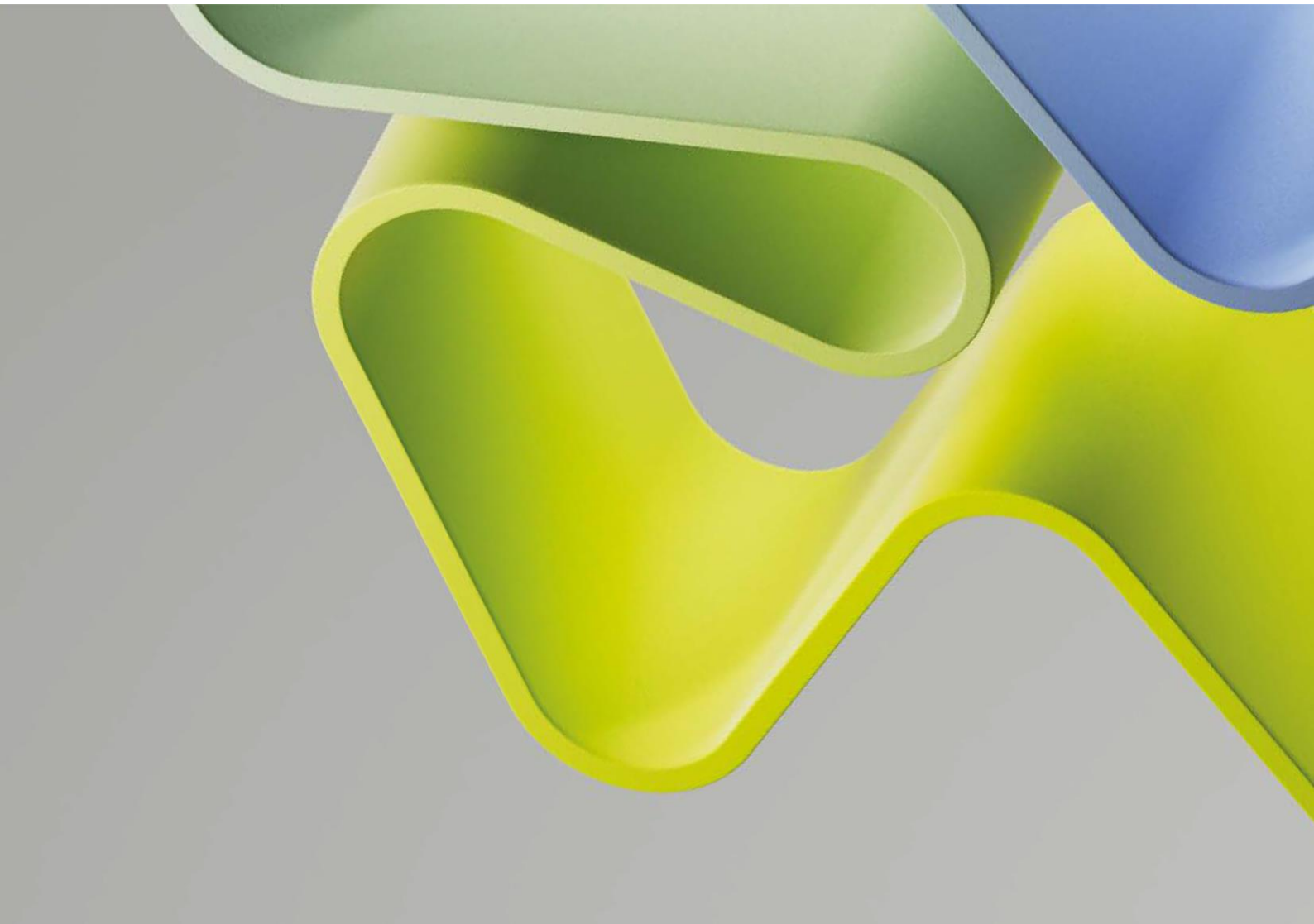
Evaluation of Life Sciences 2022-2024

Evaluation of medicine and health 2023-2024

Evaluation report

ADMINISTRATIVE UNIT: Division of Radiology and nuclear medicine
INSTITUTION: Oslo University Hospital and University of Oslo

December 2024



Contents

Statement from Evaluation Committee Health trusts 3

This report is from Evaluation Committee Health trusts 3 which evaluated the following administrative units representing the hospital trust in the Evaluation of medicine and health 2023-2024:

- Akershus University Hospital, Akershus University Hospital (AHUS)
- Haukeland University Hospital, Haukeland University Hospital
- Division of Laboratory Medicine, Oslo University Hospital and University of Oslo
- Division of Medicine, Oslo University Hospital and University of Oslo
- Division of Radiology and nuclear medicine, Oslo University Hospital and University of Oslo
- Division of Surgery, Inflammatory Diseases and Transplantation, Oslo University Hospital and University of Oslo
- Division of Technology and Innovation, Oslo University Hospital and University of Oslo
- St. Olavs University Hospital, St. Olavs University Hospital
- Stavanger University Hospital, Stavanger University Hospital (SUH)

The conclusions and recommendations in this report are based on information from the administrative units (self-assessment), digital meetings with representatives from the administrative units, bibliometric analysis and personnel statistics from the Nordic Institute for Studies of Innovation, Research, and Education (NIFU) and Statistics Norway (SSB), and selected data from Studiebarometeret (NOKUT). The digital interviews took place in Autumn 2024.

This report is the consensus view from committee Health trusts 3. All members of the committee have agreed with the assessments, conclusions and recommendations presented here.

Evaluation committee Health trusts 3 consisted of the following members:

Professor Jørgen Frøkiær (Chair), Aarhus University

Professor Geoff Bellingan,
University College London Hospitals

Associate Professor Dirk Bender,
Aarhus University

Professor Tomas Jernberg,
Danderyd Hospital

Associate Professor Tuomo Meretoja,
Helsinki University Hospital

Professor Shakila Thangaratinam ,
University of Liverpool

Professor Marie Wahren-Herlenius,
Karolinska Institutet

Veerle Bastiaanssen, Technopolis Group, was the committee secretary.

Oslo, December 2024

Profile of the administrative unit

The Division of Radiology and Nuclear Medicine (KRN) is a large division with 830 employees across five locations in Oslo. The division's leader oversees both Oslo University Hospital (OUS) and University of Oslo (UiO) activities. Research is managed by a central administrative unit, guided by a research committee appointed by the KRN leadership. This committee represents different departments, career stages, and includes PhD students, UiO representatives, and other key staff. It develops research strategy, organises seminars, and manages grants. A dedicated research unit staff handles project organisation, funding, and resource management, including a research PACS system launched in 2023. In terms of research staff, the division consists of eight professors/associate professors, 65 senior physicians, four physicians, 32 researchers and postdocs and 14 PhD-students. Women represent a majority in all categories except physicians (25%) and researchers and postdocs (41%).

The Division of Radiology and Nuclear Medicine is comprised of one research group, the Division of Radiology and Nuclear Medicine.

The research strategies of the Division of Radiology and Nuclear medicine (KRN) are based on the institutional strategies of OUS/UIO. The administrative unit concentrate their resources on supporting the research priorities of OUS while advancing their own research initiatives, which focus on several key areas. These include enhancing diagnostic tools for radiologic and nuclear medicine, developing and applying new diagnostic methods, improving existing techniques, and integrating Artificial Intelligence (AI) into diagnostic imaging. Their goal is to ensure that the research is of the highest quality, with a long-term vision of benefiting both patients and society as a whole. Moreover, in the strategy from 2020, they aimed to increase access to image data and systematic storage of image data available for AI. In the current strategy, the unit build on these efforts to implement new models and AI-based solutions for clinical studies to support personalised decision-making. In parallel, they continue to strengthen CRAI as a technological hub at OUS, by improved access to, and resources for, AI and high-performance computing.

Moreover, the research strategy closely aligns with current societal and economic priorities in Europe, including managing the growing burden of diseases and tackling the opportunities and risks associated with AI. Their research and training programmes help bring trustworthy imaging methodology to the clinic and market. The strong synergy between KRN, the academic sector and industry has led to innovative solutions that can be commercialised and meet the expectations of the end-users. research also focuses on personalised medicine. An example of the synergy is that the leader of KRN division of Radiology and Nuclear Medicine is also the leader for KRN UIO. In general, the KRN rely on collaborations for research. Typical projects involve partnerships with clinicians, KRN researchers, and local, national, or international collaborators. KRN has over 20 national and 30 international collaborations, primarily with Norwegian university hospitals and universities. Many are multisite projects with multiple collaborators. In some cases, KRN manages entire projects; in others, responsibilities are shared with different institutions, as seen in the NorCOAST project where NTNU led, and OUS KRN managed imaging data. As research infrastructure is an important part of KRN, collaborations also exist there. For example, KRN participates in the Services for sensitive data (TSD) platform at the University of Oslo.

Based on the self-assessment, in the future, the KRN might take advantage of internal strengths such as having scientific expertise in all areas needed for imaging research which gives them a lot of high-quality data to work with. The KRN might also take advantage of

external opportunities such as the potential in AI research, which can improve health services. To utilise this opportunity the administrative unit states that they need to further develop international and national research collaborations, probably also through increased mobility. The future situation of KRN might also be impacted recruitment issues among doctors which may pose a threat to medical research in the years to come.

Overall evaluation

The division for Radiology and nuclear medicine is a rather large administrative unit and located on 5 locations. Evaluation of the unit is mainly based on the Terms of reference and herewith on the self-evaluation report, an interview and additional available material.

The strategic goals aim to improve personalized treatment by improved diagnostic tools, especially by implanting artificial intelligence (AI) tools. To reach the goals, adequate internal and external funding and resources are available but the evaluators feel external national and international funding needs to be increased. The research quality of 12 research subgroups is generally high. The evaluators noticed that the strategic focus on AI and the established CRAI centre is beneficial both to reach strategic goals as well to maintain the high research quality.

A strength of the administrative unit is the research diversity, reflected by the number of research groups and the steering of research activities. However, besides general drawbacks such as funding, assignment of research time and recruitment issues, the diversity strength is likewise one of the weaknesses, as resources might be difficult to focus according to strategic goals. The distribution of the group over 5 locations complicates this weakness even more. However, the evaluators do see that the unit tries to overcome the weaknesses by intradepartmental meeting activities. Another weakness lies within Nuclear medicine, where own PET radiochemistry facilities are missing. The strength of PET is the availability of many different PET tracers. Without a PET radiochemistry facility, the implementation of new compounds, both for the benefit of clinical examinations as well for research developments, is crucially delayed. This creates a potential risk that KRN will be outmatched by units in Tromsø or Bergen.

Regarding the AI focus area, based on the interview it seems that initial constraints, especially with respect to GDPR are overcome. Here are therefore important scientific and societal prospects to be expected, especially if AI techniques are expanded from MRI to Nuclear Medicine techniques. In conclusion, under the given conditions, the administrative unit operates as to be expected.

Recommendations

To maintain research diversity the evaluators, recommend creating a strategy to avoid unilateral focus on AI/CRAI development. Furthermore, regarding AI/CRAI strategies are needed for collaborations and/or work sharing with other AI developing administrative units (at least) within OUS/UiO to optimize current AI resources. Due to this collaboration would be stronger in necessary negotiation/agreements on open legal questions to be discussed with the competent authorities.

Furthermore, strategies should be developed on how to integrate AI methods in other aspects than MRI imaging, specifically in Nuclear Medicine. Here it should be strategically considered, how interpretation not only of standard FDG scans, but also for cross validation with established PET probes e.g. for dementia could benefit from AI technology. Regarding the focus area of personalized medicine based on PET probes research a strategy should be developed to strengthen development and availability of suitable PET probes. The evaluation committee feels that a business plan/model for a KRN operated cyclotron facility would be helpful.

