Forskningsrådet

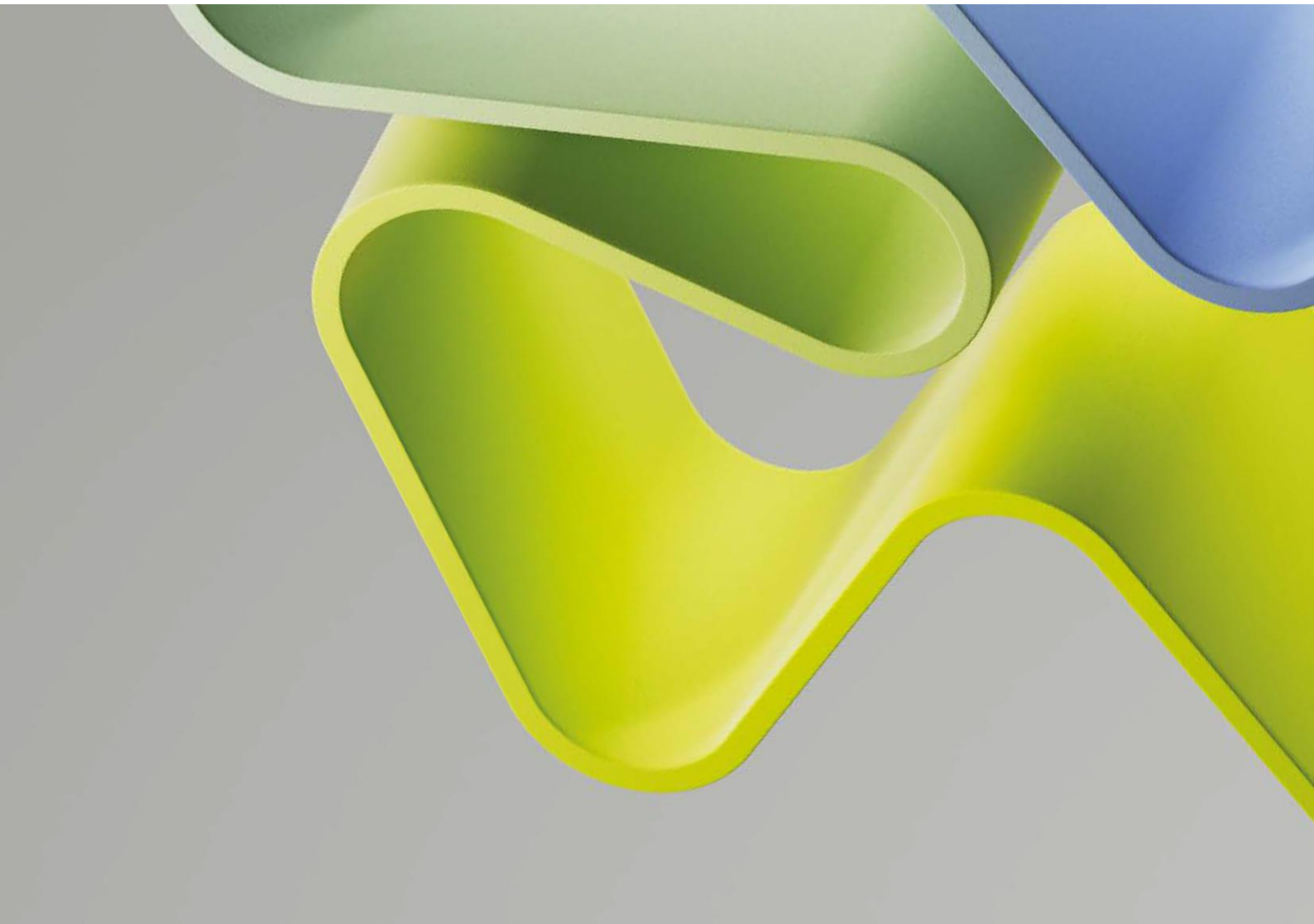
Evaluation of Life Sciences 2022-2024

Evaluation of medicine and health 2023-2024

Evaluation report

ADMIN UNIT: Department of Pharmacy
INSTITUTION: University of Oslo (UiO)

December 2024



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Statement from Evaluation Committee Higher Education Institutions 3

This report is from Evaluation Committee Higher Education Institutions 3 which evaluated the following administrative units representing the higher education sector in the Evaluation of medicine and health 2023-2024:

- Department of Clinical medicine, UiT Arctic University of Norway
- Department of Pharmacy, UiT Arctic University of Norway
- Department of Biomedicine, University of Bergen (UiB)
- Department of Clinical Science I, University of Bergen (UiB)
- Department of Clinical Science II, University of Bergen (UiB)
- Department of Pharmacy, University of Oslo (UiO)
- Institute of Basic Medical Sciences, University of Oslo (UiO)
- Centre for Molecular Medicine Norway (NCMM), University of Oslo (UiO)

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 Higher Education Institutions 3. All members of the committee agree with the assessments, conclusions and recommendations presented here.

