Forskningsrådet

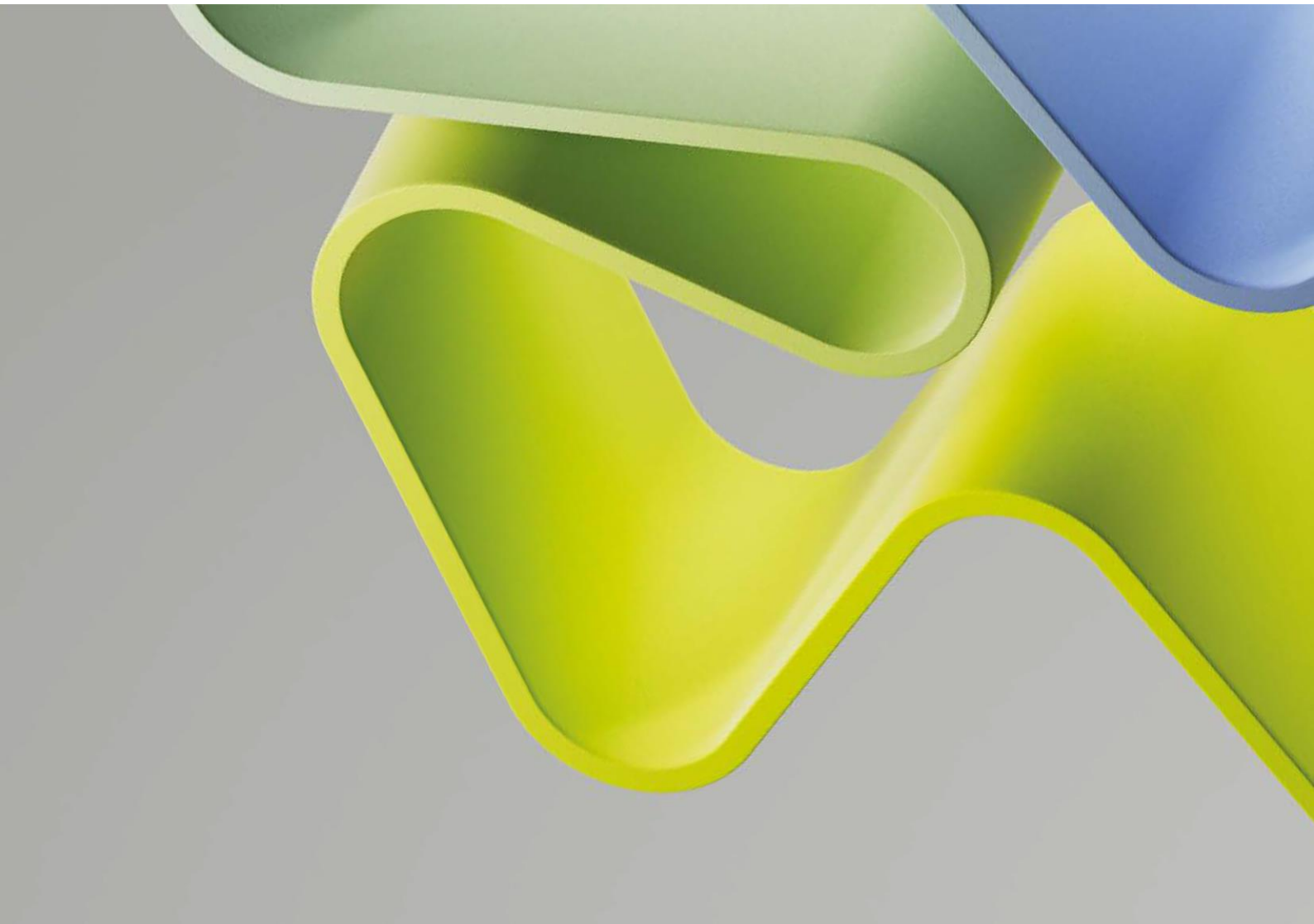
Evaluation of Life Sciences 2022-2024

Evaluation of medicine and health 2023-2024

Evaluation report

ADMIN UNIT: Department of Clinical Dentistry
INSTITUTION: University of Bergen (UiB)

December 2024



Contents

Statement from Evaluation Committee 4

This report is from Evaluation Committee 4 which evaluated the following administrative units representing the higher education sector in the Evaluation of medicine and health 2023-2024:

- Faculty of Health Sciences and Social Care, Molde University College
- Faculty of Medicine and Health Sciences, Norwegian University of Science and Technology (NTNU)
- Faculty of medicine and Health Sciences, NTNU, Norwegian University of Science and Technology (NTNU)
- Department of Clinical Dentistry (UIB), UiT Arctic University of Norway
- Department of Community Medicine, UiT Arctic University of Norway
- Department of Medical Biology (IMB), UiT Arctic University of Norway
- Faculty of Health and Sport Sciences, University of Agder (UiA)
- Department of Global Public Health and Primary Care, University of Bergen (UiB)

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 4. All members of the committee have agreed with the assessments, conclusions and recommendations presented here.

Evaluation committee Higher Education Institutions 4 consisted of the following members:

Professor Anja Krumeich (Chair)
Maastricht University

Professor John de Wit
Utrecht University

Professor Paul Hatton
University of Sheffield

Professor Marialuisa Lavitrano
Milano-Bicocca University

Professor Patrik Midlöv
Lund University

Professor Louise Torp Dalgaard
Roskilde University

Rebecca Babb, Technopolis Group, was the committee secretary.

Oslo, December 2024

Profile of the administrative unit

The research activities at the Department of Clinical Dentistry at the University of Bergen (UiB) is organised in two institutes: IKO, which focuses on patient treatment and teaching with centres for Operative Dentistry and Functional Tissue Reconstruction (FUTURE), and IOB, which emphasises preclinical medicine and oral health. Both institutes provide research training, and the PhD programme is at faculty-level. The administrative unit consists of FTE 17,5 professors, 7,5 associate professors, 31 PhD-candidates, seven post-docs and researchers, five senior engineers, one head of department, one research coordinator and one financial project manager. Women represent a majority in all categories except the head of department, which is a man.