Besides these AI/CRAI specific recommendations, a formal policy within the administrative unit defining dedicated research time for research active staff should be developed and implemented to ensure sufficient research dedicated staff in the future. Here a KRN policy/strategy to attract more external funding's, (e.g. EU funding's and commissioned research from industry) would be helpful to finance dedicated research time for non UiO affiliated staff. Furthermore, regarding funding in general, external national and international funding is low compared to the internal basic funding. Here the administrative units needs strategies to increase the amount of external funding. In this context, commercialisation of AI related software tools could be explored as a tool to increase funding. A stronger investigation together with the UiO TTO services regarding development and commercialisation of AI related software tools is therefore recommended.

Finally, the administrative unit is encouraged to continue its impressive collaboration policy to secure its leading national role in AI developments for radiology/imaging and as well to focus even more on intra-divisional, multi-disciplinary meeting activity for research active staff. To overcome current and future national and international recruitment challenges, it is important for the unit to be an attractive site with a rewarding diver's research environment, based on diversity and equality.

1. Strategy, resources and organisation of research

1.1 Research strategy

The Division of Radiology and Nuclear Medicine (KRN) at the Institute of Clinical Medicine of Oslo University and Hospital is a big clinical operation with 830 employees of which 123 seem to be employed in research work. The work is performed at five different locations. The research group has 12 subgroups mainly reflecting anatomic areas (including paediatric) but with some modality orientation, radiological interventions, and basic research.

Generally, KRN focuses on improving diagnostic tools for both radiologic modalities and nuclear medicine, including developing new diagnostic tools, applying new tools, improving techniques, developing, and implementing Artificial Intelligence (AI) in diagnostic imaging. The aim is research of excellent quality which should be for the future benefit of patients and society in general.

To achieve these goals a research strategy for KRN is drafted by the head of research, then discussed and finalized in the administrative unit's research committee. Important priorities are made within the annual KRN leader group strategic meetings. Here new strategies are made, old strategies are evaluated, and budget is drafted. Final approval and responsibility regarding the research strategy is within the responsibility of the division head. Besides crucial involvement within for drafting and revising research strategies, the research committee arranges seminars for PhD students, announces funding opportunities, awards stimulus grants and more.

External funding is essential for pursuing research goals. Senior researchers, research networks or research subgroups make most of the applications of external funding, based on previous work or new lines of research. The research leader or the KRN leader supports external funding applications.

In 2019 a research environment focusing on artificial intelligence (AI) driven computational radiology methods (CRAI) was established. Here the overarching aim is to develop tools, which provide automated diagnostic support to the clinical-radiological community. CRAI, AI and AI research infrastructure and AI infrastructure in general is clearly a strategic focus area. Here, CRAI has been prioritized with 4 positions.

Besides CRAI, KRN focuses on personalized medicine. Here, a major contributor is PET research to characterize pathological states in individual subjects based on quantitative information.

Both AI developments and personalized medicine approaches fit well into and support KRN societal focus areas, which are: mental health, precision medicine, the cooperation with industry, national plan for clinical studies, investment in health data, herein diagnostic imaging data, as a contribution to improved quality in health services.

The committee's evaluation

Regarding research strategy, KRN has a well working procedure regarding drafting of new strategies and evaluation of current strategies. Currently 12 research subgroups based in 5 different locations are research active. The large number of research subgroups and the fact they are spread across different locations is challenging. On the other hand, 12

research groups ensure a high degree of diversity of research. However, it is obvious that Artificial Intelligence is currently the main development focus within the administrative unit by the establishment of the CRAI centre.

The committee´s recommendations

The administrative unit contains 12 research groups. To ensure the research diversity, a strategy to avoid unilateral focus on AI/CRAI development would be helpful. Regarding CRAI, the administrative unit overcame the initiation phase and established basic tools. As a further step a strategy should be developed to integrate AI methods in other fields than MRI imaging. In particular application of AI in Nuclear Medicine should be strategically considered, not only for standard FDG scans, but as well for cross validation with established PET probes e.g. for dementia. As AI development likewise is performed within other administrative units such as the OUS Division of Technology and Innovation a strategy for collaborations and/or work sharing with other AI developing administrative units at least within OUS/UiO would be helpful. This would help to ensure a leading role within AI development, to optimize current AI resources and may help to overcome recruitment challenges for AI experts.

Regarding the focus area personalized medicine based on PET probes research is dependent on the development and availability of suitable PET probes. Due to a general OUS policy this is a limiting factor. It is recommended to develop a strategy to strengthen radiochemistry capacities on site. Here, focus should be on acquiring a cyclotron and suitable laboratory facilities as final goal. Taking the limited number of new PET probes from third parties and high cost for external development and transport for these drugs into account a business model is considered a useful tool for decision makers on higher OUS/UiO levels.

1.2 Organisation of research

The Division of Radiology and Nuclear Medicine (KRN) is a big clinical operation with 830 employees of which 123 seem to be research active. KRN is based at five different locations with twelve research subgroups. The stated goals are: 1) outstanding research environments; 2) active collaborative clinical research; 3) improved organization and national academic collaboration; 4) international collaboration and strengthened research biobank and quality registries.

To attain these goals, the central element for the organisation of research is the research committee. Here future research strategies are finalized, and current research strategies are evaluated. Besides a research unit staff administration acts as practical organizer and research support unit. Research within the administrative unit is performed within 12 research subgroups which operate sort of autonomously.

To overcome limitations due the spreading to five locations and to create synergies within the different groups of the administrative unit 6 monthly intradepartmental meetings for PhD candidates and a yearly research group leader meeting are organized.

The research staff of 123 persons consist of 3 professor and 5 associate professors (20/30% position at UiO). 65 research active senior physicians (non-specified research contribution) are employed in permanent OUS positions, this means that most of their research is done within their worktime and outside normal working hours. Besides research staff consists of 4 physicians (hereof 2 PhD-students), 32 researcher and post docs and a total of 28 PhD students.

In terms of career development for research staff KRN mainly offers courses within UiO at the Faculty of Medicine and all scientific staff members have the right to apply for research and education leave according to the OUS/UiO regulations.

The committee's evaluation

KRN has organized research as to be expected for a large administrative unit based across 5 different locations. Efforts are made to create a research environment across the different locations and research subgroups. The number of research active individuals is high and possibilities for career development research sabbaticals are given. All this results in a solid research organization. However, special focus should be on distribution of dedicated research time for the 65 research active senior physicians and the post docs without formal UiO affiliations to ensure adequate research time within working hours. The current model might pose a threat to keep research active. Ensuring more regulated dedicated research time within regular working hours might counteract eventual attrition towards research activity.

The committee´s recommendations

The evaluation committee encourages the administrative unit to continue the fruitful collaboration policy between research groups to create synergy effects. In order to avoid attrition and to keep research activity attractive, a formal policy within the administrative unit defining dedicated research time for research active staff should be implemented. This might also be prospectively helpful in recruiting staff.

1.3 Research funding

Within the 2018-2022 period, the average yearly research funding is 68.9 MNOK. Funding is based on a “basic” grant of 42,2 MNOK from South-Eastern Norway Regional Health Authority (Helse Sør-Øst). Helse Sør-Øst does not allocate any earmarked basic funding for research to the hospitals. The amount recorded as “Direct R&D funding” corresponds to the amount reported from OUS in national R&D statistics as expenditure on R&D from the hospital’s basic budget. The estimate is partly based on amounts taken directly from accounts (such as salaries for defined research positions), and partly calculated from estimated time for clinical personnel spent on R&D, including support functions in the division. Besides the “basic grant”, funding consists of national grants of 17.6 MNOK mainly from RCN, and international grants of 3.7 MNOK (mainly EU) Finally contract research yields another 5.4 MNOK. In conclusion the majority of funding comes from the 4% of the divisions total internal personnel cost limit within the basic funding for KRN from South-Eastern Norway Regional Health Authority. The SWOT analysis supplied within self assessment identifies the lack of additional national and international fundings as potential weakness and threat for the administrative unit.

The committee's evaluation

KRN has identified a lack of funding as a potential weakness of the organization. This self-evaluation is supported by the committee’s evaluation. Even though the funding currently seems adequate, more external funds from national and international sources are needed to secure future research prospects. Development and marketing of “software medical device” solutions in particular within AI solutions might be an additional source of income.

The committee’s recommendations

The evaluators think KRN should have an enforced policy/strategy to attract more external funding’s, e.g. EU funding’s and commissioned research from industry. Increased external

funding will facilitate a policy on dedicated research time for senior physicians and will likewise help in recruitment challenges.

1.4 Use of infrastructures

Within the self assessment KRN does not consider participation in national infrastructures listed in the Norwegian roadmap for research infrastructures (Norsk veikart for forskningsinfrastruktur) including as host institution(s), participation in the international infrastructures funded by the ministries (Norsk deltakelse i internasjonale forskningsorganisasjoner finansiert av departementene) and participation in European (ESFRI) infrastructures (Norske medlemskap i infrastrukturer i ESFRI roadmap) including as host institution(s) as applicable for KRN.

However, generally KRN researchers are supplied with the necessary infrastructure for their high-quality research. Here, KRN has their own unit for research and education. Furthermore, there is access to OUS core facilities and access to the University of Oslo's data infrastructure: TSD (services for sensitive data) and bio-statistical support.

Nationally, researchers at KRN are involved in the use of national infrastructure facilities such as Sigma2 AS (computational science in Norway), Norwegian NMR Platform (NNP), NORBRAIN and NorCrin.

The KRN internal Center for Computational Radiology and AI (CRAI) offers KRN researchers access to the in house developed NeoMedSys platform, and the *nordicMEDIVA* framework.

KRN follows the general UiO FAIR principles. However, there are constraints with respect to sharing of sensitive health data and GDPR compliance.

The committee's evaluation

Where applicable, KRN uses, relevant infrastructures. It should be noted that the used infrastructures are different from the infrastructures mentioned above such as ESFRI Especially, in terms of AI development the access to the University of Oslo's data infrastructure, TSD (services for sensitive data) and biostatistical support are considered very beneficial. However, KRN faces challenges within AI focus area regarding sharing sensitive health data and GDPR compliance.

Handling of sensitive health data and GDPR compliance are general challenges and cannot be resolved by KRN alone. Here at least a national consensus is required.

The committee´s recommendations

To resolve pending issues with sensitive health data and GDPR compliance, KRN should strongly collaborate in a formalised way with other AI development active divisions within OUS, generally administrative units in Norway and of course with the relevant competent authorities.

1.5 Collaboration

KRN has more than 20 national and more than 30 active international collaborations and according to the self-assessment the administrative unit relies on collaborations in the majority of their research.

The high number of collaborations is reflected in a high number of collaborative publications. KRN has the 2nd highest to sixth highest adjusted author shares, in the fields of neurology, oncology, surgical sciences, cardiovascular and respiratory system and biomedicine.

National collaborations are with all Norwegian university hospitals, major universities, hospitals and industry. Within the listed 8 main national collaboration it is focused on Molecular Imaging. At least 3 of these collaborations include nuclear medicine imagine techniques.

International collaborations are with 10 high ranking medical universities / research institutions in USA, UK, France, Spain, Germany and The Netherlands. The collaboration partners includes Stanford University, CA, Stanford, USA Heidelberg University, Heidelberg, Germany, Massachusetts General Hospital, Boston, USA Harvard Medical School, Boston, USA Kings College London, London, UK and INSERM, Paris, France

Within the listed 10 main international collaborations at least 3 collaboration includes nuclear medicine imaging techniques. Within at least 6 of these collaboration AI techniques are developed or used.