Evaluation Committee Higher Education Institutions 3 consisted of the following members:

Professor Søren Brunak (Chair)

Novo Nordisk Foundation Center for Protein Research, University of Copenhagen

Professor Jouni Hirvonen

University of Helsinki

Professor Ruth Palmer

University of Gothenburg

Professor Lea Sistonen

Åbo Akademi University

Associate Professor Simona Lodato

Humanitas University

Professor Ron Heeren

Maastricht University / Maastricht Multimodal Molecular Imaging Institute

Anoushka Dave, Technopolis Group, was the Committee Secretary.

Oslo, December 2024

Profile of the administrative unit

The Department of Pharmacy the University of Oslo consists of permanent scientific staff who hold positions with both teaching and research responsibilities. Additionally, there are PhD fellows, postdoctoral researchers, and researchers in temporary internally and externally funded positions. All scientific employees and emeriti are required to belong to at least one group of researchers. The research groups within each section are established and closed based on applications to the management, and the criteria for these applications are defined by the management and approved by the Board. Women represent over 60% of staff in all categories. For example, women represent 63% of professors, 68% of associate professors and 65% of postdocs.

The department is comprised of seven research groups: Pharmacology, Pharmaceutics, Pharmaceutical Analytical Chemistry, Medicinal Chemistry, Pharmacognosy, Pharmaceutical microbiology and immunology and PharmaSafe – the PharmacoEpidemiology & Drug Safety research group.

The department is contributing to the institutional strategy by focusing on high-quality pharmaceutical research that supports the education of pharmacists, as reported annually to the government. This aligns with the overall institutional strategy of dialogue and knowledge utilisation. The main fields and focus of research at the Department of Pharmacy cover a broad range of topics within the pharmaceutical sciences. This includes areas such as drug discovery, drug delivery systems, pharmaceutics, pharmaceutical chemistry and bioanalysis, pharmacoepidemiology, pharmacokinetics and pharmacology. The department's research aims to support the education of pharmacists and the potential contributions to the healthcare system, pharma industry, and public administration.

The department actively fosters collaborations with a diverse range of sectors, including public, private, and third sectors. These collaborations are crucial for the department as they bring added value in terms of knowledge exchange, career development opportunities, and access to resources, infrastructure, technologies and expertise that may not be available within the department alone. The department has a long history of taking the lead in national collaborations, which enhances its research scope, increases its research output, and contributes to the development of innovative approaches in pharmaceutical sciences. The administrative unit participates in several international initiatives, as well as hosting students through the Erasmus+ programme, which allow for the exchange of knowledge and ideas on a global scale. Cross-sectoral collaborations with the public, private, and third sectors enable the inclusion of professionals from healthcare, industry, and other relevant sectors who bring practical knowledge and expertise into research and educational programmes.

According to its self-assessment, in the future, the administrative unit may leverage its expertise, collaborations, applied research, and education, benefiting from its role in drug treatment regulations and alignment with national health priorities. Challenges include dispersed locations, outdated facilities, a limited pool of researchers, financial constraints, and a competitive job market for pharmacists. Despite these, the administrative unit’s research offers opportunities for increased visibility and collaboration. In 2027, moving to the new Life Science building will enhance collaboration and access to state-of-the-art facilities, though maintaining identity, financing, and competition for resources may be challenging.

Overall evaluation

University of Oslo's Department of Pharmacy is the oldest, largest and leading Norwegian Department covering pharmaceutical research, education, and societal impact. The evaluation committee considered the Terms of Reference, self-assessment, and an oral interview provided by the administrative unit, together with background documents provided by the Research Council of Norway (RCN) and research group evaluation reports in evaluating the Department of Pharmacy.

Currently there is a slight imbalance across the research and teaching activities in the Department and Department's subunits. With scientific excellence in mind, there is a need for a strengthened and more widespread role and ambition level from top-class researchers in the Department. This would mean strong and active efforts towards increased external research funding and collaboration, both nationally and internationally.

The golden opportunity, research-wise, infrastructure-wise, and collaboration-wise, is the move of the Department to the new Life Science Building of the University of Oslo. There is huge potential for high-level interdisciplinary research projects and joint research funding applications in this new environment. There seems to be, however, also some hesitance and even fear of losing the current highly developed sense of community in this process.

How to balance the experimental laboratory sciences and computer-based modelling and utilisation of, e.g., AI and machine learning methodologies, will be important decisions for the administrative unit. Both are obviously needed in the Department's strategy to future proof the research portfolio(s). There is a slight imbalance in the Department in a sense that educational tasks are somewhat overshadowing the research efforts.

