The Research Council of Norway

Clinical Research

Panel 4B

Evaluation
Division for Science

The Research Council of Norway

Clinical Research – Panel 4b

All internal medicine (cardiology, nephrology/urology, gastroenterology, endocrinology, haematology, infectious diseases, respiratory tract diseases, geriatric medicine), neurology, rheumatology, radiology and medical imaging and other clinical medical disciplines, including corresponding translational research

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CONTENT

Preface from the Research Council of Norway

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. According to the plan for these evaluations the RCN carried during 2010 and 2011 out a comprehensive evaluation of Norwegian research within biology, medicine and health in Norwegian universities, hospitals, relevant university colleges and relevant research institutes. Evaluations have previously been performed within these subjects/fields, in biology in 2000 and medicine and health in 2004.

Due to the large span in disciplines and the number of scientific groups involved in the evaluation, seven international panels of experts were established; each of them reviewed one of the following subfields:

Panel 1	Botany, Zoology and Ecology-related Disciplines
Panel 2	Physiology-related Disciplines
Panel 3	Molecular Biology
Panel 4a	Clinical Research – Selected Disciplines
Panel 4b	Clinical Research – Selected Disciplines
Panel 5	Public Health and Health-related Research
Panel 6	Psychology and Psychiatry

The Research Council of Norway would like to thank the panel for the comprehensive work the panel has performed.

Oslo, October 2011

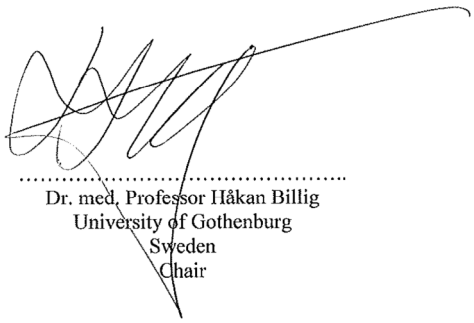
Hilde Jerkø (sign.)
Director
Division for Science

Mari K. Nes (sign.)
Director
Division for Society and Health

Statement from the panel

The conclusions and recommendations in this report are based on written information supplied by the institutions, oral presentations by staff from the evaluated units and a bibliometric analysis performed by NIFU. The panel was also given the opportunity to meet representatives of junior research staff, including PhD students and postdoctoral fellows, from several units in a separate joint session to discuss their experiences and views on research conditions and careers opportunities.
The panel is unanimous in the assessments, recommendations and conclusions presented. Due to a conflict of interest, panel member Professor Karin Sipido did not participate in the hearing or written assessment of NTNU/St. Olavs Hospital, Department of Circulation and Medical Imaging.

The panel consisted of the following members:



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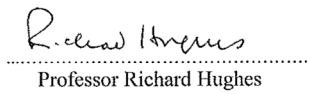
University of Gothenburg
Sweden
Chair

Professor Tariq Sethi
King`s College Hospital London
England



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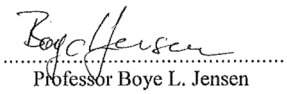

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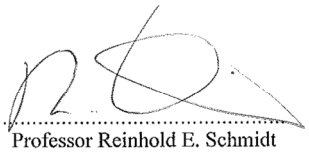

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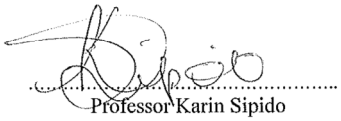

Professor Karin Sipido
Katholieke Universiteit Leuven
Belgium

Professor MD Jaap Stoker
University of Amsterdam
The Netherlands

Teresa Ottinger, Sweden, acted as secretary for the panel.

Executive summary and general conclusions

Introduction

As stated in the Joint committee Research Council of Norway (RCN) report from 2004[1] a high research standard is essential to the maintenance of the health of a population and the planning and evaluation of health care systems and policies. A high research standard is also a prerequisite to improve health and wealth in society through new biomedical discoveries and innovations.

Funding of research in medical and health sciences including clinical research has improved in Norway during the last decade, the education of future researchers has increased by prioritising PhD training and the research output has increased in number of publications and citations. However similar development has also occurred in other countries with a tradition of strong medical research and ambitious investment in medical research has taken place in many of the emerging research intensive countries in Asia and elsewhere.