The administrative unit is comprised of one research group, the TOR (Center for translational oral research). The administrative unit aims to fulfil the UN´s Sustainable Development Goals (SDG), with emphasis on SDG3 – ensure healthy lives and promote well-being for all ages through high quality research, innovations and educational activities related to oral health. IKO´s strategy for research runs from 2018 to 2023. A new strategy is currently in progress. The administrative unit's vision is to be a leading actor in research in oral health, nationally and internationally. The administrative unit has active research environments in clinical, epidemiological, and population-based research, infection and inflammation, biomaterials, and regenerative dentistry/medicine of international standard. Their main targets are to develop safe and durable biomaterials, improve treatments, study the evolution of oral health at a population level and exploring links between oral health and general health. They further aim to strengthen translational research. Addressing challenges in tissue engineering and regenerative medicine requires true integration of many disciplines (biology, biomaterials science, clinical medicine, and engineering). The interdisciplinary nature of the studies has been shown in several projects and studies reported by TOR members and through the large global network established by the groups (more than 40 institutes are collaborating with the groups in Norway, Europe, Japan, USA and Africa). Among its national collaborators are universities, hospitals, institutes, and industry. The administrative unit also has several international industrial collaborators. In these projects, societal engagement is a strategic priority to drive maximum positive benefits from stem cells and 3D bioprinting while staying focused on any risks related to these technologies.

According to the self-assessment, internal strengths are a dedicated workforce, top-notch infrastructure, and strategic collaborations, position the administrative unit at the forefront of translational oral research, which the administrative unit may leverage in the future. However, challenges like diminishing economic resources, a lack of research topics, recruitment difficulties, and limited visibility highlight the need for a strategic approach, including resource optimisation, curriculum restructuring, and proactive efforts to enhance collaboration. Additionally, external threats from political and regulatory factors threaten research funding, necessitating project reprioritisation and potentially marginalising oral health within the broader health system. These challenges underscore the importance of strategic planning and proactive engagement with policymakers to safeguard the d administrative unit's future. Abundant external opportunities, including strategic collaborations and securing funding, are listed as a possibility to propel the administrative unit toward greater innovation and societal impact.

Overall evaluation

The Department of Clinical Dentistry at the University of Bergen (UiB) is comparable to the leading Dental Schools throughout Europe in terms of strategy, organisation, and quality of research. The evidence reviewed showed that the best research undertaken and published by this department at UiB was world leading in terms of quality and – where relevant – impact. Research activities aligned well with local strategy, where the strategic goals set at a departmental level were sound. The focus on excellence in terms of research quality is welcome, although it was noted that the Department lacked a consensus for a common definition of high quality or excellence in terms of assessing research (see below). Funding for research came from a range of sources, including grants secured from competitive processes.

There were many research and related strengths noted in this review. The quality of the strongest peer reviewed outputs was world leading, in terms of publishing well designed studies with valuable results in field leading journals that were then attracting citations from recognised centres of excellence internationally. Open science policies and practices were also especially strong, with all of the best work reviewed publicly available. Much of the research undertaken was informed by national and global oral health challenges and clinical needs, and it was encouraging that the Department could demonstrate real world impact. The Departmental culture – including research culture – was positive, with evidence of mature and effective policies for equality, diversity, and inclusion (EDI) as well as a wider sense of a collegiate departmental community. Research facilities including technical support were also a strength, but there are opportunities to further improve sustainability. PhD training appeared to be highly effective.

Weaknesses include a relatively poor understanding of how to define excellence in research. As noted in this report, there is much excellent and impactful research in the department, but the evidence reviewed suggested that staff could not always articulate why – for example – a publication was especially noteworthy or excellent in terms of the field or more generally in oral health research. One further weakness was the lack of focus on a smaller number of stronger research subjects or thematic areas. This fragmentation of the community meant that most themes were relatively lacking in critical mass, with reduced opportunities for collaboration towards securing major research grants, and this made it more difficult for the department to articulate its strengths. While the best publications were undoubtedly world leading, there was also a “tail” of unremarkable or weaker outputs that added little to the field. These observations may also relate to a relative lack of accountability for researchers to line managers and leaders (while overall the Department enjoyed a positive, collegiate culture, there appeared to be no real mechanism for leaders to challenge staff in situations where there were opportunities to improve on the quality of research). In addition, there are opportunities to use formal training and staff development to increase the skills and competencies of all academic and technical staff to further strengthen the community and build cohesion. The departmental research strategy was reasonable, but there was certainly room for improvement, primarily to address the issues outlined here and also to better align with faculty and institutional strategies.

Priorities for change and improvement of research at the Department – to address potential weaknesses - include establishing a new strategy that aligns with the Faculty and Institutional strategies, where this new strategy should further emphasise excellence and real-world impact. Related to this, the institution should better define what “excellence” looks like in terms of research, basing this on internationally recognised indicators but recognising subject-specific enhancements and the need to comply with the Declaration on Research Assessment (DORA). The new strategy and prioritisation of excellence and impact should be understood and implemented by all relevant staff, with an approach that includes improved education/staff development and accountability. These steps need to be taken in such a way as to preserve the positive aspects of research culture noted above, balancing so-called academic freedom with the goal of further raising standards.

The future prospects for the Department of Clinical Dentistry are highly promising, especially if the recommendations in this review are acted upon. Norway enjoys overall good standards of oral health due to the excellent education and training provided by the Higher Education sector, with many additional benefits arising from research. This acknowledged, it is also true that relatively disadvantaged communities including some ageing populations and patients with special needs have poor oral health, and there are opportunities to undertake and apply research to address these gaps. By implementing a robust local research strategy (that aligns with the wider institutional perspective), the Department will be able to direct its efforts rationally to address both national oral health priorities and wider European and global opportunities. The latter includes research with translational partners – ideally industry – that delivers innovations in products and services to improve oral health and associated socio-economic benefits.