Societal impact aspects, for example relevant to pharmacy and health care professions, patient organisations, drug industry, governmental agencies etc. are actively taken care of by the Department of Pharmacy, University of Oslo. Building of student and graduate student skills and learning objectives lean strongly towards these areas. The role of researcher education, career paths, and resources for research activities (time allocation, infrastructure renewal, international visits by the researchers and teachers, and collaboration outside the institution) are somewhat question marks now necessitating clear strategic leadership at the institutional and research group levels.

Future goals and efforts in innovation and entrepreneurship are very important for the Department. These areas are strong already yet there is still room for strengthening the wide valorisation potential of the applications of pharmaceutical research in the Department.

Recommendations

- Strong strategic developments in advanced research areas like antimicrobial resistance, registry data studies and individualised drug therapies are warranted to carry the research output of the Department to the next level.
- Make the most of the golden access to leading research groups and opportunities via the new Life Science building of the University of Oslo, for example to participate in or work with top-class research infrastructures and develop long-term local collaborations.
- Pursue active collaboration with top international partners to fulfil the existing and developing potential in research groups.
- Keep up and further develop the strong and active innovation and entrepreneurial activities.

1. Strategy, resources and organisation of research

1.1 Research strategy

The Department states that high-quality pharmaceutical research that supports the education of pharmacists is the key factor in successful academic performance. High impact research and innovation areas in Oslo are listed as antimicrobial resistance (AMR), personalised medicine and clinical pharmacy. However, the administrative unit's topics of focus in research and education widely cover all the traditional pharmaceutical research areas, with a very strong focus on student education for the labour market. There is a clear shortage of pharmacists in the Norway, which is reflected as a strong demand to produce experts to meet the needs of the society. Overall, there is a slight imbalance where education is somewhat overshadowing the research, which affects all the activities in the Department.

The committee's evaluation

The coverage of pharmaceutical disciplines and research areas in the Department is wide and represents a traditional portfolio of pharmaceutical research topics.

A shift towards a more equal role for high-level research could perhaps be reached by recruiting new motivated and very highly talented (potentially international) personnel. Therefore, a fresh and solid recruitment and retention strategy is needed. The looming move of the administrative unit to the new Life Sciences Building is seen by the evaluation committee as a golden opportunity to reach top-level research infrastructures and have collaborative projects with local partners.

The committee's recommendations

Strengthening collaboration within UiO, nationally, and internationally, is highly recommended. A golden opportunity for this is the upcoming move of the Department to the new Life Sciences Building in the UiO campus. Brand new facilities, closer access to high-quality infrastructures and new ambitious interdisciplinary projects should provide great national and international opportunities for new initiatives including in the many fields of pharmaceutical (laboratory) sciences.

1.2 Organisation of research

The Department's research is organised in research groups with principal investigators (PIs) in charge of their group's resources and development. A Scientific Advisory Board was established in 2018. New resources (recruitment, infrastructure) have been directed towards bioinformatics and computer sciences, together with two industrial pharmacy positions.

It is emphasised heavily in the self-assessment report that economic constraints prevent the Department from developing its research in an optimal way. New positions and staff replacements, let alone infrastructural developments, have been scarce. Overall, the turnover of staff has been slow. National and international collaboration projects do exist to some extent.

The committee's evaluation

While the groups vary in size and activity, in principle all the building blocks needed for success are there. Establishment of the Scientific Advisory Board was an important development step for external feedback and recommendations. New recruitments are made in topics of clear relevance for future research activities in the Department. The extent of collaboration and interactions between these new recruits and existing scientists as well as new contacts are not self-evident from the self-evaluation documentation, however.

The committee's recommendations
A strategic approach in utilising the existing and new resources as well as recruiting (and retaining) young active research talents (perhaps even international) is recommended.

The expertise of the Scientific Advisory Board could be utilised in active discussions on current and future directions for the Department.

The Department could be more active in securing more widely the continuation and development of new and retained research topics, making them more up to date.

1.3 Research funding

The Ministry of Education supports the UiO Department of Pharmacy with a total of 100-110 MNOK annually. Out of this, 45% is allocated for research purposes, including salaries.

The committee's evaluation
The level of funding is at a rather good level taking into consideration the current staff numbers. What is alarming here is the rather low level of national and international external competitive funding and grants. In many corresponding Nordic or European pharmaceutical institutions, the share of external funding is well above 50% of the overall budget. At the UiO Department of Pharmacy, the level is clearly below 50%. Even more worrisome is the fact that the level of external funding has been on a declining curve in recent years (2018-2022). This is true especially in the areas of laboratory-intensive research groups. The administrative unit's success in innovation and entrepreneurship activities is to be applauded as potential means and resources for research and innovation. A positive aspect is the UiO Department of Pharmacy's active innovation strategy including participation in the SPARK Norway innovation activities (see later sections for more details).