Besides collaborations with public research institutions, KRN collaborates with private partners besides others with Sciencons AS, Nucligen AS and Blue Earth Diagnostics (BED)

Collaborations with patient organizations exist, but are not further elaborated upon in the self- assessment

The committee's evaluation

KRN has strong national and international collaborations. It is noteworthy, that within the majority of the international collaborations AI techniques are developed or used, whereas this area is much more limited in the national collaborations. Probably over time national AI-related collaborations will increase, but to secure a leading position KRN should pursue national collaborations on AI to large extent as well.

The committee´s recommendations

Generally, the committee encourages KRN to continue its successful collaboration efforts. However, given the dominance of international AI collaboration, a KRN strategy to strengthen AI-related national collaborations would be helpful to secure a leading national role.

1.6 Research staff

Out of 830 employees 123 individuals (15%) are classified as research staff. Divided by the 12 research sub-groups this average number is 10 for each research group. The research staff consists of 3 professors, 5 associate professors (20/30% position at UiO), 65 research

active senior physicians (non-specified research contribution), 4 physicians (of which 2 are PhD-students), 32 researcher and post docs and a total of 28 PhD students. It is noteworthy that the 65 research active senior physicians are employed in permanent OUS positions, this means that most of their research is done outside normal working hours. Within artificial intelligence development (CRAI), research staff is multi-disciplinary, opening up especially for computer scientists.

The general gender distribution is 50% woman and therefore ideal. However, there are noteworthy difference within the individual groups. Within the segment of senior physicians, the share of women is somewhat higher than 50%, whereas in the group of researchers and post docs the share is somewhat lower than 50%. Especially within physician group, only 1 out of 4 are female.

No information is available regarding the gender distribution within research activity over employment time This This information would be helpful to evaluate if eventually observed imbalance in gender distribution is due to specific individual time limited challenges in work-life balance or if there are other reasons.

The committee's evaluation

The number of research staff seems adequate. Likewise, the profile of research staff in terms of position and gender seams adequate. Regarding the gender distribution, it should be taken into account that percentage of female students in med schools is by far exceeding the number of male students. Thus, in the future the number of female researchers might become larger than that of male researchers at some stage.

The committee´s recommendations

In order to proactively deal with a possible future where there are more female than male researchers, a policy ensuring a fair but shifted gender distribution should be considered.

1.7 Open Science

KRN follows the general OUS and UiO guidelines regarding open science and KRN actively endorses open access publishing. This is reflected that within the reporting period the number of open access publications was increased continuously from 36 to currently 93%. 48,3% are published in gold OA.

KRN follows the general UiO and OUS guidelines (“as open as possible, as closed as necessary”) regarding ownership of research data, data management and confidentiality and FAIR principles. However, there are constraints regarding FAIR principles and open access due to concerns regarding privacy due to the fact that data are patient derived. This is well valid regarding sharing and reuse of sensitive data. Here national and international guidelines and data solutions are missing or need implementation. UiO aims to manage data according to FAIR and CARE principles and other international standards and courses are available for students and scientists with whom the responsibility lies to manage data according to the guidelines.

Ownership of data is regulated by current legislation, and there is support in establishing agreements between in-house scientists and external parties and collaborators to regulate access and rights to research data.

The committee's evaluation
KRN follows the OUS and UiO guidelines and published, as required, predominantly in open science related media.

The committee´s recommendations

The administrative unit follows all relevant OUS and UiO regulations to a high extent and the evaluators encourage the administrative unit to continue their open science strategy.

2. Research production, quality and integrity

The Division of Radiology and Nuclear Medicine (KRN) in the Institute of Clinical Medicine of Oslo University and Hospital is a big clinical operation with 830 employees of which 123 seem to be employed in research work. The work is performed at five different locations. The research group has 12 subgroups mainly reflecting anatomic areas (including paediatric) but with some modality orientation, radiological interventions, and basic research.

Generally, KRN scientifically focuses on improving diagnostic tools for both radiologic modalities and nuclear medicine, including developing new diagnostic tools, applying new tools, improving techniques, developing, and implementing Artificial Intelligence (AI) in diagnostic imaging. The aim is research of excellent quality which should be for the future benefit of patients and society in general.

Research at KRN is performed within 12 research subgroups covering research areas in “classical” radiological imaging, molecular imaging and nuclear medicine as well in AI related research. The research groups cover a wide range and consists of the Hepato-Pancreato-Biliary and abdominal transplantation imaging group, the Neuroimaging Research Group, the Musculoskeletal radiology research group at OUS, Abdominal Radiology Research group, the Vascular diagnostics and intervention research group, the Computational Radiology & Artificial Intelligence (CRAI) Research Group, the Pediatric Radiology Research Group, the Thoracic imaging and intervention research group, the Functional and Molecular Imaging and Therapy research group, the department of Physics and Computational Radiology, the Functional and Molecular Imaging and Therapy research group, the CT/X-ray Research & Technology research group and the Theragnostic Imaging research group

Besides the basic funding, the administrative unit contributes with a research committee and research unit staff. The research unit staff covers mainly administrative tasks. Generally, the administrative unit tries to link OUS and UiO

Regarding research integrity KRN follows OUS and UiO guidelines. For cases in question, routines for reporting and handling are established. The research leader is responsible for handling these cases, in close collaboration with trained staff at OUS and UIO and the involved person.

Even though research is performed within 12 defined research groups, only one evaluation report for one research group was available for the administrative unit was available. Thus, individual research groups were not evaluated.

2.1 Research quality and integrity

This part presents the overall evaluation of each research group that this administrative unit has registered for the evaluation. These evaluations of the research groups have been written by one of the 18 expert panels that have evaluated the registered research groups in EVALMEDHELSE. The panels carry the sole responsibility for their evaluations. The evaluation committee is not responsible for the assessments at research group level.

Research group Division of Radiology and Nuclear Medicine (KRN)

The research group has 12 subgroups mainly reflecting anatomic areas (including paediatric) but with some modality orientation, radiological interventions, and basic research. The activities of these subgroups as reflected in projects and publications are uneven with a marked neuro-radiological dominance. Of the ten listed projects six neuroimaging in nature. The remaining concerns Nuclear Medicine, Paediatric MRI, oncology, and MRI in oncology. The projects are strong with a total funding of MNOK 89.

The group lists ten high quality publications, nine in the neuroimaging and one in the prostate cancer area. There is on the average more than two contributing authors from KRN. Of the author positions six are first name and six last from KRN. The papers are published in good quality radiological journals of which one In Nature biomedical engineering. Nine monographs or scientific books are listed. The neuroimaging dominance is here somewhat less pronounced with four and one neuro-positron emission tomography entries. The remaining are radiology in internal medicine, nuclear medicine therapy and of the abdomen, and MRI physics.

KRN has a complex organization with five locations and twelve research subgroups. The impact of this is not clear. Both the research projects and publications listed are dominated by neuroimaging. The academic professors and senior physicians constitute 60 percent of the academic positions. The balance between clinical work and research is a problem: Scientific work is done in addition to 100% clinical positions, and few have 100% research positions”.

The scientific level of projects and publications is high nationally and internationally. The procedures involved in the development, testing and use of imaging AI solutions needs to be improved.

3. Diversity and equality

KRN follows the general UiO/OUS rules with respect to diversity and equality.

This means a commitment by the administrative unit, that KRN will actively work towards ensuring that all employees are given equal rights and opportunities for professional development regardless of gender, ethnicity, disability, gender identity, sexual orientation, socio-economic background, age, and religion. Furthermore, an action plan for Equality, Inclusion and Diversity outlines specific measures, with the following focus areas: 1) Competence and tools; 2) Communication and language (non-discriminatory language); 3) Recruitment, inclusion and employer branding.

Likewise, the University of Oslo defines diversity, equality and inclusion (DEI) as a strategic matter. The University of Oslo is committed to these issues being a conscious element in all activities. The University of Oslo's policy for diversity, equality and inclusion is anchored in an action plan and a strategic document.

As a measure these commitments are reflected in the gender distribution. Here the share of female employees is 50%, even though for research active physicians and post docs the share is somewhat lower.

The committee's evaluation

UiO/OUS rules with respect to diversity and equality are followed. Regarding the gender distribution, it should be taken into account that percentage of female students in med schools is by far exceeding the number of male students. Thus, in the future the number of female researchers might become larger than that of male researchers at some stage.

The committee´s recommendations

In order to proactively deal with a possible future where there are more female than male researchers, a policy ensuring a fair but shifted gender distribution should be considered.

4. Relevance to institutional and sectorial purposes

KRN pursues sector specific impact via different approaches. It is aimed to improvement personalized medicine by implementation of AI techniques, new imaging probes (PET), optimization of CT protocols and paediatric imaging procedures. Here AI technology is used to improvement/optimize the performance and out-put of the procedures.

KRN follows the general OUS and UiO guidelines regarding innovation and commercialisation and has access to Technology Transfer Office (TTO) services. Within the 2012 – 2022 period 4 successful innovation projects were performed which ended in commercialisation. Staff is motivated for innovation and commercialisation by a remuneration policy according to general OUS policy. Within this remuneration policy 1/3 of the net income will be given to the inventors and another 1/3 to the relevant research environment. KRN further supports innovation and commercialization via the *UiO Growth House* and *the Innovation Unit in OUS*. Both units offer ice and practical assistance for employees who are going to carry out innovation project.

The committee's evaluation
Some innovation and commercialisation projects were performed within the 2012 – 2022 evaluation period. Even though, it is appreciated that innovation and commercialisation projects are characterized by a high workload and administrative constraints, this number seems to be in the lower end. To improve innovation and commercialisation, a “software medical device” approach should be considered for software developed for AI related issues should be considered.

The committee´s recommendations
A stronger investigation together with the UiO TTO services regarding development and commercialisation of AI related software tools should be performed

4.1 Health trusts

For KRN, clinical research, innovation and commercialisation contribute towards development, assessment and implementation of new diagnostic methods, treatment, and healthcare technologies.

KRN aims to secure development assessment and implementation of new diagnostics methods as well as new treatment and healthcare technologies is secured by “end-user” (e.g. radiologists, clinicians) access and feedback. This user involvement and feedback is essential for efficient implementation of new developments, e.g. the innovative use of AI. To attract new research talents on student level KRN uses its staff with double affiliation to present research within teaching. Here knowledge on research activities within KRN is distributed. Furthermore, KRN offers project assignment of students during education. Finally, KRN offers the possibility for students to participate within the Medical Student Research Program (MSRP). Within MSRP research funding and structured research training is offered to up to 20 students per year.

The committee's evaluation
Based on the self-evaluation report it is unclear to the evaluation commission if the multidisciplinary approach is already implemented or a scenario to come. If implemented,

this approach is deemed to be rather valuable. Contribution towards quality of relevant education and the opportunities for students to be involved in research activities is adequate.

The committee´s recommendations

If not already done, KRN is encouraged to implement the multidisciplinary feedback/impact approach regarding optimized personalized treatment as soon as possible.

5. Relevance to society

KRN aims to contribute within 4 key areas to societal development. Here AI contributes heavily to all 4 areas. Special consideration is on validation and trustworthiness of AI employed radiological analysis techniques. The key area of mental health translational MRI Neuroimaging with new diagnostic tools in neurodegenerative diseases will play an important role. Other areas are the development/validation of new PET imaging probes to improve precision medicine. Here it is expected as well that AI will contribute to a high extent. Both within AI and new PET imaging probes industrial cooperation partners are essential and are another key area. The final key area is investment in health data, herein diagnostic imaging data, as a contribution to improved quality in health services. This is aimed to be achieved again via AI and improved development/access to relevant data bases.