Recommendations

- Priorities for change and improvement of research at the Department – to address potential weaknesses - include establishing a new strategy that aligns with the Faculty and Institutional strategies, where this new strategy should further emphasise excellence and real-world impact. Related to this, the institution should better define what “excellence” looks like in terms of research, basing this on internationally recognised indicators but recognising subject-specific enhancements and the need to comply with the Declaration on Research Assessment (DORA). There are a wide variety of indicators of research excellence that should be considered, including competitive grant capture, publication in field leading journals where papers are then highly cited by recognised groups around the world, national and international collaboration, PhD success, awards and prizes, and diverse real-world impacts.
- The new strategy and prioritisation of excellence and impact should be understood and implemented by all relevant staff, with an approach that includes improved education/staff development and accountability. These steps need to be taken in such a way as to preserve the positive aspects of research culture noted above, balancing so-called academic freedom with the important goal of further raising quality and standards. One positive step here would be greater formalisation of the research leadership structure, with a research committee established to assist with setting, implementing and reviewing strategy and policies.
- Research strategy and implementation should prioritise consolidation around a smaller number of broader research themes, each with sufficient critical mass to further improve the number of high quality of publications, increase opportunities for impact, and facilitate staff training and development. There are opportunities to use formal training and staff development to increase the skills and competencies of all academic and technical staff to further strengthen the research community or ecosystem and build cohesion. It may be that a focus on a smaller number of stronger themes means that some research that does not fit in terms of excellence or impact should be deprioritised in terms of internal support.
- Research staff, especially those with leadership responsibilities, should further prioritise winning large, collaborative and where relevant multi-disciplinary research grants. These larger awards are more likely to deliver the highest quality research that stands out in an increasingly competitive global landscape, they provide a better environment for research staff to grow and develop, and in the medium term they assist in recruiting and retaining the very best staff at all levels. Prioritisation for larger, competitive awards should be acknowledged in the renewed research strategy.
- While research infrastructure was on balance a strength, there are always opportunities to improve sustainability. This is especially true at a time of reduced resources but where access to state-of-the-art infrastructure is an important determinant of success. The Department are therefore encouraged to continue with technical staff development and continue to facilitate wider access to local equipment while collaborating more widely to establish core facilities.

1. Strategy, resources and organisation of research

1.1 Research strategy

The Department of Clinical Dentistry at the University of Bergen (UiB) is similar in structure and activities to comparable Dental Schools throughout Europe and North America. As noted elsewhere, this is understandable because of the necessarily strong focus on clinical teaching and the graduation of qualified dentists and other related professionals (e.g. hygienists). The research strategy and programmes reflect these strong clinical foundations, where it is also influenced by national and global oral health priorities alongside the personal expertise of key academic staff.

While the broad vision and goals for this administrative unit are reasonable and reflect the environment noted above, there are some opportunities for improvement (summarised below). Firstly, it was noted that – while there are many common features – the institutional, Faculty and UiB research strategies do not map fully in terms of coverage and time periods (where the UiB strategy only ran until 2023). Moreover, while there is a strong emphasis on excellent or “high quality” research, this is relatively poorly defined in the documentation and interviews with key staff did not establish recognised indicators or metrics that could identify excellent, high quality and/or world leading research. While these shortcomings are noted here to benefit the Departments and help drive positive improvement, many strengths and positives were also noted i.e. opportunities for improvement lay in establishing a stronger strategy and making necessary structural changes, many aspects of the Department’s research had features that indicated high quality/excellence, impact and other positives. Some of these are noted elsewhere in this report but included evidence of high-quality research ranging from laboratory studies to clinical evaluation and trial, multidisciplinary research, international profile and collaboration, competitive grant capture, and publication in field-leading journals (attracting citations from major groups globally).

It is good practice to focus on a smaller number of research fields or themes – as UIB describes here - building critical mass in each and where possible facilitating collaborative studies between them. Inevitably, departmental size and a focus on teaching restricts research opportunities, but the Department has wisely integrated their research in a single “Centre for Translational Oral Research” (TOR) that as four thematic research groups, and is itself integrated with a doctoral education programme under a Research School (one of three research units). Beneath this layer of research organisation, the structure is less clear, where each of the four research groups has a different number of areas (from 1 to 5) with very different representation of work for each. Some specific areas have been put forward for more detailed analysis in subsequent sections of this report.

Elements of the Department’s research are undoubtedly impactful on society, both directly and indirectly (e.g. in terms of policy, such as the impressive work on antibiotic stewardship). The focus on real world oral health and related challenges is recognised as a strength.

The committee's evaluation

Overall, the Department generates some high-quality research, with many aspects of their best work comparable to leading Dental Schools across Europe. Aspects of strategy are also reasonable, with evidence of some implementation leading to positive change. It was noted in the documentation - and at interview – that Department staff generally believe that

they have relatively high teaching loads, and this has the potential to detract from research. This is also a common feature among European dental schools.

The committee´s recommendations

- The Department is urged to complete an updated research strategy that aligns with the UiB vision and goals, and also takes on board the recommendations in this review.
- As part of this strategic update, the leadership are strongly encouraged to make decisions around prioritising the highest quality research (as defined by common indicators e.g. competitive grant capture, publication in field leading journals where papers are then highly cited by recognised groups around the world, national and international collaboration, successful PhD supervision, etc.). In parallel, the leadership should consider how best to manage or support individual staff who are not thriving in research terms (e.g. by moving them into larger, more successful teams for mentoring and development).
- Irrespective of how successful versus less effective researchers are managed, the leadership and wider department community are strongly encouraged to consolidate research groups further (see below, Section 1.2). For example, there are many obvious overlaps between biomaterials and tissue engineering, and also craniofacial development - these do not necessarily need to be separate themes.
- Finally, the department is encouraged to consider teaching loads, and potentially share some dental teaching across the institution or faculty to generate more time for the leading researchers to generate even greater success.

1.2 Organisation of research

The establishment of TOR in 2021 was a very positive development, providing a home and unifying mission with distinctive research objectives. There is also much added value (e.g. in achieving critical mass) and potential for further improvement using TOR as a vehicle. As noted above and in the documentation provided in the self-assessment, TOR has four thematic research groups and three units that include the Research School. These positives recognised, it was less clear how well integrated the strategic and operational realities at TOR are, and there appear to be differences in terms of research “success” associated with each group. The narrative in the self-assessment reinforces the impression that these groups in general are run very separately with relatively little integration or collaboration. While there is an opportunity here to generate even greater critical mass via consolidation – where this is a key recommendation in this review - it was noted that all thematic groups had some evidence of impressive research success, especially around grant capture (including European) and some world leading publications.