The committee's recommendations
Major strategic planning with concrete application schedules and practices are needed to raise the level of external funding, both nationally (esp. RCN) and internationally (esp. EU funding like ERC, Horizon programmes, etc.).

The strongly developing innovation activities should be seen as an encouraging model for resource acquisition.

1.4 Use of infrastructures

As stated earlier, up-to-date research infrastructures are extremely important for high-level and high-impact research in pharmaceutical sciences, be it laboratory environments, computational/AI infrastructures, or, for example, registry databases. In principle, the UiO Pharmacy Department has good access to first-class infrastructures and materials in all three categories just listed, e.g., National network of Advanced Proteomiocs (NAPI), national E-Infrastructures including health cohort data, and national infrastructures on gene sequencing, imaging platforms and stem cell research.

The committee's evaluation
In addition to talented personnel and students, research infrastructures are vital for success in world-class research. While it has good access to key infrastructures, the Department's own capacity to renew and construct new infrastructures is financially, and perhaps also collaboration-wise, compromised at least to some extent.

The local and national environments have been already emphasised above. The next step is participation in international (multidisciplinary) infrastructures, for example at EU level.

The committee's recommendations
Participation in some EU-level ESFRI and ERIC roadmap infrastructures is fine but this could be more active. Utilisation of local and national infrastructures is key for research advancement in the Department.

1.5 Collaboration

As per the self-assessment report, national and international collaborations, either field-specific or cross-sectoral, bring added value for knowledge exchange, sharing of resources, infrastructure utilisation and development, and career development. High impact research is obviously the ultimate goal.

It should be noted that some collaborative projects and networks listed in the self-assessment document have ended a rather long time ago even though they fall within the evaluation period,.

The committee's evaluation
A collaborative approach has been implemented to help improve the quality and relevance of the research, and to advance the educational and societal aspects of the development of pharmaceutical expertise. Therefore, increased collaboration also within UiO is also advised to enhance and utilise the interdisciplinary research opportunities provided by the new Life Sciences Building and national networks.

The committee's recommendations
Collaboration at local, national and international levels is highly recommended wherever feasible. Attitudinal or physical hurdles and silos preventing collaborations should be lowered and prevented as much as possible. Obviously, cumulative expertise, people's chemistries and timing need to be right to make good matches for collaboration.

1.6 Research staff

The UiO Pharmacy Department is the biggest pharmaceutical research and educational unit in Norway with regards to professor, researcher, postdoc, PhD student and technical staff numbers.

Permanent staff with long-term stability provide continuity in education and research but sometimes hinder the needed changes and follow-up of top-level research progress and trends internationally. Obviously, longevity is a virtue in research too, but if there is no room and/or resources for changes over time, important areas might be overlooked or need continuous collaboration with national and international partners. It is the duty of the Department and research group leaders to update and motivate a change if/when needed. Key to this success is, as previously stated, the recruitment and retention of talented scientists.

The UiO Department of Pharmacy provides career support and development programmes for researchers and doctoral students. Major topics cover career planning, time management, publishing strategies, project management, and networking, among others. Mentoring programmes and networking opportunities are said to be in place for career development. 50% research and 50% teaching schedules should provide ample time for research activities. The Sabbatical system (one year after every six years in an academic position) is also expected to help the renewal of research efforts.

The committee's evaluation
As there has been a national graduate school in pharmaceutical research (NFIF) earlier, perhaps a new launch for that activity might give a boost for pharmaceutical research in

Oslo and in Norway. Similar effects might be reached by increasing the national pharmaceutical research-oriented funding and grants, e.g. by RCN, as suggested by the Department.

As discussed in the previous chapters, pharmacy is a multidisciplinary field of science with lots of potential research partners, but with some difficulties in finding areas of true (interdisciplinary) research excellence. Recruitment of outstanding scientists and utilisation of existing and new partnerships and collaborations are the keys to research success in the future. Participation in international networks would also provide ample opportunities for researcher career development.

The committee's recommendations
Recruitment and retention of permanent staff members is the most important task for the Department leadership. Active measures should therefore be made not only in the recruitment phase (competitive salary, starting package, etc.), but also with the career development opportunities and support in mind (mentoring, educational courses, etc.).

As mentioned, mentoring and resource support should be made available at the different career stages. The rebirth of the national graduate school in pharmaceutical sciences and, especially, pharmaceutical sciences related grants as mentioned in the interview with the administrative units are potential tools to educate new generations of pharmaceutical scientists.