Comments on impact case 1 - New centre for computational radiology and artificial intelligence (CRAI)

In order to reflect the importance of this impact case, KRN only presented 1 impact case within the self-evaluation.

The main impact of CRAI, is the establishment of essential IT infrastructure for AI research. CRAI initiated a range of AI-related research projects with the aim of providing AI-driven radiology support to overcome increase referral in combination with lack of radiologist manpower.

Within CRAI, there is focus on three areas: AI based detection and characterization of brain bleeds (ICH) from CT, AI based detection, characterization, and progression prediction of brain tumours from MRI and AI based prediction of Alzheimer's disease onset and progression. All three focus areas are characterized by both national and international collaborations.

CRAI is a rather recent initiative within the evaluation period. Despite the quite recent establishment, relevance to society regarding CRAI related research is documented by a considerable high number of publications in good journals relevant to the respective fields.

Within the impact the so called NeoMedSys platform was developed enabling efficient production of domain expert annotations of medical image data for deep learning model training. The end impact of this activity is to provide the hospital with validated and continuously improving AI based radiology tools. Another impact is the improvement of diagnosis of cerebrovascular infarcts, bleed detection and characterization applying AI methods with the final aim of better predictions of patient prognosis and optimal treatment. Within brain tumour characterization and progression predictions the impact aims to train AI models for accurate detection of postoperative residual tumour, and important predictor of outcome. Here the aim is to develop predictive AI models for early detection and progression of based only on magnetic resonance images (MRI).

Appendices

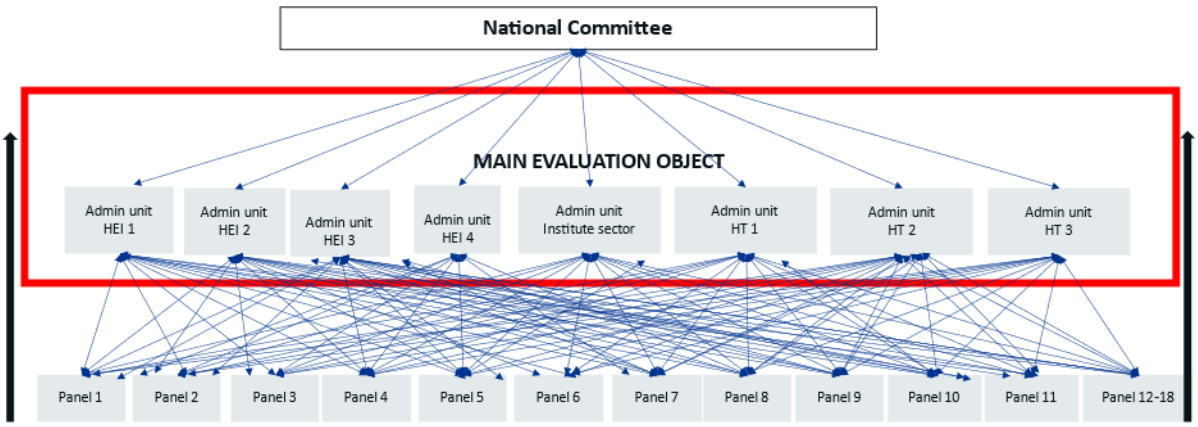
Evaluation of Medicine and health 2023-2024

By evaluating Norwegian research and higher education we aim to enhance the quality, relevance, and efficiency. In accordance with the statutes of the Research Council of Norway (RCN), the RCN evaluates Norwegian professional environments to create a solid and up-to-date knowledge base about Norwegian research and higher education in an international perspective.

The evaluation of life sciences is conducted in 2022-2024. The evaluation of medicine takes place in 2023-2024. The evaluation of biosciences was carried out in 2022-2023. 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), the institute sector and the health trusts. The evaluation shall result in recommendations to the institutions, the RCN and the ministries.

Evaluation of medicine and health (EVALMEDHELSE) 2023-2024
The evaluation of medicine and health includes sixty-eight administrative units (e.g., faculty, department, institution, center, division) which are assessed by evaluation committees according to sectorial affiliation and other relevant similarities between the units. The administrative units enrolled their research groups (315) to eighteen expert panels organised by research subjects or themes and assessed across institutions and sectors.

Organisation of evaluation of medicine and health 2023-2024



The institutions have been allowed to adapt the evaluation mandate (Terms of Reference) to their own strategic goals. This is to ensure that the results of the evaluation will be useful for the institution's own strategic development. The administrative unit together with the research group(s) selects an appropriate benchmark for each of the research group(s).

The Research Council of Norway has commissioned an external evaluation secretariat at Technopolis Group for the implementation of the evaluation process.

Each institution/administrative unit is responsible for following up the recommendations that apply to their own institution/administrative unit. The Research Council will use the results from the evaluation in the development of funding instruments and as a basis for advice to the Government.

The web page for the evaluation of medicine and health 2023-2024: [Evaluation of medicine and health sciences (forskningsradet.no)]

Forskningsrådet

Se vedlagte adresseliste

Vår saksbehandler / tlf.	Vår ref.	Deres ref.	Sted
Hilde G. Nielsen/40922260	23/3056	[Ref.]	Lysaker 28.4.2023

Invitasjon til å delta i fagevaluering av medisin og helsefag (EVALMEDHELSE) 2023-2024

Vi viser til varsel om oppstart av nye evalueringer sendt institusjonenes ledelse 9. november 2021 (vedlegg 2).

Porteføljestyret for livsvitenskap har vedtatt å gjennomføre fagevaluering av livsvitenskap 2022-2024 som to evalueringer:

- Evaluering av biovitenskap (EVALBIOVIT) (2022-2023)
- Evaluering av medisin og helsefag (EVALMEDHELSE) (2023-2024)

Hovedmålet med fagevalueringen av livsvitenskap 2022-2024 er å vurdere kvalitet og rammebetingelser for livsvitenskapelig forskning i Norge, samt forskningens relevans for sentrale samfunnsområder. Evalueringen skal resultere i anbefalinger til institusjonene, til Forskningsrådet og til departementene. Den forrige fagevalueringen av biologi, medisin og helsefag ble gjennomført i 2010/2011 (vedlegg 3).

Fagevaluering av livsvitenskap retter seg mot UH-sektor, helseforetak og instituttsektor (vedlegg 4). Forskningsrådet forventer at aktuelle forskningsmiljøer deltar i evalueringene, selv om beslutning om deltagelse gjøres ved den enkelte institusjon. Videre ber vi om at deltakende institusjoner setter av tilstrekkelig med ressurser til å delta i evalueringsprosessen, og at institusjonen oppnevner minst én representant som kontaktperson for Forskningsrådet.

Invitasjon til å delta i fagevaluering av medisin og helsefag (2023-2024)

Fagevaluering av medisin og helsefag er organisert over to nivåer (vedlegg 4, side 11). Internasjonale ekspertpaneler vil evaluere forskergrupper på tvers av fag, disiplin og forskningssektorer (UH, institutt og helseforetak) etter kriteriene beskrevet i kapittel 2 i evalueringsprotokollen (vedlegg 4).

Panelrapporten(e) for forskergruppene vil inngå i bakgrunnsdokumentasjonen til forskergruppen(e)s administrative enhet (hovedevalueringsobjektet i evaluering), og som vil bli evaluert i internasjonale

sektorspesifikke evalueringskomiteer. Evalueringskriteriene for administrative enheter er beskrevet i kapittel 2 i evalueringsprotokollen (vedlegg 4).

Innmelding av administrative enheter og forskergrupper – frist 6. juni 2023

Administrative enheter (hovedevalueringsobjektet i evalueringen) – skjema 1

Forskningsrådet inviterer institusjonene til å melde inn sine administrative enhet/er ved å fylle ut skjema 1. Definisjonen av en administrativ enhet i denne evalueringen er å finne på side 3 (kap 1.1) i evalueringsprotokollen (vedlegg 4). Ved innmelding av administrativ/e enhet/er anbefaler Forskningsrådet institusjonene til å se innmelding av administrativ enhet/er i sammenheng med tilpasning av mandat for den administrative enheten (Appendix A i evalueringsprotokollen).

Forskergrupper – skjema 2

Forskningsrådet ber de administrative enheter om å melde inn forskergrupper i tråd med forskergruppedefinisjonen (kap 1.1) og minimumskravene beskrevet i kapittel 1.2 i evalueringsprotokollen. Hver administrative enhet melder inn sin/e forskergruppe/r ved å fylle ut Skjema 2. Vi ber også om at forskergruppene innplasseres i den tentative fagpanelinndelingen for EVALMEDHELSE (vedlegg 5).

Forskningsrådet vil ferdigstille panelstruktur og avgjøre den endelige fordelingen av forskergruppene på fagpaneler *etter* at alle forskergrupper er meldt inn. Mer informasjon vil bli sendt i slutten av juni 2023.

Invitasjon til å foreslå eksperter – skjema 3

Forskningsrådet inviterer administrative enheter og forskergrupper til å spille inn forslag til eksperter som kan inngå i evalueringskomitéene og i ekspertpanelene. Hver evalueringskomité vil bestå av 7-9 komitémedlemmer, mens hvert ekspertpanel vil bestå av 5-7 eksperter.

Obs. Det er to faner i regnearket:

- FANE 1 – forslag til medlemmer til evalueringskomitéene. Medlemmene i evalueringskomitéene skal inneha bred vitenskapelig kompetanse, både faglig kompetanse og andre kvalifikasjoner som erfaring med ledelse, strategi- og evalueringsarbeid og kunnskapsutveksling.
- FANE 2 – forslag til medlemmer til ekspertpanelene. Medlemmene i ekspertpanelene skal være internasjonalt ledende eksperter innen medisin og helsefaglig forskning og innovasjon.

Utfylte skjemaer (3 stk):

- innmelding av administrative enhet/er (skjema 1)
- innmelding av forskergruppe/er (skjema 2)
- forslag til eksperter (skjema 3)

sendes på epost til evalmedhelse@forskningsradet.no **innen 6. juni 2023.**

Tilpasning av mandat – frist 30. september 2023

Forskningsrådet ber med dette administrative enheter om å tilpasse mandatet (vedlegg 4) ved å opplyse om egne strategiske mål og andre lokale forhold som er relevant for evalueringen.

Forskningsrådet

Tilpasningen gjøres ved å fylle inn de åpne punktene i malen (Appendix A). Utfylt skjema sendes på epost til evalmedhelse@forskningsradet.no innen 30. september 2023.

Digitalt informasjonsmøte 15. mai 2023, kl. 14.00-15.00.
Forskningsrådet arrangerer et digitalt informasjonsmøte for alle som ønsker å delta i EVALMEDHELSE.

Påmelding til informasjonsmøtet gjøres her: Fagevaluering av medisin og helsefag (EVALMEDHELSE) - Digitalt informasjonsmøte (pameldingssystem.no) .

Nettsider
Forskningsrådet vil opprette en nettside på www.forskningsradet.no for EVALMEDHELSE hvor informasjon vil bli publisert fortløpende. Her kan dere lese om Fagevaluering av biovitenskap (EVALBIOVIT) 2022-2023. Fagevaluering av medisin og helsefag vil bli gjennomført etter samme modell.

Spørsmål vedrørende fagevaluering av medisin og helsefag kan rettes til Hilde G. Nielsen, hgn@forskningsradet.no eller mobil 40 92 22 60.

Med vennlig hilsen
Norges forskningsråd

Ole Johan Borge	Hilde G. Nielsen
avdelingsdirektør	spesialrådgiver
Helse	Helse

Dokumentet er elektronisk godkjent og signert og har derfor ikke håndskrevne signaturer.