With respect to research staff and careers, overall the impression gained from the self-assessment and interviews was very positive. Very many staff and postgraduate students appeared to have developed during their training and careers, diversity and inclusion was a positive feature of the research community (including in leadership), and institutional effort appeared to be directed at supporting earlier career researchers. There were some anomalies that might be related to English language, but it was noted that (a) the Head of Department appeared to have a large number of critical responsibilities with little evidence of effective delegation, and (b) the overall research leadership appeared to be the responsibility of a “coordinator” rather than a leader (where a director or leader is usually more effective in comparable Departments). Time distribution appeared fair overall with the limited information available, although the documents and interviews suggested most staff felt that teaching and administration loads were high and research time was limited. The option of a sabbatical was viewed positively, although no data was available on uptake.

The committee's evaluation

Overall, the organisation of research and related activities (e.g. postgraduate development and training) is sound, with a logical structure and much evidence of success.

The committee´s recommendations

- The Department is strongly encouraged to deliver on the promise of TOR, through a combination of structural changes (e.g. establishing a distinctive research leadership team with real powers) and consideration of some thematic group mergers (see Section 1.1 above) there is now an opportunity to better integrate the research community with a focus on excellent and impactful research.
- The Department is encouraged to make full use of sabbatical opportunities to develop staff, build collaborations, and/or establish new lines of research enquiry. If this path is followed, it is important that staff with sabbatical time understand their responsibilities to use the time productively, ideally against specific objectives (e.g. grant submission).

1.3 Research funding

The Department appear to have a healthy research budget that is a combination of government “core” funding and competitive grant success. The core budget also covers essential professional support staff (e.g. technicians) and infrastructure (institutional and departmental). Support for PhD students is impressive, greater than typically associated with European Dental Schools and a major opportunity for the Department. Competitive national and/or international grants last five years (2018-2022).

The committee's evaluation

The Department and specifically key members of staff and their teams appear to have been highly successful in securing competitive research income, especially from EC schemes, including as project leaders/coordinators. Winning this income is an indicator or high research quality and standing in the community, and larger awards are associated with longer programmes that are more likely to deliver significant findings that are associated with the highest quality publications in field leading journals. Many of the projects listed in the self-assessment are also translational, with evidence of potential for real world impact. Indeed the Department has examples of recent real-world impact as a result of their research.

The committee´s recommendations

- The Department is encouraged to continue to seek and secure international grant funding for the reasons outlined above.
- Where appropriate, the Department is encouraged to seek new (and mature existing) relevant industry partnerships, prioritising successful translation to the real-world application of their best research.

1.4 Use of infrastructures

The Department has clearly invested in local infrastructure, and also accesses institutional core facilities, to conduct the bulk of research. Participation/use of national and international infrastructure is more limited but is appropriate for relevant projects and aligns well with external collaborations.

The committee's evaluation

In addition to evidence of appropriate use including use of infrastructure leading to grant capture and publication, the committee noted a strong emphasis on sustainability in the self-assessment that was commended.

The committee´s recommendations

The Department is encouraged to continue to emphasise establishing or accessing the best facilities to support their strongest research programmes and continue an emphasis on sustainable infrastructure. Towards the latter objective, it would be wise to consider sharing facilities in a sustainable and safe way, and “join forces” with other parties to invest in new, world class facilities (again with a sustainable model).

1.5 Collaboration

Researchers at the Department appear to be highly collaborative, both internally, nationally, and internationally. This was evidenced by grant capture and publication. While the self-assessment catalogued a large volume of collaboration, in most cases very little detail was provided on the qualitative aspects of these research partnerships (i.e. did these collaborations lead to major publications or impacts, were they sustained, and how was success determined). To be fair, there were several noted exceptions to this observation, both in the self-assessment and case studies. Industry and clinical partnerships were also noted, and these typically contained more detail.

The committee's evaluation

The Department is evidently a highly collaborative community, further reinforcing their high standing in the oral and dental research environment that is arguably out of proportion to their relatively small size.

The committee´s recommendations

- Continue to maintain an outward looking, collaborative research culture, this is clearly a strength of the Department.
- Be willing to benchmark your individual collaborations. Consider recognised approaches to benchmarking. For example: Are they supported with sufficient funds, and/or do they lead to new funding opportunities? Do they generate publications that are field leading (in the stronger journals, and do they attract citations from major groups globally), and/or are they associated with meaningful, real-world impacts.

1.6 Research staff

As noted in the opening section, the impression gained from the self-assessment and interviews was very positive. Very many staff and postgraduate students appeared to have developed during their training and careers; diversity and inclusion was a positive feature of the research community (including in leadership), and institutional effort appeared to be directed at supporting earlier career researchers. With respect to diversity, it was noted that the research community contained a large number of women, including in many senior leadership roles. Time distribution appeared fair overall with the limited information available, although the documents and interviews suggested most staff felt that teaching and administration loads were high, and research time was limited. This evidence of diversity appeared true for all levels of the organisation.

The committee's evaluation

Overall the profile and organisation of staff appeared logical and reasonable. The evidence for significant female leadership was read as evidence of a positive research culture, most likely reflected in other indicators of diversity. It was however noted that (a) the Head of Department appeared to have a large number of critical responsibilities with little evidence of effective delegation, and (b) overall research leadership appeared to be the responsibility of a “coordinator” rather than a leader (where a director or leader is usually more effective in comparable Departments).

The committee´s recommendations

- It is recommended that a more overt leadership team be described with shared or delegated responsibilities around research (some delegation was recognised, but even then, the weight of responsibility appeared to lie with the Head of Department with others having coordinator roles – coordination is not leadership). Sharing and delegating leadership will better prepare individuals for further promotion and contribution to the ambition and goals for the Department.

1.7 Open Science

The self-report and follow up interview suggested - with supporting evidence - that UiB has a very positive approach to open science policies and practice. Overall though compliance with EU and RCN open science principles appeared to be good and in line with funder expectations. This is partly because the open science policy adherence is supported by expert professional staff at the University, but also indicates a positive research culture. The latter is supported by extensive training, delivered by specialist library teams. UiB also utilises an institutional repository to maximise access and comply with their own rights retention policy. Data management plans form a key part of responsible research.