1.7 Open Science

The UiO Department of Pharmacy produced 160 publications in 2022 (three-year average 153), with a modified author share of 64.8 (65.7). Out of these, the share of open access publications including Gold open access was a respectable 89.4%. A principle for publications in UiO is to publish as openly as possible, and the Department of Pharmacy has also been successful in this respect. The share of 10% most cited publications of the administrative unit was 11.5% with a mean normalised citation score of 114. Collaboration-wise, the share of the Department's national co-publishing in 2022 was 60% (59.2%) and international co-publishing was 53.1% (59.2%).

The committee's evaluation
Taking into consideration the number of staff and national comparison, the publication activity of the Department is at a good level, yet there is room for improvement especially in terms of high-impact articles in top journals. On the other hand, the share of (golden) open access publications is already at a very good level.

The committee's recommendations
Keep up the good level in open access publishing. To reach international excellence, more articles in top international series are needed.

2. Research production, quality and integrity

Focus areas of the UiO Department of Pharmacy cover pharmaceuticals, their use and effects. More precisely, for the Section for Pharmaceutics and Social Pharmacy, the key areas for research are pharmacoepidemiology and drug safety, focusing specifically on vulnerable patient groups like pregnant women, children, and the elderly. Nano- and microstructured formulations and new formulation technologies are other research focus areas of this section.

The Section for Pharmacology and Pharmaceutical Biosciences is focused on two major research areas, namely pharmacology, and pharmaceutical microbiology and immunology. The translational focus is strong here. Design of vaccines and diagnostic tools are important research topics in the latter entity. The Section for Pharmaceutical Chemistry focuses on identifying new drug candidates with synthetic and computational methodologies. Pharmacognosy studies the health effects and processes of natural products, while pharmaceutical analytical chemistry isolates, samples and detects drugs, endogenous substances and diagnostic proteins in biological samples.

2.1 Research quality and integrity

This section presents the overall assessment of each research group that the administrative unit has entered in the evaluation. Each overall assessment has been written by one of the 18 expert panels that were responsible for evaluating the research groups entered in EVALMEDHELSE. The evaluation committee had no involvement in the evaluation of the research group(s).

Research group: Medicinal Chemistry

The Medicinal Chemistry research group at the University of Oslo has a strong position and has been very successful in both the development of novel ligands for PET-imaging and in attracting funding for the ongoing research. However, the research group is currently facing a time of transition and a generational shift that most likely will be very challenging. New sources for substantial funding are needed and new target areas of application need to be determined to be able to maintain a leading position in the field.

Research group: Pharmaceutical Analytical Chemistry

The main research at PAC is based on pharmaceutical analysis with the two main topics “improved microextraction” and “improved LC-MS analysis targeted protein determination by lab-on-paper smart sampling”. Both research topics are based on fundamental previous work of the group (EME, LPME) and further development in both these sectors continues. Research output as documented by publication quality is on a high level, the research topics are exciting and are recognised within the international scientific community. The organisation environment within the Department of Pharmacy at UiO initiates a stimulating scientific atmosphere and promotes high impact science of the research group. The critical mass of the research group could be improved, and more solid and stable funding is needed for the future.

Research group: Pharmaceutical microbiology and immunity (Pharm-micro)

A clear research strategy is lacking with a distributed leadership between the four professors. There is a huge variety in the topics of the projects funded and the research focus of the RG is not clear. The variety of topics with a restricted number of staff members will limit the scientific depth. The main collaborations are with non-academic stakeholders, e.g. industry and private sector and result in contract research and research partnerships. The RG is predominantly funded by industry, the private sector and commissioned research

for the public sector. This funding received per year is highly variable and the RG acts as a research partner on projects funded by industry, without being the owner of the project. This puts the RG in a vulnerable position. The scientific quality of the group is good but is very much divided through performing contract research next to their own scientific interests. The research is collaborative at the institutional and national level, but evidence of international collaboration is lacking. The group is clearly committed to the education of master's students and PhD students and is providing opportunities in terms of mobility and hosting exchange students and visiting scientists.

Research group: Pharmaceutics

The Pharmaceutics research group takes an influential position in the field of pharmaceutics in Norway and Scandinavia. The research is visible also within the EU. The research group is strongly involved in teaching at different levels, especially in the field of pharmaceutical science at UiO and contributes well to the central strategies of UiO (health, personalised medicine). Projects are based on basic science, but also applied research is performed (e.g. product development for dry mouth). This combination – also together with pharmaceutical industry – might be exemplary and a promising aspect of the group. As the group is quite big, publication volume is high, but the quality could be improved. In addition, external funding over the years is not too high. The group will be challenged by several retirements in the future. Research is disseminated in several societal dimensions. Problems that might influence the future growth and impact of the research group include difficulties to recruit excellent students and post-doctoral fellows.