This part of the review of Norwegian biomedical and clinical research focuses on internal medicine (cardiology, nephrology/urology, gastroenterology, endocrinology, haematology, infectious diseases, respiratory tract diseases, geriatric medicine), neurology, rheumatology, radiology and medical imaging.

Funding

The funding of medical research, including clinical research, has improved considerably during the last years, not least through the ambitious strategies and funding set by the health regions. The commitment of many hospitals to clinical research is remarkable and is a general strength for clinical research in Norway. In certain regions, major private beneficiaries make major contributions to focused initiatives.

However, the funding of postdoctoral and sub-professorial research positions is almost non-existent. This could at least partially be related to an apparent dichotomy between clinical research funded by the hospitals and run by MDs, and basic research performed at the universities. The current 'split' reduces access to high-level molecular research that requires full-time researchers, and cannot be done solely by part-time professors relying on PhD students to perform the research. The position of the universities in medical research is weak.

The RCN does not appear to be regarded by the clinical research units as a major player in the funding of clinical research in general. This is, as far as the panel can tell, partly explained by a perception that the RCN is unlikely to fund grant written by hospital clinicians and partly by the fact that the majority of the RCN funding is within thematic

[1] Joint Committee Report: Evaluation of clinical, epidemiological, public health, health-related and psychological research in Norway, RCN, 2004

areas or programs. In comparable countries, funding from national research councils is less restricted.[2]. The different health regions are the major funders and do offer "bottom-up"-funding. However this form of regional funding is intrinsically less competitive than national funding and therefore does not promote the highest quality clinical research in Norway.

The many differences in the local funding of clinical research at the hospitals and the national funding of basic research performed at the universities are prone to decrease collaboration and sharing of techniques, research infrastructure, knowledge and other resources necessary for successful translational research.

Structural aspects

It is a major concern that there is, with some exceptions, a low national and particularly international mobility of researchers at all parts of the research career. The majority of tenured researchers have been recruited locally and most were awarded their university and PhD degrees from the same university where they currently work. Although several of the units provide evidence of actions aimed to improve this situation, these do not appear sufficient. It is also not evident that international mobility is regarded as a real priority in general and there is little effort to recruit new researchers actively for instance by international advertising. A common feature mentioned by many units is the language challenge connected to teaching obligations but several units have successfully adopted foreign scientists despite this obstacle.

As far as career and research activity aspects are concerned, the lack of positions between postdoctoral and professor level either at the universities or the university hospitals is of great concern. The resulting heavy focus on PhD students at the expense of mid-career positions is likely to lead to short term planning and limited research focus . The average age of 42 years when awarded PhD in clinical medicine is too high and shortens the number of active years as a researcher. It is also likely a contributing factor to decreased mobility.

Due to high demand and budget restraints, clinical duties and teaching have higher priority than research at the university hospitals. This restrains clinicians with shared responsibilities from devoting time to do research even to the extent designated by their contracts, thus the problem would apparently not be solved merely by increased funding. Combined with the lack of tenured research positions for non-clinicians at university hospitals, this does not facilitate research leaders with enough time dedicated for research.

Even though at least half of the PhD students are women, this gender balance is not reflected on the professor or pre-professor level. The panel finds it somewhat troubling that it is not evident whether or not this is considered as a problem by the research units in general, nor if they see a need for any specific measures in this regard.

Research strategy and focus

[2] The share of "non-earmarked" or "free" RCN funding is approximately 1/4 according to a report by the Swedish Research Council ("Processer för prioriterad forskning" (in Swedish), 2008). The average share for the 14 public research councils/institutes investigated was 2/3.

Only with some exceptions, there appears to be a lack of clear long-term research strategies in the local setting, where the value of maintaining a diversity of research topics appears to be held higher than focusing and prioritizing. Local institutions sharing overlapping research themes/topics are often regarded as competitors rather than colleagues who would benefit from joining forces. Short-term goals also likely result from the over reliance on PhD students to perform research coupled with the need to publish three papers for a PhD thesis. This limits strategic planning also in terms of the career needs of PhD students.

Research quality and output

It is notable that sizeable local incentive/appraisal systems at unit and individual level are only exceptionally used to encourage the obtaining of competitive grant funding, publications or other merits.

Also, the effective time available for completing a PhD and the requirements for completing a thesis negatively influences the publication strategy and the impact of the research, as this system encourages quantity over quality in the reporting of scientific findings. Combined with the heavy focus on PhD students performing research, this reduces the standard of the publication of the whole department.