The committee's evaluation

Overall, our evaluation was very favourable. All publications reviewed were open access, with some examples of supplementary data (although not all supplementary were accessible e.g. Shanbhag et al 2024 J Funct Biomater data was not findable in the EMBL EBI PRIDE proteomics database as claimed in the paper). Committee investigations supported the claims that 97% of publications in 2022 were open access, with almost half at the gold standard. Likewise, the attitude to data ownership appeared positive and responsible.

The committee’s recommendations

- Elsewhere the committee recommends a continued focus on raising research quality and consistency, where this should be reflected by focussing resources in publishing the very strongest papers that attract favourable attention in the global community (the Department already has many examples of this work, this is encouragement to maintain this direction of travel). In these cases, the Department is strongly encouraged to seek gold open access, making their best work available to the widest audience to maximise opportunities for impact in the wider sense of the term.

2. Research production, quality and integrity

Introduction

The Department's research is brought together in the Centre for Translational Oral Research (TOR) that was established in 2021 and is a substantial entity that includes 4 research groups and three units (research laboratory unit, statistical unit, research school). The research groups pre-date the Centre that integrates basic experimental, epidemiological, clinical research activities and facilitates translation of the results into evidence-based innovative therapies. The research groups have distinct and complementary profiles. The Tissue Engineering Research Group has undertaken Advanced Therapy Medicinal Products (ATMP)-based clinical trials that are among few in Europe. The research of the group has also resulted in a standardised protocol for mesenchymal stem cell use. The contributions of the NanoSafety & NanoMedicine group include establishing advanced biological models and methods to provide reliable, free for nanomaterial interference, cost- and time- efficient, ecologically friendly testing that also reduces the need for animal use. The Craniofacial Development, Oral Infections and Inflammations research is focused on investigation of some most frequently occurring diseases in the oral cavity, periodontitis, and inflammation of endodontic origin. The aim of the research group is to gain more knowledge of the pathogenesis of inflammatory diseases and conditions to achieve earlier and better diagnosis, treatment, and prevention. The research profile of the research group for Oral Health is to to provide knowledge to prevent and treat diseases and conditions. Some of this research close to and relevant for society and patients is nationally and internationally unique.

UiB has its own ethical guidelines, in addition to the national and international research ethics guidelines. The Faculty of Medicine also adheres to guidelines for medicine and health research such as the declaration of Helsinki, the Vancouver protocol, as well as Guidelines by The Norwegian National Research Ethics Committee for medical and health research. When handling sensitive personal data, researchers are expected to use SAFE (secure access to research data and e-infrastructures), UiB's solution for secure processing. UiB guidelines were reviewd and revised in 2022 and include guidance on how suspicions of misconduct in research should be handled at the departmental level, which is being implemented in the departments of the Faculty of Medicine. The university has research ethics committees both at the faculty level and at the central level, which handle cases of suspected scientific misconduct. The committees also have a preventive mandate, which should promote good research practice. The central research ethics committee offers seminars on relevant topics, as well as e-courses and web resources. Sikresiden.no, which is a collaboration between 33 universities, colleges and research organisations in Norway, also provides resources for research ethics and privacy and personal data. The Faculty of Medicine offers training in research ethics through seminars for PhD supervisors, courses for PhD candidates in Research Ethics, Laboratory Animal Science and Good Clinical Practice.

Research infrastructure is prioritized by the Faculty of Medicine and it is fundamental for the faculty that all infrastructure should be made available in the best feasible way for researchers, and that the faculty contributes to the research community with up-to-date infrastructure. Research infrastructure is primarily consolidated in core facilities that are anchored in and operated by an institute on behalf of the faculty. The faculty has a dedicated committee for core facilities that advises the faculty leadership and the institutes on matters related to core facilities and other advanced infrastructure. The faculty has also developed a strategy for research infrastructure and its own roadmap for research infrastructure in line with the Norwegian Roadmap for research Infrastructure. At present, IKO is not responsible for a core facility. However, the Department has specific equipment and instruments. A substantial effort has been made by the Tissue Engineering Research

Group over the years to establish the infrastructure and research facilities available at TOR, together with the Biomaterials group. In addition, the research groups at the Department participate in a substantial number of national, international and European infrastructures.

2.1 Research quality and integrity

This part includes one overall evaluation of each research group that the administrative unit has registered for the evaluation. The overall assessment of the research group has been written by one of the 18 expert panels that have evaluated the registered research groups in EVALMEDHELSE. The expert panels are solely behind the evaluation of the research group(s). The evaluation committee is not responsible for the assessment of the research group(s).

Research group: Centre for Translational Oral Research (TOR)

The Centre for Translational Oral Research (TOR) receives critical and substantial auxiliary support by the three units (laboratory and statistical support). The research is well funded, and it is multidisciplinary and translational. More than 40 international academic partners and small as well as large industries are currently collaborating with the centre. The centre provides extensive training for the next generation of scientists and their findings have led to clinical trials for products in regenerative medicine. However, there seem to be disparities between the groups and not all of them contribute equally. Furthermore, they appear to function as independent groups and not utilising full synergy and interdisciplinary options between groups. Tissue Engineering is the most successful group and perhaps their success ‘masks’ the overall performance of the centre making it more successful than it actually is. Taking into account the size of the Centre, more contributions were expected. However, grants and high impact publications are dominated by the Tissue Engineering group. That disparity between the different groups contributions can be further exacerbated by the retirement of key academics with no plans to be replaced. This will significantly impact the Centre.

The committee´s comment to the assessment of the research group(s)

The overall assessment of Centre for Translational Research highlights the strength of the research undertaken at the Department, including in relation to it being well funded, multidisciplinary and translational, collaborations with a substantial number of international academic and (small and large) business partners, and the extensive training for the next generation of scientists. As noted elsewhere in this evaluation report, there is, however, a disparity in the contributions of the research groups. It is of concern that success of the Tissue Engineering group in particular may mask disparities in performance. The Department may want to ensure this disparity is not exacerbated by the retirement of key academics that will affect the Centre as a whole with no plans in place for them to be replaced. A further and possibly related issue deserving of attention, equally noted elsewhere, is that research groups seem to operate mostly independently and that opportunities for synergy and interdisciplinarity are not fully utilised.