Research group: PharmacoEpidemiology & Drug Safety research group (PharmaSafe)

The group represents one of the leading pharmacoepidemiological groups in Scandinavia within its areas. The group has a relatively large portfolio of tenured positions and a good infrastructure. It trains a large number of Master and PhD students in proportion to its size. PHARMASAFE produces high-quality research at an international level in its chosen areas. PHARMASAFE published approximately 200 papers in the period 2012-2022 in respected journals, following high international scientific standards, and with good contributions from the group. In most of the papers provided in the self-assessment, the group's members are either first or last author. The papers are generally well-written and. The group has definite potential for publishing more papers in leading journals. PHARMASAFE has access to unique research resources via the Norwegian registries and the Norwegian Mother, Father and Child Cohort Study (MoBa cohort). The group's research plans are relevant to pressing pharmacoepidemiologic issues. Due to the nature of pharmacoepidemiology, its work is rarely hypothesis-driven but rather centres on applied research PHARMASAFE contributes important information to public health agencies, clinicians, and regulatory authorities such as the European Medicines Agency. PHARMASAFE has provided key input to clinical guidelines, webinars, courses, and prescribing tools.

Research group: Pharmacognosy

The Pharmacognosy self-assessment report portrays an extremely well-organised group engaging in wide-ranging activities in a fascinating, if non-traditional area. The group seeks to exploit bioactive natural compounds from the library of plant-based (also fungal and microbial) chemicals within which novel drugs that benefit human and animal health can be discovered. The group performs a variety of important and diverse roles within the Department of Pharmacy at the University of Oslo and is meeting most or all its aims, targets and benchmarks. They represent the only pharmacognosy research group in the country and therefore serve as a key national resource with tremendous future potential. However, the quality of the research group's contribution is adversely affected by a relative lack of research focus, with their efforts being spread rather too thinly. As a result, it appears to be difficult for them to take the lead in sufficient projects. The impact of the

Pharmacognosy research group in terms of user involvement will be greatly enhanced when the high potential of their research translates into new medicines and commercially viable products. The sustainability of the group is a concern, not least because the three PIs are multi-tasking in every area of academia, and this is at the expense of developing further as a research group. The urgent replacement of the recently retired Professor would alleviate some pressure and pay dividends for all involved.

Research group: Pharmacology

The Pharmacology research group is well-structured and multidisciplinary, having secured substantial external funding. It has access to several core facilities and research platforms. The group's research and educational activities are highly relevant to the institution. The institution provides adequate support, creating an environment for high-quality research. The research group demonstrates strong international cooperation and interdisciplinary collaboration. Its research output and publication record are strong within its field, but there is room for more cutting-edge studies and publications in high-impact journals. However, the group's contribution to research and publications is excellent. Finally, the research group’s societal contribution is mediated through knowledge transfer and educational activities. The group translates scientific discoveries into personalised medicine and other healthcare improvements. User involvement is somewhat limited.

3. Diversity and equality

Specific information on diversity and equality is missing in the self-assessment, hence the evaluation is based on information provided elsewhere in the document.

According to the UiO strategy, an active diversity, gender equality and inclusion policy emphasises that students and staff have a safe study and work environment bringing out the best for everyone. The gender balance is somewhat leaning towards female dominance in most staff categories, including in the professor (63%) and associate professor (68%) categories.

Various policies and practices, including the active policies for diversity, gender equality and inclusion, offer protection against any form of discrimination and promote diversity in the Department. These university-level instructions and policies are applied both for student and employee safety and diversity in the administrative unit's environment.

The committee's evaluation
Gender balance is at an exemplary level. The 'positive' gender balance implies clear room for career development pathways for female candidates at the Department, which the committee wishes to compliment.

The committee's recommendations
University-level systems for, for example, diversity, gender equality and inclusion are in place, but from the documentation provided by the administrative unit, it is difficult to evaluate their implementation in the Department or research group levels.

The recommendation is to follow-up and document the diversity, equality, equity and related activities regularly and openly.

4. Relevance to institutional and sectorial purposes

Basic – curiosity driven – research is emphasised by the UiO Department of Pharmacy. Overall, as described previously, education and training of experts for pharmacies, the healthcare sector and drug industry are key determinants of success, not forgetting, however, the importance of “rigorous and innovative scientific research”. Building the needed skills and knowledge of pharmacy graduates is an important task for the Department. There is a serious shortage of pharmacists and other healthcare professionals in Norway, just like in many other European countries.

A faculty level innovation unit, the UiO Growth House, provides support for commercialising student and researcher ideas and innovations. Growth House also provides tailored counselling, seed funding opportunities, meeting facilities, innovation mentoring, and student internship opportunities. The UiO Technology Transfer Office (Inven 2) provides commercialisation support for potential licensing agreements and/or spin-out companies. A specific feature of the Pharmacy Department is research and innovation collaboration with pharma industry. These opportunities have resulted in four new companies, numerous invention disclosures, patent applications, and patents, which is a very good result from the administrative unit.