Kopi
Helse- og omsorgsdepartementet
Kunnskapsdepartementet

Vedlegg
1. Adresseliste
2. Nye fagevalueringer – varsel om oppstart november 2021
3. Erfaringer med oppfølging av fagevaluering av biologi, medisin og helsefag 2010/2011
4. Fagevaluering av livsvitenskap 2022-2024 – Evalueringsprotokoll
5. Tentativ panelinndeling EVALMEDHELSE mai 2023
6. Skjema 1 – Innmeldingsskjema Administrative enheter
7. Skjema 2 – Innmeldingsskjema Forskergrupper
8. Skjema 3 – Forslag til internasjonale eksperter til evalueringskomiteene og ekspertpanelene
9. Appendix A – word format

The Research Council of Norway

Evaluation of life sciences in Norway 2022-2023

LIVSEVAL protocol version 1.0

By decision of the Portfolio board for life sciences April 5., 2022

The Research Council of Norway
Visiting address: Drammensveien 288
P.O. Box 564
NO-1327 Lysaker

Telephone: +47 22 03 70 00
Telefax: +47 22 03 70 01
post@rcn.no
www.rcn.no

The report can be downloaded at
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Oslo, 5 April 2022

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1 Introduction

Research assessments based on this protocol serve different aims and have different target groups. 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), and by the institute sector and regional health authorities and health trusts. These institutions will hereafter be collectively referred to as Research Performing Organisations (RPOs). The assessments should serve a formative purpose by contributing to the development of research quality and relevance at these institutions and at the national level.

1.1 Evaluation units

The assessment will comprise a number of *administrative units* submitted for evaluation by the host institution. By assessing these administrative units in light of the goals and strategies set for them by their host institution, it will be possible to learn more about how public funding is used at the institution(s) to facilitate high-quality research and how this research contributes to society. The administrative units will be assessed by evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.

The administrative units will be invited to submit data on their *research groups* to be assessed by expert panels organised by research subject or theme. See Chapter 3 for details on organisation.

Administrative unit	An administrative unit is any part of an RPO that is recognised as a formal (administrative) unit of that RPO, with a designated budget, strategic goals and dedicated management. It may, for instance, be a university faculty or department, a department of an independent research institute or a hospital.
Research group	Designates groups of researchers within the administrative units that fulfil the minimum requirements set out in section 1.2. Research groups are identified and submitted for evaluation by the administrative unit, which may decide to consider itself a single research group.

1.2 Minimum requirements for research groups

1) The research group must be sufficiently large in size, i.e. at least five persons in full-time positions with research obligations. This merely indicates the minimum number, and larger units are preferable. In exceptional cases, the minimum number may include PhD students, postdoctoral fellows and/or non-tenured researchers. *In all cases, a research group must include at least three full-time tenured staff*. Adjunct professors, technical staff and other relevant personnel may be listed as group members but may not be included in the minimum number.

2) The research group subject to assessment must have been established for at least three years. Groups of more recent date may be accepted if they have come into existence as a consequence of major organisational changes within their host institution.
3) The research group should be known as such both within and outside the institution (e.g. have a separate website). It should be able to document common activities and results in the form of co-publications, research databases and infrastructure, software, or shared responsibilities for delivering education, health services or research-based solutions to designated markets.
4) In its self-assessment, the administrative unit should propose a suitable benchmark for the research group. The benchmark will be considered by the expert panels as a reference in their assessment of the performance of the group. The benchmark can be grounded in both academic and extra-academic standards and targets, depending on the purpose of the group and its host institution.

1.3 The evaluation in a nutshell

The assessment concerns:

- research that the administrative unit and its research groups have conducted in the previous 10 years
- the research strategy that the administrative units under evaluation intend to pursue going forward
- the capacity and quality of research in life sciences at the national level

The Research Council of Norway (RCN) will:

- provide a template for the Terms of Reference[1] for the assessment of RPOs and a national-level assessment in life sciences
- appoint members to evaluation committees and expert panels
- provide secretarial services
- commission reports on research personnel and publications based on data in national registries
- take responsibility for following up assessments and recommendations at the national level.

RPOs conducting research in life sciences are expected to take part in the evaluation. The board of each RPO under evaluation is responsible for tailoring the assessment to its own strategies and specific needs and for following them up within their own institution. Each participating RPO will carry out the following steps:

1) Identify the administrative unit(s) to be included as the main unit(s) of assessment
2) Specify the Terms of Reference by including information on specific tasks and/or strategic goals of relevance to the administrative unit(s)

[1] The terms of reference (ToR) document defines all aspects of how the evaluation committees and expert panels will conduct the [research area] evaluation. It defines the objectives and the scope of the evaluation, outlines the responsibilities of the involved parties, and provides a description of the resources available to carry out the evaluation.

3) The administrative unit will, in turn, be invited to register a set of research groups that fulfil the minimum criteria specified above (see section 1.2). The administrative unit may decide to consider itself a single research group.
4) For each research group, the administrative unit should select an appropriate benchmark in consultation with the group in question. This benchmark can be a reference to an academic level of performance or to the group's contributions to other institutional or sectoral purposes (see section 2.4). The benchmark will be used as a reference in the assessment of the unit by the expert panel.
5) The administrative units subject to assessment must provide information about each of their research groups, and about the administrative unit as a whole, by preparing self-assessments and by providing additional documentation in support of the self-assessment.

1.4 Target groups

- Administrative units represented by institutional management and boards
- Research groups represented by researchers and research group leaders
- Research funders
- Government

The evaluation will result in recommendations to the institutions, the RCN and the ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research and society at large.

This protocol is intended for all participants in the evaluation. It provides the information required to organise and carry out the research assessments. Questions about the interpretation or implementation of the protocol should be addressed to the RCN.

2 Assessment criteria

The administrative units are to be assessed on the basis of five assessment criteria. The five criteria are applied in accordance with international standards. Finally, the evaluation committee passes judgement on the administrative units as a whole in qualitative terms. In this overall assessment, the committee should relate the assessment of the specific tasks to the strategic goals that the administrative unit has set for itself in the Terms of Reference.

When assessing administrative units, the committees will build on a separate assessment by expert panels of the research groups within the administrative units. See Chapter 3 'Evaluation process and organisation' for a description of the division of tasks.

2.1 Strategy, resources and organisation

The evaluation committee assesses the framework conditions for research in terms of funding, personnel, recruitment and research infrastructure in relation to the strategic aims set for the administrative unit. The administrative unit should address at least the following five specific aspects in its self-assessment: 1) funding sources, 2) national and international cooperation, 3) cross-sector and interdisciplinary cooperation, 4) research careers and mobility, and 5) Open Science. These five aspects relate to how the unit organises and actually performs its research, its composition in terms of leadership and personnel, and how the unit is run on a day-to-day basis.

To contribute to understanding what the administrative unit can or should change to improve its ability to perform, the evaluation committee is invited to focus on factors that may affect performance.

Further, the evaluation committee assesses the extent to which the administrative unit's goals for the future remain scientifically and societally relevant. It is also assessed whether its aims and strategy, as well as the foresight of its leadership and its overall management, are optimal in relation to attaining these goals. Finally, it is assessed whether the plans and resources are adequate to implement this strategy.

2.2 Research production, quality and integrity

The evaluation committee assesses the profile and quality of the administrative unit's research and the contribution the research makes to the body of scholarly knowledge and the knowledge base for other relevant sectors of society. The committee also assesses the scale of the unit's research results (scholarly publications, research infrastructure developed by the unit, and other contributions to the field) and its contribution to Open Science (early knowledge and sharing of data and other relevant digital objects, as well as science communication and collaboration with societal partners, where appropriate).

The evaluation committee considers the administrative unit's policy for research integrity and how violations of such integrity are prevented. It is interested in how the unit deals with research data, data management, confidentiality (GDPR) and integrity, and the extent to which independent and critical pursuit of research is made possible within the unit. Research integrity relates to both the scientific integrity of conducted research and the professional integrity of researchers.

2.3 Diversity and equality

The evaluation committee considers the diversity of the administrative unit, including gender equality. The presence of differences can be a powerful incentive for creativity and talent development in a diverse administrative unit. Diversity is not an end in itself in that regard, but a tool for bringing together different perspectives and opinions.

The evaluation committee considers the strategy and practices of the administrative unit to prevent discrimination on the grounds of gender, age, disability, ethnicity, religion, sexual orientation or other personal characteristics.

2.4 Relevance to institutional and sectoral purposes

The evaluation committee compares the relevance of the administrative unit's activities and results to the specific aspects detailed in the Terms of Reference for each institution and to the relevant sectoral goals (see below).

Higher Education Institutions

There are 36 Higher Education Institutions in Norway that receive public funding from the Ministry for Education and Research. Twenty-one of the 36 institutions are owned by the ministry, whereas the last 15 are privately owned. The HEIs are regulated under the Act relating to universities and university colleges of 1 August 2005.

The purposes of Norwegian HEIs are defined as follows in the Act relating to universities and university colleges[2]

- provide higher education at a high international level;
- conduct research and academic and artistic development work at a high international level;
- disseminate knowledge of the institution's activities and promote an understanding of the principle of academic freedom and application of scientific and artistic methods and results in the teaching of students, in the institution's own general activity as well as in public administration, in cultural life and in business and industry.

In line with these purposes, the Ministry for Research and Education has defined four overall goals for HEIs that receive public funding. These goals have been applied since 2015:

1) High quality in research and education
2) Research and education for welfare, value creation and innovation
3) Access to education (esp. capacity in health and teacher education)
4) Efficiency, diversity and solidity of the higher education sector and research system

The committee is invited to assess to what extent the research activities and results of each administrative unit have contributed to sectoral purposes as defined above. In particular, the committee is invited to take the share of resources spent on education at the administrative units into account and to assess the relevance and contributions of research to education, focusing on the master's and PhD levels. This assessment should be distinguished from an

[2] https://lovdata.no/dokument/NLE/lov/2005-04-01-15?q=universities

assessment of the quality of education in itself, and it is limited to the role of research in fostering high-quality education.

Research institutes (the institute sector)

Norway's large institute sector reflects a practical orientation of state R&D funding that has long historical roots. The Government's strategy for the institute sector[3] applies to the 33 independent research institutes that receive public basic funding through the RCN, in addition to 12 institutes outside the public basic funding system.

The institute sector plays an important and specific role in attaining the overall goal of the national research system, i.e. to increase competitiveness and innovation power to address major societal challenges. The research institutes' contributions to achieving these objectives should therefore form the basis for the evaluation. The main purpose of the sector is to conduct independent applied research for present and future use in the private and public sector. However, some institutes primarily focus on developing a research platform for public policy decisions, others on fulfilling their public responsibilities.

The institutes should:

- maintain a sound academic level, documented through scientific publications in recognised journals
- obtain competitive national and/or international research funding grants
- conduct contract research for private and/or public clients
- demonstrate robustness by having a reasonable number of researchers allocated to each research field

The committee is invited to assess the extent to which the research activities and results of each administrative unit contribute to sectoral purposes and overall goals as defined above. In particular, the committee is invited to assess the level of collaboration between the administrative unit(s) and partners in their own or other sectors.

The hospital sector

There are four regional health authorities (RHFs) in Norway. They are responsible for the specialist health service in their respective regions. The RHFs are regulated through the Health Enterprises Act of 15 June 2001 and are bound by requirements that apply to specialist and other health services, the Health Personnel Act and the Patient Rights Act. Under each of the regional health authorities, there are several health trusts (HFs), which can consist of one or more hospitals. A health trust (HF) is wholly owned by an RHF.