3. Diversity and equality

The Department reports a long history of engaging in actions to improve diversity and equality, and has continued this work to the present day. This is supported by clear policy documents that address key issues.

The committee's evaluation

Overall, the Department is commended for their positive and effective approach. This appears to be a very positive aspect of their research, and it most likely contributes to the very positive research culture noted in this report.

The committee´s recommendations

- Few details of specific training are provided in the self-assessment, so it is encouraged that these are developed as a written programme if they do not exist already.

4. Relevance to institutional and sectorial purposes

The Department has activities towards achieving the sector-specific objectives and contributing to the knowledge base in general. The Department undertakes high-quality innovative research in fields like tissue engineering, regenerative medicine, biomaterials, and population bases studies that contribute to the advancement of knowledge in these areas. The high-quality research is reflected in publications and the research excellence feeds into the quality of education. The Department has a long-standing focus on innovation and value creation in the healthcare sector and has successfully established several new companies based on research findings. The Department is responsible for dental education, education for dental hygienists, postgraduate education for seven specialties in dentistry and research education. The establishment of the Centre for Translational Oral Research (TOR) as an umbrella for the research groups at IKO has ensured a good critical mass of researchers and research support in most of the Department's fields of research.

The Department's practices for innovation and commercialisation start with a researcher who identifies the innovation potential in a research project, and contacts VIS Innovation/TTO and the faculty's innovation advisor for early clarification of the potential and IPR opportunities. If VIS Innovation recommends the project, it is included in the TTO portfolio and developed, with financing from UiB's funding. UiB has made available an Innovation handbook to guide researchers and advisors on how to foster, scale and accelerate innovation across UiB. To support innovation and commercialisation the Department aims to include industry partners into the development of research projects, maintain a presence in incubator environments (Eitri Medical Incubator), initiate and participate in project proposals under calls for innovation (national and international), foster interdisciplinary and transdisciplinary collaboration within and outside the Department (i.e., employing specialists from outside the medical field to engage new ideas and ways of thinking, undertake networking with political entities (e.g., within embassies) to drive innovation internationally, and include students at bachelor, master, and PhD-level in innovation activities; the Department also holds membership of the Bergen Business Chamber.

The Department's research staff are highly motivated to innovation activities that may promote the goals of creating equitable and high-quality oral health services nationally and internationally. The Department has a dedicated innovation leader who is part of the Department's management team and the Faculty of Medicine's Innovation Leader Forum, led by the vice-dean for innovation. The administrative unit also has access to two dedicated innovation advisors at the medical faculty and several innovation advisors and legal advisors at UiB's central Division of Research and Innovation. Researchers who are interested in developing their ideas and network in an innovation environment can use resources of the Eitri Medical Incubator. Researchers and students can apply for early-stage innovation funding through UiB's in-house verification programs, UiB Ide and UiB Early Idea.

The committee's evaluation

The Department makes extensive contributions to all the sector specific objectives. The Committee commends the Department with its supportive environment to foster innovation and commercialisation.

The committee's recommendations

- Promote optimal utilisation of the potential for collaborations and synergies between research groups to maintain and further strengthen contributions to sector specific objectives related to research and publications, innovation, education and robustness.

- Maintain the supportive environment to foster innovation and commercialisation and explore possibilities to reduce what seems a predominant reliance on the motivation initiative of researchers, for instance as an integrated focus of the process of developing research proposals.

4.1 Higher education institutions

The PhD programs at the University of Bergen are directed at the 7 faculties, with the overall responsibility for the PhD programs allocated centrally with the University Board. The individual faculties are responsible for implementing quality measures and follow-up, with the Central Research and Innovation Administration overseeing the quality assurance system. The medical faculty has a thriving doctoral program, with approximately 565 PhD candidates and 100 research students enrolled, representing the externally funded multidisciplinary research at the 5 departments. Candidates are educated to be curious, critical and independent thinkers, able to develop innovative solutions to our society's biggest challenges. High-quality PhD education is provided through supervision excellence, predicated on pedagogic competence and interpersonal relationship-building that fosters good research ethics and integrity. Elective courses are organised through research schools that foster specialised competence, greater professional collaborative networks and arena for psychosocial interaction.

The committee's evaluation

UiB makes an important contribution to PhD training and education, with evidence that postgraduate students are generally well supported and benefit greatly from the experience. The specific contributions to PhD training made by the Department are less clear. The Department also contributes to postgraduate taught programmes, including a 5-year masters that qualifies students as clinical dentists, and an undergraduate dental hygiene degree.

The committee´s recommendations

- It would be beneficial to highlight the specific the contributions the department makes to PhD training and education.
- The Department might consider approaches to expose undergraduates to research.

5. Relevance to society

Introduction

The impact case studies reported by UiB appear to be strong in terms of the evidence of primary research and the links between this and the real-world impact described. These are all in areas of global significance, where Norway also has specific oral health and related challenges. In this way, the impacts are in line with the Norwegian Long-term plan for Research and Higher Education 2023-2032. The specific areas of antibiotic stewardship, regenerative medicine, orofacial pain and tooth loss as a disability are all recognised widely, and priorities for impactful research worldwide. These align closely with UN Sustainable Development Goal 3 “Good Health and Well-being”, as well as potentially influencing Goal 8 related promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, the international community aims to achieve full and productive employment and decent work for all women and men, including for persons with disabilities, and equal pay for work of equal value.

The committee`s comments on impact case 1 – Antibiotic stewardship in dentistry

This impact case details how research and associated educational efforts have had a major impact on rational antibiotic usage in dentistry. Importantly, the research has formed the basis for national guidelines and knowledge-based antibiotic utilisation in dentistry. The potential cost-benefit of antibiotic prophylaxis to prevent infective endocarditis is an exceptionally important and sometimes heated debate in the global dental community today, with different recommendations and policies across the world. The research group make an important contribution to this debate, producing carefully researched data that provide evidence that shows – broadly - that antibiotic prophylaxis is generally not desirable, even for high-risk patients. While this work is exemplary, the researchers are encouraged to remain open minded in their pursuit of knowledge, for example published data suggests some sub-groups of high-risk patients may benefit greatly (e.g. dental extractions in patients with poor oral hygiene), while the types of prophylaxis used in implantology are unlikely to cause issues related to antimicrobial resistance (AMR). The impact case is well supported by research, which is referenced in six publications. The impact has been achieved through an impressive number and great diversity of avenues, the details of which are well described and supported by the inclusion of many relevant sources.