Two new staff members have been recruited to the Department to increase scientific output, and especially industrial collaboration.

The committee's evaluation
As stated above, these parts of the Department’s activities are very strong and perhaps would deserve even more credit and attention in the future. The Departments efforts have led to new companies, invention disclosures, patent applications, and patents, which is a very good result from the administrative unit. The recruitment of additional staff to increase industrial collaboration can be seen as a good fit and important for the Department.

The committee’s recommendations
Pharmacy represents a field covering multidisciplinary and applied science aspects. Strong collaboration with industrial and entrepreneurial partners is to be expected and should be strengthened in the future.

4.1 Higher education institutions

Students are actively engaged in research topics and research groups during their MSc studies and thesis projects. Most of the thesis projects are part of the PhD students’ publications and training, requiring guidance and teaching skills. Education of experts (e.g. pharmacists) for the needs of society is an important role of the universities, and for the Department of Pharmacy in UiO.

The committee's evaluation
As stated before, there is a shortage of pharmacists in Norway, so expert education is an important societal impact provided by the Department.

The committee’s recommendations
Societal impact is the third task of universities which primarily concentrate on research and education. Knowledgeable and skilful experts are the best product a university and department can provide for the benefit and renewal of the society. Therefore, it is important that the Department of Pharmacy continuously keeps up the good track record in education while seeking up ways to improve the research excellence in the Department and in the research groups.

5. Relevance to society

One cannot overemphasise the importance of (pharmacy) education, training and research to develop research and higher education for societal and well-being purposes in Norway. Societal challenges and United Nations Sustainable Developmental Goals (SDGs) are directly connected in these activities. Interdisciplinary and cross-disciplinary approaches are strongly supported for the future too. These are likely well represented in the innovation and knowledge-intensive activities where the Department is strong.

The impact cases have been carefully selected by the UiO Department of Pharmacy. We have three examples of the high-level research conducted in the administrative unit. These research topic/area examples are well-chosen and represent research with the highest output and visibility in the Department's recent outreach.

Comments on impact case 1 – APC301 - A novel adjuvant in the fight against antimicrobial resistance (AMR)
Antimicrobial resistance (AMR) is an ever-emerging global threat for human life and health care. The threat is pronounced in third-world and low-income countries with limited means to fight the infectious and other diseases. In this impact case, a novel class of antibiotic adjuvants were developed against resistant bacteria.

Carbapenem-resistant gram-negative bacteria with Beta-lactamases are one of the most critical strains as potential health hazards. In the project, a new class of metallo-beta-lactamases was discovered and synthesised against the bacteria. These represent lead candidates for drug development as antibiotics against the dangerous bacteria (two patent applications).

The nature of the impact expected includes:

- Potential high-impact benefits for the patients, healthcare and the R&D community.
- Broad societal, human and economic benefits.
- Scientific dissemination like lectures, presentations and publications.

Comments on impact case 2 – Capitalising on Norwegian birth cohort and registry data to generate real-world evidence about medications in pregnancy
Unique Norwegian birth cohort and health registries were utilised in this multidisciplinary project studying the long-term effects and safety of drugs during pregnancy. The results help to promote the safety and well-being of pregnant women and their children.

There is a great need for human data and research about the safety and efficacy of medication strategies during pregnancies. Normal drug testing always excludes pregnant volunteers. Real-life pharmaco-epidemiological studies provide important information on these critical gaps in knowledge for the benefit of the safety and well-being of foetuses and their mothers.

PharmaSafe projects have resulted in numerous high-impact projects including a prestigious ERC grant for Professor Nordeng. A series of articles have been published on the effects of analgesics and antidepressants impacting DNA methylation in the offspring. Further perinatal pharmaco-epigenetic studies were followed and reported.

The real-world mother-child pharmaco-epidemiological studies benefit the science and impact in several ways:

- Novel insight into the long-term drug safety *in utero*.
- Identified impact of medication use during pregnancy.

- Revealed teratogenic perceptions and non-adherence medications.
- Advanced biostatistical and causal inference methods.
- Comprehensive data-analysis for real-world health registries.

Comments on impact case 3 – Improving patient health and well-being – the impact of individualised drug therapy

Individualised drug treatments based on, for example, genetics, age, gender, disease status, and drug interactions can result in beneficial drug dosing regimens and strategies to provide more optimal treatment outcomes. The ultimate goal of this clinical collaboration is to improve patients' long-term health and well-being, especially for renal transplant recipients with multiple long-term conditions. It found that correct dosing of immunosuppressive drugs reduces complications and improves patient outcomes of renal transplant recipients.