Research is one of the four main tasks of hospital trusts.[4] The three other mains tasks are to ensure good treatment, education and training of patients and relatives. Research is important if the health service is to keep abreast of stay up-to-date with medical developments and carry out critical assessments of established and new diagnostic methods,

[3] Strategy for a holistic institute policy (Kunnskapsdepartementet 2020)

[4] Cf. the Specialist Health Services Act § 3-8 and the Health Enterprises Act §§ 1 and 2

treatment options and technology, and work on quality development and patient safety while caring for and guiding patients.

The committee is invited to assess the extent to which the research activities and results of each administrative unit have contributed to sectoral purposes as described above. The assessment does not include an evaluation of the health services performed by the services.

2.5 Relevance to society

The committee assesses the quality, scale and relevance of contributions targeting specific economic, social or cultural target groups, of advisory reports on policy, of contributions to public debates, and so on. The documentation provided as the basis for the assessment of societal relevance should make it possible to assess relevance to various sectors of society (i.e. business, the public sector, non-governmental organisations and civil society).

When relevant, the administrative units will be asked to link their contributions to national and international goals set for research, including the Norwegian Long-term Plan for Research and Higher Education and the UN Sustainable Development Goals. Sector-specific objectives, e.g. those described in the Development Agreements for the HEIs and other national guidelines for the different sectors, will be assessed as part of criterion 2.4.

The committee is also invited to assess the societal impact of research based on case studies submitted by the administrative units and/or other relevant data presented to the committee. Academic impact will be assessed as part of criterion 2.2.

3 Evaluation process and organisation

The RCN will organise the assessment process as follows:

- Commission a professional secretariat to support the assessment process in the committees and panels, as well as the production of self-assessments within each RPO
- Commission reports on research personnel and publications within life sciences based on data in national registries
- Appoint one or more evaluation committees for the assessment of administrative units.
- Divide the administrative units between the appointed evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.
- Appoint a number of expert panels for the assessment of research groups submitted by the administrative units.
- Divide research groups between expert panels according to similarity of research subjects or themes.
- Task the chairs of the evaluation committees with producing a national-level report building on the assessments of administrative units and a national-level assessments produced by the expert panels.

Committee members and members of the expert panels will be international, have sufficient competence and be able, as a body, to pass judgement based on all relevant assessment criteria. The RCN will facilitate the connection between the assessment levels of panels and committees by appointing committee members as panel chairs.

3.1 Division of tasks between the committee and panel levels

The expert panels will assess research groups across institutions and sectors, focusing on the first two criteria specified in Chapter 2: 'Strategy, resources and organisation' and 'Research production and quality' The assessments from the expert panels will also be used as part of the evidence base for a report on Norwegian research within life sciences (see section 3.3).

The evaluation committees will assess the administrative units based on all the criteria specified in Chapter 2. The assessment of research groups delivered by the expert panels will be a part of the evidence base for the committees' assessments of administrative units. See figure 1 below.

The evaluation committee has sole responsibility for the assessments and any recommendations in the report. The evaluation committee reaches a judgement on the research based on the administrative units and research groups' self-assessments provided by the RPOs, any additional documents provided by the RCN, and interviews with representatives of the administrative units. The additional documents will include a standardised analysis of research personnel and publications provided by the RCN.

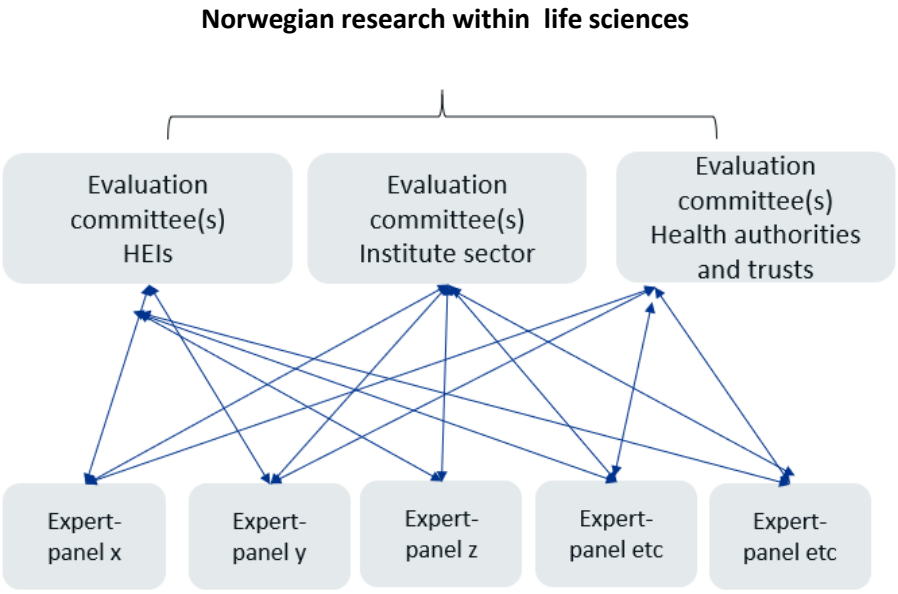

Figure 1. Evaluation committees and expert panels

The evaluation committee takes international trends and developments in science and society into account when forming its judgement. When judging the quality and relevance of the research, the committees shall bear in mind the specific tasks and/or strategic goals that the administrative unit has set for itself including sectoral purposes (see section 2.4 above).

3.2 Accuracy of factual information

The administrative unit under evaluation should be consulted to check the factual information before the final report is delivered to the RCN and the board of the institution hosting the administrative unit.

3.3 National level report

Finally, the RCN will ask the chairs of the evaluation committees to produce a national-level report that builds on the assessments of administrative units and the national-level assessments produced by the expert panels. The committee chairs will present their assessment of Norwegian research in life sciences at the national level in a separate report that pays specific attention to:

- Strengths and weaknesses of the research area in the international context
- The general resource situation regarding funding, personnel and infrastructure
- PhD training, recruitment, mobility and diversity
- Research cooperation nationally and internationally
- Societal impact and the role of research in society, including Open Science

This national-level assessment should be presented to the RCN.

Appendix A: Terms of References (ToR)

[Text in red to be filled in by the Research-performing organisations (RPOs)]

The board of [RPO] mandates the evaluation committee appointed by the Research Council of Norway (RCN) to assess [administrative unit] based on the following Terms of Reference.

Assessment
You are asked to assess the organisation, quality and diversity of research conducted by [administrative unit] as well as its relevance to institutional and sectoral purposes, and to society at large. You should do so by judging the unit's performance based on the following five assessment criteria (a. to e.). Be sure to take current international trends and developments in science and society into account in your analysis.

a) Strategy, resources and organisation
b) Research production, quality and integrity
c) Diversity and equality
d) Relevance to institutional and sectoral purposes
e) Relevance to society

For a description of these criteria, see Chapter 2 of the life sciences evaluation protocol. Please provide a written assessment for each of the five criteria. Please also provide recommendations for improvement. We ask you to pay special attention to the following [n] aspects in your assessment:

1. …
2. …
3. …
4. …

…

[To be completed by the board: specific aspects that the evaluation committee should focus on – they may be related to a) strategic issues, or b) an administrative unit's specific tasks.]

In addition, we would like your report to provide a qualitative assessment of [administrative unit] as a whole in relation to its strategic targets. The committee assesses the strategy that the administrative unit intends to pursue in the years ahead and the extent to which it will be capable of meeting its targets for research and society during this period based on available resources and competence. The committee is also invited to make recommendations concerning these two subjects.

Documentation
The necessary documentation will be made available by the life sciences secretariat at Technopolis Group.

The documents will include the following:

- a report on research personnel and publications within life sciences commissioned by RCN
- a self-assessment based on a template provided by the life sciences secretariat
- [to be completed by the board]

Interviews with representatives from the evaluated units
Interviews with the [administrative unit] will be organised by the evaluation secretariat. Such interviews can be organised as a site visit, in another specified location in Norway or as a video conference.

Statement on impartiality and confidence
The assessment should be carried out in accordance with the *Regulations on Impartiality and Confidence in the Research Council of Norway*. A statement on the impartiality of the committee members has been recorded by the RCN as a part of the appointment process. The impartiality and confidence of committee and panel members should be confirmed when evaluation data from [the administrative unit] are made available to the committee and the panels, and before any assessments are made based on these data. The RCN should be notified if questions concerning impartiality and confidence are raised by committee members during the evaluation process.

Assessment report
We ask you to report your findings in an assessment report drawn up in accordance with a format specified by the life sciences secretariat. The committee may suggest adjustments to this format at its first meeting. A draft report should be sent to the [administrative unit] and RCN by [date]. The [administrative unit] should be allowed to check the report for factual inaccuracies; if such inaccuracies are found, they should be reported to the life sciences secretariat no later than two weeks after receipt of the draft report. After the committee has made the amendments judged necessary, a corrected version of the assessment report should be sent to the board of [the RPO] and the RCN no later than two weeks after all feedback on inaccuracies has been received from [administrative unit].

Appendix B: Data sources

The lists below shows the most relevant data providers and types of data to be included in the evaluation. Data are categorised in two broad categories according to the data source: National registers and self-assessments prepared by the RFOs. The RCN will commission an analysis of data in national registers (R&D-expenditure, personnel, publications etc.) to be used as support for the committees' assessment of administrative units. The analysis will include a set of indicators related to research personnel and publications.

- **National directorates and data providers**
- Norwegian Directorate for Higher Education and Skills (HK-dir)
- Norwegian Agency for Quality Assurance in Education (NOKUT)
- Norwegian Agency for Shared Services in Education and Research (SIKT)
- Research Council of Norway (RCN)
- Statistics Norway (SSB)

National registers

1) R&D-expenditure
    a. SSB: R&D statistics
    b. SSB: Key figures for research institutes
    c. HK-dir: Database for Statistics on Higher Education (DBH)
    d. RCN: Project funding database (DVH)
    e. EU-funding: eCorda
2) Research personnel
    a. SSB: The Register of Research personnel
    b. SSB: The Doctoral Degree Register
    c. RCN: Key figures for research institutes
    d. HK-dir: Database for Statistics on Higher Education (DBH)
3) Research publications
    a. SIKT: Cristin - Current research information system in Norway
    b. SIKT: Norwegian Infrastructure for Bibliometrics
    (full bibliometric data incl. citations and co-authors)
4) Education
    a. HK-dir/DBH: Students and study points
    b. NOKUT: Study barometer
    c. NOKUT: National Teacher Survey
5) Sector-oriented research
    a. RCN: Key figures for research institutes
6) Patient treatments and health care services
    a. Research & Innovation expenditure in the health trusts
    b. Measurement of research and innovation activity in the health trusts
    c. Collaboration between health trusts and HEIs
    d. Funding of research and innovation in the health trusts
    e. Classification of medical and health research using HRCS (HO21 monitor)

Self-assessments

1) Administrative units
    a. *Self-assessment covering all assessment criteria*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on the division of staff resources between research and other activities (teaching, dissemination etc.)
    e. Administrative data on research infrastructure and other support structures
    f. SWOT analysis
    g. Any supplementary data needed to assess performance related to the strategic goals and specific tasks of the unit

2) Research groups
    a. *Self-assessment covering the first two assessment criteria (see Table 1)*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on contribution to sectoral purposes: teaching, commissioned work, clinical work [will be assessed at committee level]
    e. Publication profiles
    f. Example publications and other research results (databases, software etc.) The examples should be accompanied by an explanation of the groups' specific contributions to the result
    g. Any supplementary data needed to assess performance related to the benchmark defined by the administrative unit

The table below shows how different types of evaluation data may be relevant to different evaluation criteria. Please note that the self-assessment produced by the administrative units in the form of a written account of management, activities, results etc. should cover all criteria. A template for the self-assessment of research groups and administrative units will be commissioned by the RCN from the life sciences secretariat for the evaluation.