In summary

Norway is more fortunate in terms of opportunities and resources than many other comparable countries. Norwegian clinical research should continue its positive development and improve national health and wealth. It has the potential to excel and surpass many other countries provided decisive decisions are taken at local and national levels on competitive funding of research projects and infrastructure, on the development of research career structures and on creating long term research strategies.

The following recommendations will assist in this endeavour:

- Provision of more dedicated time for research for clinical researchers
- Encouragement of more national and international competition
- Encouragement of collaboration at a national level between groups working in the same fields in diverse locations
- Partnership between basic and clinical research
- Measures to increase national and international mobility of researchers
- Encouragement of quality rather than quantity of publications arising from PhD theses
- A change of the emphasis from PhD funding to career development by establishing more postdoctoral positions as well as a tenured track for postdoctoral and mid-career positions
- Earlier completion of PhDs by clinicians as a key factor for improved outcome of a research career, increased competiveness and scientific leadership
- Action to ensure that the gender balance at PhD-student level is reflected at subsequent career levels

General description of the field

Clinical research, including corresponding translational research, was reviewed by two panels (4A and 4B). The scope for panel 4B that is presented in this report included all internal medicine (cardiology, nephrology/urology, gastroenterology, endocrinology, haematology, infectious diseases, respiratory tract diseases, and geriatric medicine), neurology, rheumatology, radiology and medical imaging and other clinical medical disciplines. The vast majority of all clinical research reviewed by this panel was done at the Norwegian university hospitals even if significant contributions were from other hospitals but also from or done in collaboration with departments at medical and other university faculties.

During the last years public funding of medical and health science has increased and the R &D expenditure in real growth increased more than in other sectors and improved by more than 25% since 2005. Even though some of the increase is due to improvements in the R&D reporting from the regional health authorities it is evident that the research expenditure is paralleled by increased research activities [4]. The increased funding has led to both increased quantity and quality of clinical research in Norway.

The number of Norwegian publications in clinical medicine has steadily increased during the last decade and more importantly also the number of citations of Norwegian publications has increased. During the last three decades the citations of Norwegian papers in clinical medicine has increased from the level of the world average to well above. An increase in citations during this period is also seen in other Nordic countries including Denmark and Iceland while the level of citations while has decreased to different degrees in Sweden and Finland. In spite of the increase in citations, Norwegian papers in clinical medicine are still on an average attracting fewer citations than papers from the other Nordic countries.[3]

More than 40% of all Norwegian publications in clinical medicine originate from the University of Oslo and the Oslo University Hospital. Of the different research fields that were the scope for the panel all had, with some exceptions, citation rates above or well above the world average.[4]. Compared to many other countries with active clinical research, including Denmark, Sweden, Finland and Iceland, Norwegian biotech and pharmaceutical industry is relatively small and the contribution of scientific publications is minor [5].

The large and profound reorganization of the hospital system into 28 health trusts and 11 non-for-profits hospitals in the beginning of the century that in turn formed 5 regional health authorities and from 2007 four regions has affected the prerequisite for conducting clinical research in Norway. Recently, mergers of hospitals in the Oslo area has the formed the present Oslo University Hospital and it has in some instances resulted in the splitting of similar research activities and programs among several clinical departments

[3] Bibliometric research performance indicators for the Nordic countries, NordForsk, 2011
[4] Evaluation of research in biology, medicine and health in Norway (2010-2011) Publication and citation analysis, NIFU, 2011
[5] Present Status and Future Potential for Medical Research in the Nordic Countries, Nordic White Paper on Medical Research, NordForsk/NOS-M, in press

and hospital units. The present evaluation was not set up to address the effects of this change *per se*, but it could be noted that the funding of clinical research in the different regions has improved and is active with high but often local ambitions.

Since the last evaluation presented in 2004 the number of doctoral degrees in medical and health sciences has increased significantly and also the total share has increased to more than one fourth of Norwegian doctoral degrees in all fields in 2008[6]. To give priority to PhD programs was also reflected in the incentive programs from the universities and in the policies of the different research departments that were presented during the interviews.