The project has developed international guidelines and implemented patient-friendly home-based sampling procedures for drug monitoring. Long-term improved drug treatments have also been developed. As such, improved prescribing practices and facilitated, patient-centred decision-making protocols are the major impacts of these studies. Correct dosing of immunosuppressive drugs significantly decreases the morbidity and mortality of patients with increased graft survival. The right drug at the right dose with the right dosing intervals is the key for success.

Appendices

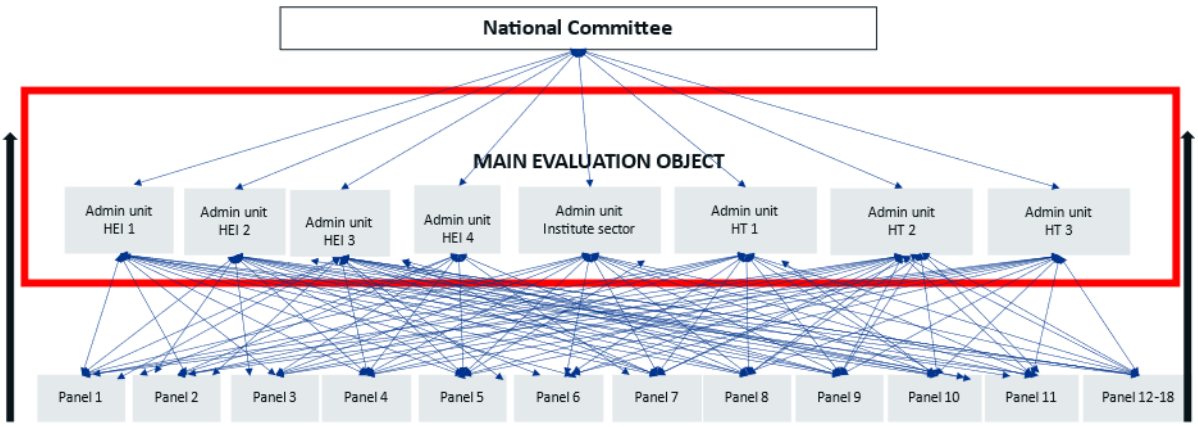
Evaluation of Medicine and health 2023-2024

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
www.forskningsradet.no/publikasjoner

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.

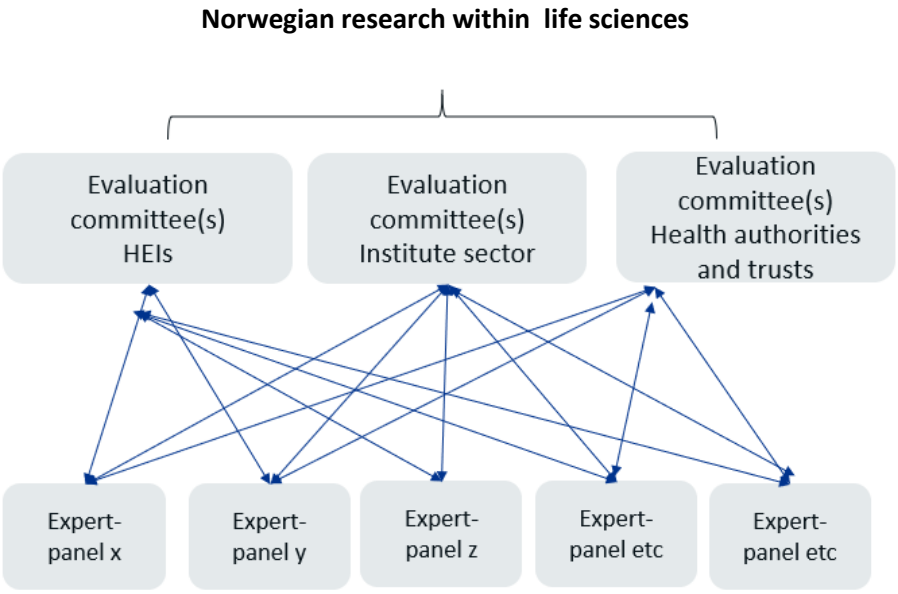

Figure 1. Evaluation committees and expert panels

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
UiO	Department of Pharmacy	Medicinal Chemistry	Panel 1b
UiO	Department of Pharmacy	Pharmaceutical Analytical Chemistry	Panel 1b
UiO	Department of Pharmacy	Pharmaceutical microbiology and immunology	Panel 2a
UiO	Department of Pharmacy	Pharmaceutics	Panel 1b
UiO	Department of Pharmacy	Pharmacognosy	Panel 1b
UiO	Department of Pharmacy	Pharmacology	Panel 1a
UiO	Department of Pharmacy	PharmaSafe - PharmacoEpidemiology & Drug Safety research group	Panel 4e

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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