Table 1. Types of evaluation data per criterion

Evaluation units / Criteria	Research groups	Administrative units
Strategy, resources and organisation	Self-assessment Administrative data	Self-assessment National registers Administrative data SWOT analysis
Research production and quality	Self-assessment Example publications (and other research results)	Self-assessment National registers
Diversity, equality and integrity		Self-assessment National registers Administrative data
Relevance to institutional and sectoral purposes		Self-assessment Administrative data
Relevance to society		Self-assessment National registers Impact cases
Overall assessment	*Data related to:* *Benchmark defined by administrative unit*	*Data related to:* *Strategic goals and specific tasks of the admin. unit*

Evaluation of Medicine and Health (EVALMEDHELSE) 2023-2024

Self- assessment for administrative units

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

Institution (name and short name):_____
Administrative unit (name and short name): _____
Date:_____
Contact person:_____
Contact details (email):_____

Content

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 an administrative unit. The self-assessment contains questions regarding the unit's research- and innovation related activities and developments over years 2012-2022. All submitted data will be evaluated by international evaluation committees. The administrative unit´s research groups will be assessed by international expert panels who report their assessment to the relevant evaluation committee.

Deadline for submitting self- assessments to the Research Council of Norway – 31 January 2024
As an administrative unit you are responsible for collecting completed self-assessments for each of the research groups that belong to the administrative unit. The research groups need to submit their completed self-assessment to the administrative unit no later than 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 use the following format when naming your document: name of the institution and short name of the administrative unit, e.g. *NTNU_FacMedHealthSci* and send it to evalmedhelse@forskningsradet.no within 31 January 2024.

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 be sure that all documents which are linked to in the self- assessment are 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 all criteria, the administrative unit must answer all questions.
- Information should be provided by link to webpages i.e. strategy and other planning documents.
  - Provide information – provide documents and other relevant data or figures about the administrative unit, for example strategy and other planning documents.
  - Describe – explain and present using contextual information about the administrative unit and inform the reader about the administrative unit.
  - Reflect – comment in a reflective and evaluative manner how the administrative unit operates.
- Data on personnel should refer to reporting to DBH on 1 October 2022 for HEIs and to the yearly reporting for 2022 for the institute sector and the health trusts. Other data should refer to 31 December 2022, if not specified otherwise.
- Questions in 4.3c should **ONLY** be answered by administrative units responsible for the Cand.med. degree programme, cf. Evaluation of the Professional programme in Medicine (NOKUT).
- It is possible to extend the textboxes when filling in the from. **NB!** A completed self- assessment cannot exceed 50 pages (pdf file) excluding question 4.3.c. The evaluation committees are not requested to read more than the maximum of 50 pages. Pages exceeding maximum limit of 50 pages **might not** be evaluated.
- Submit the self- assessment as a pdf (max 50 pages). Before submission, please be sure that all text are readable after the conversion of the document to pdf. The administrative unit is responsible for submitting the self-assessment of the administrative unit together with the self-assessments of the belonging research group(s) to evalmedhelse@forskningsradet.no within **31 January 2024.**

Please note that information you write in the self- assessment and the links to documents/webpages in the self- assessment are the only available information (data material) for the evaluation committee.

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

1.Strategy, resources and organisation

1.1 Research strategy

Describe the main strategic goals for research and innovation of the administrative unit. You may include the following:

- How are these goals related to institutional strategies and scientific priorities?
- Describe how the administrative unit's strategies and scientific priorities are related to the "specific aspects that the evaluation committee should focus on" indicated in your Terms of Reference (ToR)
- Describe the main fields and focus of research and innovation in the administrative unit
- Describe the planned research-field impact; planned policy impact and planned societal impact
- Describe how the strategy is followed-up in the allocation of resources and other measures
- Describe the most important occasions where priorities are made (i.e., announcement of new positions, applying for external funding, following up on evaluations)
- If there is no research strategy – please explain why

Table 1. Administrative unit`s strategies

For each category present up to 5 documents which are most relevant for the administrative unit. Please delete lines which are not in use.

Research strategy		
No.	**Title**	**Link**
1		
2		
3		
4		
5		
Outreach strategies		
No.	**Title**	**Link**
1		
2		
3		
4		
5		
Open science policy		
No.	**Title**	**Link**
1		
2		
3		
4		
5		

1.2 Organisation of research

a) Describe the organisation of research and innovation activities/projects at the administrative unit, including how responsibilities for research and other purposes (education, knowledge exchange, patient treatment, researcher training, outreach activities etc.) are distributed and delegated.

b) Describe how you work to maximise synergies between the different purposes of the administrative unit (education, knowledge exchange, patient treatment, researcher training, outreach activities etc.).

1.3 Research staff

Describe the profile of research personnel at the administrative unit in terms of position and gender. Institutions in the higher education sector should use the categories used in DBH, https://dbh.hkdir.no/datainnhold/kodeverk/stillingskoder.

RCN has commissioned reports from Statistics Norway (SSB) on personnel for the administrative units included in the evaluation. These reports will be made available to the units early November 2023.

Only a subset of the administrative units submitted to the evaluation is directly identifiable in the national statistics. Therefore, we ask all administrative units to provide data on their R&D personnel. Institutions that are directly identifiable in the national statistics (mainly higher education) are invited to use the figures provided in the report delivered by Statistics Norway. Please delete lines which are not in use.

Table 2. Research staff

	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 Personell by position	Position A (Fill in)				
	Position B (Fill in)				
	Position C (Fill in)				
	Position D (Fill in)				

1.4 Researcher careers opportunities

a) Describe the structures and practices to support researcher careers and help early-career researchers to make their way into the profession.

b) Describe how research time is distributed among staff including criteria for research leave/sabbaticals (forskningstermin/undervisningsfri).

c) Describe research mobility options.

1.5 Research funding

a) Describe the funding sources of the administrative unit. Indicate the administrative unit´s total yearly budget and the share of the unit's budget dedicated to research.

b) Give an overview of the administrative unit's competitive national and/or international grants last five years (2018-2022).

Table 3. R&D funding sources
Please indicate R&D funding sources for the administrative unit for the period 2018-2022 (average NOK per year, last five years).

For Higher Education Institutions: Share of basic grant (grunnbevilgning) used for R&D[1] **For Research Institutes and Health Trusts: Direct R&D funding from Ministries (per ministry)**	
Name of ministry	NOK

National grants (bidragsinntekter) (NOK)	
From the ministries and underlying directorates	
From industry	
From public sector	
Other national grants	
Total National grants	
National contract research (oppdragsinntekter)[2] (NOK)	
From the ministries and underlying directorates	
From industry	

[1] Shares may be calculated based on full time equivalents (FTE) allocated to research compared to total FTE in administrative unit

[2] For research institutes only research activities should be included from section 1.3 in the yearly reporting

From public sector	
Other national contract research	
Total contract research	
International grants (NOK)	
From the European Union	
From industry	
Other international grants	
Total international grants	
Funding related to public management (forvaltningsoppgaver) or (if applicable) funding related to special hospital tasks, if any	
Total funding related to public management/special hospital tasks	
Total all R&D budget items (except basic grant)	

1.6 Collaboration

Describe the administrative unit's policy towards national and international collaboration partners, the type of the collaborations the administrative unit have with the partners, how the collaboration is put to practice as well as cross-sectorial and interdisciplinary collaborations.

- Reflect of how successful the administrative unit has been in meeting its aspirations for collaborations
- Reflect on the importance of different types of collaboration for the administrative unit: National and international collaborations. Collaborations with different sectors, including public, private and third sector
- Reflect on the added value of these collaborations to the administrative unit and Norwegian research system

Table 4a. The main national collaborative constellations with the administrative unit
Please categorise the collaboration according to the most important national partner(s): 5-10 institutions in the period 2012-2022. Please delete lines which are not in use.

National collaborations

Collaboration with national institutions – 1 -10	
Name of main collaboration or collaborative project with the admin unit	
Name of partner institution(s)	
Sector of partner/institution(s)/sectors involved	
Impacts and relevance of the collaboration	

Table 4b. The main international collaborative constellations with the administrative unit
Please categorise the collaboration according to the most important international partner(s): 5-10 international institutions in the period 2012-2022. Please delete lines which are not in use.

International collaborations

Collaboration with international institutions – 1-10	
Name of main collaboration or collaborative project with the admin unit	
Name of partner institution(s)	
Sector of partner/institution(s)/sectors involved	

Impacts and relevance of the collaboration	

1.7 Open science policies

a) Describe the institutional policies, approaches, and activities to the Open Science areas which may include the following:

- Open access to publications
- Open access to research data and implementation of FAIR data principles
- Open-source software/tools
- Open access to educational resources
- Open peer review
- Citizen science and/or involvement of stakeholders / user groups
- Skills and training for Open Science

b) Describe the most important contributions and impact of the administrative unit's researchers towards the different Open Science areas cf. 1.7a above.

c) Describe the institutional policy regarding ownership of research data, data management, and confidentiality. Is the use of data management plans implemented at the administrative unit?

1.8 SWOT analysis for administrative units

Instructions: Please complete a SWOT analysis for your administrative unit. Reflect on what are the major internal Strengths and Weaknesses as well as external Threats and Opportunities for your research and innovation activities/projects and research environment. Assess what the present Strengths enable in the future and what kinds of Threats are related to the Weaknesses. Consider your scientific expertise and achievements, funding, facilities, organisation and management.

Internal	**Strengths**	**Weaknesses**
External	**Opportunities**	**Threats**

2. Research production, quality and integrity

2.1 Research quality and integrity

Please see the bibliometric analysis for the administrative unit developed by NIFU (available by the end of October, 2023).

a) Describe the scientific focus areas of the research conducted at the administrative unit, including the unit's contribution to these areas.

b) Describe the administrative unit's policy for research integrity, including preventative measures when integrity is at risk, or violated.

2.2 Research infrastructures

a) Participation in national infrastructure

Describe the most important participation in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Norsk veikart for forskningsinfrastruktur) including as host institution(s).

Table 5. Participation in national infrastructure

Please present up to 5 participations in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Norsk veikart for forskningsinfrastruktur) for each area that were the most important to your administrative unit.

Areas in roadmap	Name of research infrastructure	Period (from year to year)	Description	Link to website

b) Participation in international infrastructures

Describe the most important participation in the international infrastructures funded by the ministries (Norsk deltakelse i internasjonale forskningsorganisasjoner finansiert av departementene).

Table 6. Participation in international infrastructure

Please describe up to 5 participations in international infrastructures for each area that have been most important to your administrative unit.

Project	Name	Period (from year to year)	Description	Link to infrastructure

c) Participation in European (ESFRI) infrastructures

Describe the most important participation in European (ESFRI) infrastructures (Norske medlemskap i infrastrukturer i ESFRI roadmap) including as host institution(s).

Table 7. Participation in infrastructures on the ESFRI Roadmap
Please give a description of up to 5 participations that have been most important to your administrative unit.

Social sciences and the humanities				
Name	**ESFRI-project**	**Summary of participation**	**Period (from year to year)**	**Link**

d) Access to research infrastructures
Describe access to relevant national and/or international research infrastructures for your researchers. Considering both physical and digital infrastructure.

e) FAIR- principles
Describe what is done at the unit to fulfil the FAIR-principles.

3. Diversity and equality

Describe the policy and practices to protect against any form of discrimination and to promote diversity in the administrative unit.

Table 8. Administrative unit policy against discrimination
Give a description of up to 5 documents that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then these documents should be referred to.
Please delete lines which are not in use.