The previous evaluation of Norwegian clinical research in 2004 made a number of recommendations[7] of which some have been implemented or successfully initiated including identification of research resources and funds in the Helse regions, opening them for competitive grant applications and the creation of Centres of Excellence. However, some of the suggested actions and recommendations have not resulted in notable change or challenges remain. Examples of this include demands for enhanced international collaborations and interaction, increased research time for clinically active physicians, increased of the number of postdoctoral research positions and postdoctoral positions for trained basic scientists to work in a clinical setting as well as establishing laboratory core facilities in the hospitals. Several of the underlying issues are noted in this review and return as recommendations.

[6] Report on Science & Technology Indicators for Norway: Human Resources Research and Development Technology, The Research Council of Norway 2009

[7] Evaluation of clinical, epidemiological, public health, health-related and psychological research in Norway: Clinical Research, Panel 1. The Research Council of Norway, 2004

General recommendations

Funding

- The present strategy of funding research predominantly through grants from the regional health authorities should be redesigned so as to encourage competition or collaboration between groups working in the same fields at a national level and not at a regional level.
- There is a need to change the emphasis from PhD funding to career development.

Structural aspects

- The panel identifies the general need to establish more postdoctoral positions as well as a tenured track for postdoctoral and mid-career positions.
- The involvement of clinical researchers should be improved by increasing the number of clinical positions with a substantial allocation of dedicated time for research (e g 50 %).
- Earlier completion of PhDs by clinicians should be improved by increasing full time PhD positions and 50% PhD/50% specialist training positions during or directly after MD graduation.
- A common, perhaps at national level, change in attitude and thinking regarding how to accommodate foreign scientists (e g "run-in years", mentors, paid language courses, teaching in English) would markedly broaden the market for attracting qualified applicants.
- There is a need to introduce an action to ensure that the gender balance at PhD-student level is reflected at subsequent career levels, in order to ensure equal career opportunities for both male and female researchers.

Research strategy and focus

- There is a need to set up more strategic partnerships between basic and clinical research.
- Several research areas would markedly benefit from more cooperation between the diverse geographic locations to achieve more critical mass. There should be support to enhance more collaboration across Norway in general, including increased efforts to organize clinical databases and integrated flow of patient data, biobank information etc to allow sharing across different sites. Regional political thinking appears to be a challenge, counteracting optimal strategy.
- Local collaboration between institutions sharing overlapping research themes/topics should also be encouraged.

Research quality and output

- Preference for quality rather than quantity of publications arising from PhD theses should be encouraged.
- Academic credits for papers by PhD students and completed PhD theses should be split between the departments involved.

- The research output of individuals should be monitored at annual appraisal and a mechanism should be available to adjust the academic component of the contract according to the amount and quality of research.

University of Bergen, Faculty of Medicine and Dentistry & Haukeland University Hospital

Institute of Medicine
- *Bergen cardiology research cluster*
- *Bergen respiratory research group*
- *Locus for homocystine and relative vitamins*
- *Renal research group*
- *Section for Endocrinology*
- *Section for gastroenterology*
- *Section for infectious diseases*

Department of Surgical Sciences
- *Diagnostic imaging*

Department of Clinical Medicine
- *Section for neurology*

Gade Institute
- *Inflammation*

Institute of Medicine (level 1)

General comments
The unit was formed in 1999, there are 13 sections and 5 hospitals with teaching: Haukeland University Hospital (HUH Bergen), Stavanger University Hospital (SUH), Haraldsplass Deaconal Hospital, Sogn og Fjordane Hospital (Førde) and Haugesund Hospital. There is a deputy chair for research, 35 full time professors, 45 part time professors, 51 technicians and 11 administrative members. The Institute is situated in a building with basic research departments and animal facility. The divisions and Professorships are organized primarily to fulfil teaching obligations and there is no intramural funding of research beyond positions. Clinical obligations dominate and take time away from research. Mean age of staff is 63 years. There is concern how to fulfil senior positions but no clear strategy. Judged from the number of academics, the ratio between academic vs. technical-administrative layers appears somewhat low.

A new strategy is presented where resources (new academic positions, technicians) are allocated through activity parameters. Non-productive units will not be retained. This will reduce budget and free money for hiring with starting package. Crucial strategic points are to facilitate external recruitment, re-divert resources internally based on activity, initiate internal incentives to strengthen research, attract 1-2 top international researchers, reduce the number of research groups and establish an external advisory board.