The committee`s comments on impact case 2 – Mesenchymal stem cell-based regenerative applications.

As highlighted in this impact case the research group have optimised and established protocols for ex vivo culture of mesenchymal stem-cells (MSC) and transportation between the GMP cell production facility and hospitals and used these protocols for clinical bone regeneration and other clinical applications. MSC represent an invaluable therapeutic tool for treatment of many of the currently non-treatable or challenging defects, diseases, and disorders. Providing such treatments has a direct impact on the health and quality of life of the patients and their families and a remarkable economic impact by reducing of the burden and costs on the health systems related to long-term care provided for the patients. The group are making good progress towards substantial impact in this competitive field, including clinical trial. In many ways though this is a less mature impact case study, as there is some way to go before cell-based regenerative therapies become mainstream. It would be good to incorporate cost effectiveness studies into the research. The research underpinning the impact case is sound and six references are provided. The details of the impact case are clearly described and supported by publications relevant to evidence translation.

The committee`s comments on impact case 3 – Increased quality of life in orofacial pain with an interdisciplinary approach

Orofacial pain is the outcome of different pathologies, and this impact case documents the contributions to increased quality of life resulting from interdisciplinary research. Launched at Haukeland University Hospital in Bergen by the Health Directorate of Norway, the project has provided insights into new mechanisms, sharpened diagnostic methods, offered novel treatments, and personalised rehabilitation programs. It has also paved the way to strengthen interdisciplinary collaboration between odontology and medicine. New knowledge of orofacial pain is being applied to establish innovative, more effective interventions. Parallel progress around classification of disease is welcome. The case is underpinned by research that has resulted in three PhD theses. Impact is described in detail and a diversity of supportive sources is provided.

The committee`s comments on impact 4 – Prosthetic rehabilitation of the edentulous

Previously, edentulous patients were not entitled to reimbursement of cost for dentures. This impact case highlights research that has shown that edentulous patients have significantly reduced oral function compared to dentate, with dire consequences such as pain, discomfort, severely reduced chewing ability, increased risk of oral infection and reduced dietary selection. In addition, edentulousness may have adverse psychological effects and may cause social isolation. The research underscored that this condition must be categorised as a major handicap and these findings had policy impact, resulting in public reimbursement. It is not clear if further research in this area will yield further impact in proportion to the costs. Details of underpinning research are provided and referenced in six publications. While the specific new impact is explained a little less clear, the researchers clearly have contributed to debate on the subject of edentulism and the best approaches to manage the condition with respect to both clinical interventions and society. Details of the impact are supported by several noted publications.

Appendices

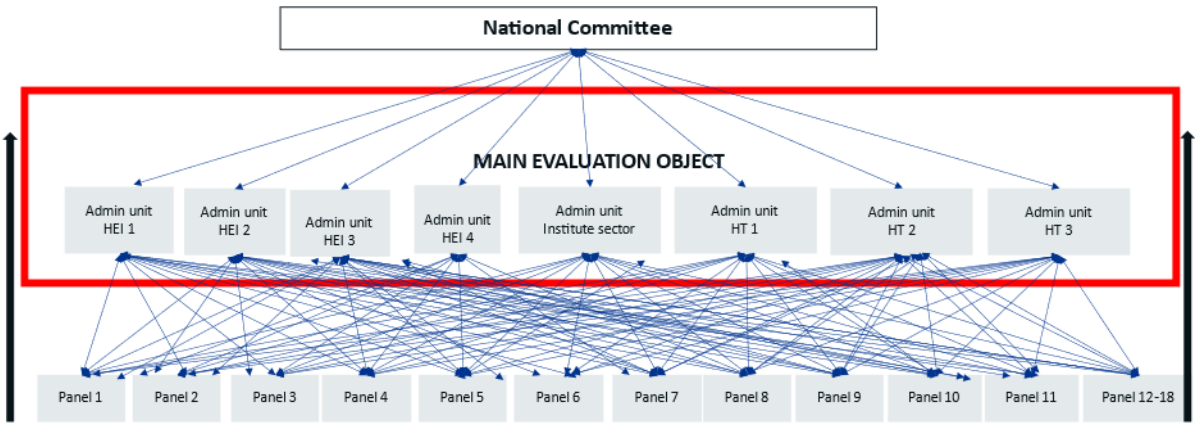
Evaluation of Medicine and health 2023-2024

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

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Oslo, 5 April 2022

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1 Introduction

Research assessments based on this protocol serve different aims and have different target groups. The primary aim of the evaluation of life sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), and by the institute sector and regional health authorities and health trusts. These institutions will hereafter be collectively referred to as Research Performing Organisations (RPOs). The assessments should serve a formative purpose by contributing to the development of research quality and relevance at these institutions and at the national level.

1.1 Evaluation units

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

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

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

1.2 Minimum requirements for research groups

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

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

1.3 The evaluation in a nutshell

The assessment concerns:

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

The Research Council of Norway (RCN) will:

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

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

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

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

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

1.4 Target groups

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

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

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

2 Assessment criteria

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

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

2.1 Strategy, resources and organisation

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

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

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

2.2 Research production, quality and integrity

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

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

2.3 Diversity and equality

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

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

2.4 Relevance to institutional and sectoral purposes

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

Higher Education Institutions

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

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

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

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

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

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

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

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

Research institutes (the institute sector)

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

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

The institutes should:

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

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

The hospital sector

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

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

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

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

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

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

2.5 Relevance to society

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

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

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

3 Evaluation process and organisation

The RCN will organise the assessment process as follows:

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

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

3.1 Division of tasks between the committee and panel levels

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

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

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

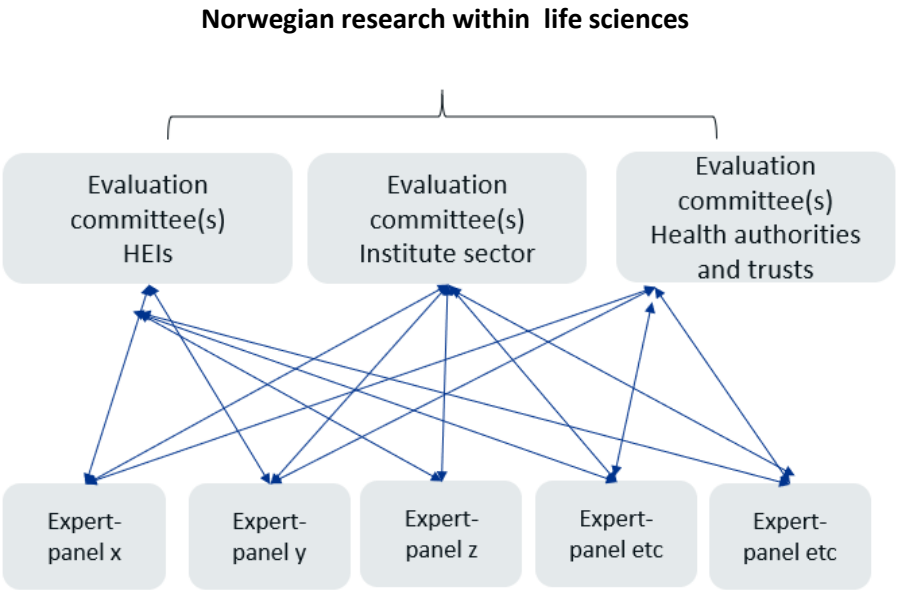

Figure 1. Evaluation committees and expert panels

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

3.2 Accuracy of factual information

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

3.3 National level report

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

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

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

Appendix A: Terms of References (ToR)

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

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

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

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

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

1. …
2. …
3. …
4. …

…

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

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

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

The documents will include the following:

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

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

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

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

Appendix B: Data sources

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

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

National registers

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

Self-assessments

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

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

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

Table 1. Types of evaluation data per criterion

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

Evaluation of Medicine and Health (EVALMEDHELSE) 2023-2024

Self- assessment for administrative units

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

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

Content

Introduction

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

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

Deadline for submitting self- assessments to the Research Council of Norway – 31 January 2024
As an administrative unit you are responsible for collecting completed self-assessments for each of the research groups that belong to the administrative unit. The research groups need to submit their completed self-assessment to the administrative unit no later than 26 January 2024. The administrative unit will submit the research groups' completed self-assessments and the administrative unit's own completed self-assessment to the Research Council within 31 January 2024.

Please use the following format when naming your document: name of the institution and short name of the administrative unit, e.g. *NTNU_FacMedHealthSci* and send it to evalmedhelse@forskningsradet.no within 31 January 2024.

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

Thank you!

Guidelines for completing the self-assessment

- Please read the entire self-assessment document before answering.
- The evaluation language is English.
- Please be sure that all documents which are linked to in the self- assessment are in English and are accessible.
- The page format must be A4 with 2 cm margins, single spacing and Calibri and 11-point font.
- The self-assessment follows the same structure as the evaluation protocol. In order to be evaluated on all criteria, the administrative unit must answer all questions.
- Information should be provided by link to webpages i.e. strategy and other planning documents.
  - Provide information – provide documents and other relevant data or figures about the administrative unit, for example strategy and other planning documents.
  - Describe – explain and present using contextual information about the administrative unit and inform the reader about the administrative unit.
  - Reflect – comment in a reflective and evaluative manner how the administrative unit operates.
- Data on personnel should refer to reporting to DBH on 1 October 2022 for HEIs and to the yearly reporting for 2022 for the institute sector and the health trusts. Other data should refer to 31 December 2022, if not specified otherwise.
- Questions in 4.3c should **ONLY** be answered by administrative units responsible for the Cand.med. degree programme, cf. Evaluation of the Professional programme in Medicine (NOKUT).
- It is possible to extend the textboxes when filling in the from. **NB!** A completed self- assessment cannot exceed 50 pages (pdf file) excluding question 4.3.c. The evaluation committees are not requested to read more than the maximum of 50 pages. Pages exceeding maximum limit of 50 pages **might not** be evaluated.
- Submit the self- assessment as a pdf (max 50 pages). Before submission, please be sure that all text are readable after the conversion of the document to pdf. The administrative unit is responsible for submitting the self-assessment of the administrative unit together with the self-assessments of the belonging research group(s) to evalmedhelse@forskningsradet.no within **31 January 2024.**

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

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

1.Strategy, resources and organisation

1.1 Research strategy

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

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

Table 1. Administrative unit`s strategies

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

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

1.2 Organisation of research

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

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

1.3 Research staff

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

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

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

Table 2. Research staff

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

1.4 Researcher careers opportunities

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

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

c) Describe research mobility options.

1.5 Research funding

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

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

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

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

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

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

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

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

1.6 Collaboration

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

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

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

National collaborations

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

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

International collaborations

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

Impacts and relevance of the collaboration	

1.7 Open science policies

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

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

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

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

1.8 SWOT analysis for administrative units

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

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

2. Research production, quality and integrity

2.1 Research quality and integrity

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

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

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

2.2 Research infrastructures

a) Participation in national infrastructure

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

Table 5. Participation in national infrastructure

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

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

b) Participation in international infrastructures

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

Table 6. Participation in international infrastructure

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

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

c) Participation in European (ESFRI) infrastructures

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

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

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

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

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

3. Diversity and equality

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

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

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

4. Relevance to institutional and sectorial purposes

4.1 Sector specific impact

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

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

4.2 Research innovation and commercialisation

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

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

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

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

No.	Name	Valid period	Link
1			

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

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

4.3 Higher education institutions

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

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

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

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

4.4 Research institutes

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

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

4.5 Health trusts

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

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

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

5. Relevance to society

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

5.1 Impact cases

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

Impact case guidelines

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

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

Timeframes

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

Page limit

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

Maximum number of cases permitted per administrative unit

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

Naming and numbering of cases

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

Publication of cases

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

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

Please write the text here

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

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

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

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

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

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

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

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

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

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

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

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

Institution	Administrative unit	Name of research group	Expert panel
UiB	Department of Clinical Dentistry	TOR (Center for translational oral research)	Panel 1a

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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