No.	**Name**	**Valid period**	**Link**
1			

4. Relevance to institutional and sectorial purposes

4.1 Sector specific impact

Describe whether the administrative unit has activities aimed at achieving sector-specific objectives or focusing on contributing to the knowledge base in general. Describe activities connected to sector-specific objectives, the rationale for participation and achieved and/or expected impacts. Please refer to chapter 2.4 in the evaluation protocol.

- Alternatively, describe whether the activities of the administrative unit are aimed at contribution to the knowledge base in general. Describe the rationale for this approach and the impacts of the unit's work to the knowledge base.

4.2 Research innovation and commercialisation

a) Describe the administrative unit's practices for innovation and commercialisation.

b) Describe the motivation among the research staff in doing innovation and commercialisation activities.

c) Describe how innovation and commercialisation is supported at the administrative unit.

Table 9. Policies for innovation including IP policies, new patents, licenses, start-up/spin-off guidelines
Describe up to 5 documents of the administrative unit's policies for innovation, including IP policies, new patents, licenses, start-up/spin-off guidelines, etc., that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then present these documents. Please delete lines which are not in use.

No.	Name	Valid period	Link
1			

Table 10. Administrative description of successful innovation and commercialisation results
Please describe up to 10 successful innovation and commercialisation results at your administrative unit in the period 2012-2022. Please delete lines which are not in use.

No.	Name of innovation and commercial results	Link	Description of successful innovation and commercialisation result.
1			

4.3 Higher education institutions

a) Reflect how research at the administrative unit contributes towards master and PhD-level education provision, at your institutions and beyond.

b) Describe the opportunities for master students to become involved in research activities at the administrative unit.

c) **ONLY** for administrative units responsible for the Cand.med. degree programme, cf. Evaluation of the Professional programme in Medicine (NOKUT).

- Reflect on how research at the administrative unit contributes towards the quality of the Cand.med. degree programme at your institutions and beyond.
- Describe the different opportunities for students on the Cand.med. degree programme to become involved in research activities at the administrative unit, and the extent to which students use those opportunities.

4.4 Research institutes

a) Describe how the research and innovation activities/projects at the administrative unit contribute to the knowledge base for policy development, sustainable development, and societal and industrial transformations more generally.

b) Describe the most important research activities with partners outside of research organisations.

4.5 Health trusts

a) Reflect on how the administrative unit's clinical research, innovation and commercialisation contribute towards development, assessment and implementation of new diagnostic methods, treatment, and healthcare technologies.

b) Reflect on how research at the unit contributes towards the quality of relevant education programme at your institutions or beyond.

c) Describe the different opportunities for students on relevant educational programmes to become involved in research activities at the administrative unit, and the extent to which students use those opportunities.

5. Relevance to society

Reflect on the administrative unit's contribution towards the Norwegian Long-term plan for research and higher education, societal challenges more widely, and the UN Sustainable Development Goals.

5.1 Impact cases

Please use the attached template for impact cases. Each impact case should be submitted as an attachment (pdf) to the self-assessment.

Impact case guidelines

Each case study should include sufficiently clear and detailed information to enable the evaluation committee to make judgements based on the information it contains, without making inferences, gathering additional material, following up references or relying on members' prior knowledge. References to other sources of information will be used for verification purposes only, not as a means for the evaluation committee to gather further information to inform judgements.

In this evaluation, impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia.

Timeframes

- The impact must have occurred between 2012 and 2022
- Some of the underpinning research should have been published in 2012 or later
- The administrative units are encouraged to prioritise recent cases

Page limit

Each completed case study template will be limited to **five pages** in length. Within the annotated template below, indicative guidance is provided about the expected maximum length limit of each section, but institutions will have flexibility to exceed these so long as the case study as a whole remains no longer than **five pages** (font Calibri, font size 11). Please write the text into the framed template under the sections 1–5 below. The guiding text that stands there now, can be deleted.

Maximum number of cases permitted per administrative unit

For up to 10 researchers: one case; for 10 to 30 researchers: two cases; for 30-50 researchers: three cases; for 50-100 researchers: four cases, and up to five cases for units exceeding 100 researchers.

Naming and numbering of cases

Please use the standardised short name for the administrative unit, and the case number for the unit (1,2,3, etc) in the headline of the case. Each case should be stored as a separate PDF-document with the file name: [Name of the institution and name of the administrative unit] [case number]

Publication of cases

RCN plans to publish all impact cases in a separate evaluation report. By submitting the case the head of the administrative units consents to the publication of the case. Please indicate below if a case may not be made public for reasons of confidentiality.

If relevant, describe any reason to keep this case confidential:

Please write the text here

[Name of the institution and name of the administrative unit] [case number]

Institution:
Administrative unit:
Title of case study:
Period when the underpinning research was undertaken:
Period when staff involved in the underpinning research were employed by the submitting institution:
Period when the impact occurred:

1. Summary of the impact (indicative maximum 100 words)
This section should briefly state what specific impact is being described in the case study.

2. Underpinning research (indicative maximum 500 words)
This section should outline the key research insights or findings that underpinned the impact, and provide details of what research was undertaken, when, and by whom. This research may be a body of work produced over a number of years or may be the output(s) of a particular project. References to specific research outputs that embody the research described in this section, and evidence of its quality, should be provided in the next section. Details of the following should be provided in this section:

- The nature of the research insights or findings which relate to the impact claimed in the case study.
- An outline of what the underpinning research produced by the submitted unit was (this may relate to one or more research outputs, projects or programmes).
- Dates of when it was carried out.
- Names of the key researchers and what positions they held at the administrative unit at the time of the research (where researchers joined or left the administrative unit during this time, these dates must also be stated).
- Any relevant key contextual information about this area of research.

3. References to the research (indicative maximum of six references)
This section should provide references to key outputs from the research described in the previous section, and evidence about the quality of the research. All forms of output cited as underpinning research will be considered equitably, with no distinction being made between the types of output referenced. Include the following details for each cited output:
- Author(s)
- Title
- Year of publication
- Type of output and other relevant details required to identify the output (for example, DOI, journal title and issue)
- Details to enable the panel to gain access to the output, if required (for example, a DOI or URL).

All outputs cited in this section must be capable of being made available to panels. If they are not available in the public domain, the administrative unit must be able to provide them if requested by RCN or the evaluation secretariate.

4. Details of the impact (indicative maximum 750 words)
This section should provide a narrative, with supporting evidence, to explain:

- How the research underpinned (made a distinct and material contribution to) the impact;
- The nature and extent of the impact.

The following should be provided:
- A clear explanation of the process or means through which the research led to, underpinned or made a contribution to the impact (for example, how it was disseminated, how it came to influence users or beneficiaries, or how it came to be exploited, taken up or applied).

- Where the submitted administrative unit's research was part of a wider body of research that contributed to the impact (for example, where there has been research collaboration with other institutions), the case study should specify the particular contribution of the submitted administrative unit's research and acknowledge other key research contributions.
- Details of the beneficiaries – who or what community, constituency or organisation has benefitted, been affected or impacted on.
- Details of the nature of the impact – how they have benefitted, been affected or impacted on.
- Evidence or indicators of the extent of the impact described, as appropriate to the case being made.
- Dates of when these impacts occurred.

5. Sources to corroborate the impact (indicative maximum of ten references)

Institution	Administrative unit	Name of research group	Expert panel
Oslo University Hospital	Division of Radiology and Nuclear Medicine	Division of Radiology and Nuclear Medicine	Panel 3a-2

Scales for research group assessment

Use whole integers only – no fractions!

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

The quality dimension consists of two judgements: 1) Research and publication quality, and 2) Research group's contribution. The first judgement is defined as follows:

Score	Research and publication quality	Supporting explanation
5	Quality that is outstanding in terms of originality, significance, and rigour.	**The quality of the research is world leadin**g in terms of quality, and is comparable to the best work internationally in the same area of research. The publications submitted provide evidence that the work of the group meets the highest international standards in terms of originality, significance, and rigour. Work at this level should be a key international reference in its area.
4	Quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence.	**The quality of the research is internationally excellent**. The research is clearly of an international standard, with a very good level of quality in terms of originality, significance, and rigour. Work at this level can arouse significant interest in the international academic community, and international journals with the most rigorous standards of publication (irrespective of the place or language of publication) could publish work of this level.
3	Quality that is recognised internationally in terms of originality, significance and rigour.	**The quality of the research is sufficient to achieve some international recognition.** It would be perceived nationally as strong and may occasionally reach an internationally recognised level in terms of originality, significance and rigour. Internationally recognised journals could publish some work of this level.
2	Quality that meets the published definition of research for the purposes of this assessment.	The international academic community would deem the research to be nationally acceptable, but below world standards. Legitimate nationally recognised peer-reviewed journals could publish work of this level.
1	Quality that falls below the published definition of research for the purposes of this assessment[1].	**The quality of the research** is well below international level, and is unpublishable in legitimate peer-reviewed research journals.

[1] A publication has to meet all of the criteria below:

Societal impact dimension

The societal impact dimension is also composed of two judgements, defined as presented in the table below.

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.

Methods and limitations

Methods

The evaluation is based on documentary evidence and online interviews with the representatives of Administrative Unit.

The documentary inputs to the evaluation were:

- Evaluation Protocol Evaluation of life sciences in Norway 2022-2023
- Administrative Unit´s Terms of Reference
- Administrative Unit's self-assessment report
- Administrative Unit's impact cases
- Administrative Unit's research groups evaluation reports
- Panel reports from the Expert panels
- Bibliometric data (*NIFU Nordic Institute for Studies of innovation, research and education*)
- Personnel data (*Statistics Norway (SSB)*)
- Funding data – The Research Council´s contribution to biosciences research (*RCN*)
- Extract from the Survey for academic staff and the Student Survey (*Norwegian Agency for Quality Assurance in Education (NOKUT)*)

After the documentary review, the Committee held a meeting and discussed an initial assessment against the assessment criteria and defined questions for the interview with the Administrative Unit. The Committee shared the interview questions with the Administrative Unit two weeks before the interview.

Following the documentary review, the Committee interviewed the Administrative Unit in an hour-long virtual meeting to fact-check the Committee's understanding and refine perceptions. The Administrative Unit presented answers to the Committee's questions and addressed other follow-up questions.

After the online interview, the Committee attended the final meeting to review the initial assessment in light of the interview and make any final adjustments.

A one-page summary of the Administrative Unit was developed based on the information from the self-assessment, the research group assessment, and the interview. The Administrative Unit had the opportunity to fact-check this summary. The Administrative Unit approved the summary without adjustments. ***(Adjust the text if the AU asked for corrections. Include the AU request and explain what adjustments were made).***

Limitations

(Choose one of the three options below and delete the others. Feel free to elaborate slightly if necessary. For example, if you choose option 3, explain the missing information. Note that the Committee can provide detailed feedback and suggestions on improving the evaluation in the Memorandum to the RCN. This section has to remain concise and only summarise whether the information was or was not sufficient.)

(1) The Committee judged the information received through documentary inputs and the interview with the Administrative Unit sufficient to complete the evaluation.

(2) The Committee judged that the Administrative Unit self-assessment report was insufficient to assess all evaluation criteria fully. However, the interview with the Administrative Unit filled gaps in the Committee's understanding, and the information was sufficient to complete the evaluation.
(3) The Committee judged that the Administrative Unit’s self-assessment report was insufficient to assess all evaluation criteria fully, and some information gaps remained after the interview with the Administrative Unit.

Norges forskningsråd
Besøksadresse: Drammensveien 288
Postboks 564
1327 Lysaker

Telefon: 22 03 70 00
Telefaks: 22 03 70 01

post@forskningsradet.no
www.forskningsradet.no

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