The integration between clinical and basic research departments and animal facility since 2009 is to be commended. The "recruitment package" appears as a very good idea to be supported. The presenter gives a good impression of overview, strategic thinking and future-directed attention.

The divisions are characterized by non-normal distribution of research output, a skewed age distribution among scientific staff, solid ability to attract funding from the Regional health authority predominantly and external sources, but very limited from the RCN; total of approx. 230 mill NOK over the last 5 years. Thus the institute as a whole demonstrates an impressive ability to attract funding, but mainly from local sources. Within the administration, there are four levels of project evaluation of grant applications. This is experienced by some as a burden and counterproductive. The salary budget has been steadily increasing and surpassed the allocated resources in 2009.

Most academic staff were educated and trained locally. Several groups have extensive collaborations within EU frameworks. Mobility in general is relatively low; there is difficulty to recruit students and scientists from international institutions. This does not apply to all units. It is expected that PhD students spend time abroad and 12 months is a prerequisite for postdoctoral fellows. The career perspective of PhDs is a concern. The institute wants to increase the number of postdoctoral researchers at the expense of the number of PhDs. PhD schools work as a network with 2 courses lasting a week each. There is a midway evaluation. Faculty offers lectures as well to a total of 6 months per student. Average length of PhD programme 3.8 years with >90 % success rate. It is recently possible for medical students to go into an MD/PhD programme, the first graduated 4 years ago. Some students do finish earlier and can keep their funding until the end of the 3 years. There is no or little pressure to complete the thesis on time.

Follow-up of previous evaluation/s
Last evaluation suggested focusing on research management, to focus research efforts within the 10 units existing in 2003 and to merge laboratories for research. Moreover, the age profile was a problem in 2003 and there was a lack of funding from RCN and EU. In the current report there has been no systematic approach to address the issues raised in the previous evaluation. All of them remain. Units have not diminished in number but grown. It is mentioned that some administrative assistance is provided regarding applications. Two core facilities have been started and are being implemented however slowly. There is nevertheless a convincing case made by the leader of the group that progress will be made, after hearing an external review panel. Some recruitment and collaborative efforts have been established with outside institutions. An ambitious new strategy is presented. The strategy appears rational based on the 2003 evaluation and the present report – however, in a research environment with many strong independent individuals, the strategy should be generally discussed and accepted. It is not clear whether the new strategy has been agreed upon or whether it has been created acutely for this evaluation and as a late response to the last evaluation 2003. It appears not yet to be integrated into activities.

Recommendations
Economy should be stabilized before any initiatives can be presented. Internal processes when researchers are applying for money should be loosened.

It should be considered to convert technical/administrative positions into research positions - 51 technicians is a lot. There is no clear strategy how to fulfil positions which is extremely crucial at this point with regard to age profile. The idea with ”starting packages” should be maintained and used systematically follow-up after defined time intervals to assure integration of newly hired people. Part time academic-clinical positions should be used more flexible.

Systematic follow-up on evaluations should be institutionalised with clear expectation from management to see progress.

General accept of strategy should be assured - to become successful a certain level of bottom-up is definitely required. This would generate “ownership” and provide convergence in the thinking of the employees and not resistance.

Opportunity for collaboration with Stavanger Hospital is already used but could be enhanced and this would be preferable from a research point of view compared to creating a separate medical university at Stavanger.

Bergen Cardiology Research Cluster (BECARE) (level 2)

Description of the evaluation unit (facts and organisation)
The cluster was established in 2009 primarily to administer research funding that involved HUH and UiB.
There are 3 major groups in the cluster focusing on preventive cardiology, hypertensive heart disease and coronary function and intervention.

A BECARE board has been formed to enhance research collaboration. The academic staff comprises three professors I, one professor II (75 % men) and a total of 11 PhD students. Four MDs perform research within the cluster in their clinical positions. 13 PhD students have completed over the last five years. The cluster exploits close integration with basic science department at the University and has been able to have MDs on part time research contracts (50-50).

General comments
Organisation, leadership and strategy
There seems to be few joint publications. Focus in Stavanger is more in heart failure and interventional cardiology. No clear recruitment strategy is put forward most likely because this has not been a major obstacle for progress.

Resources and infrastructure
Funding over the last 3 years is around 3 million NOK ± 0,5 million and is primarily national (Helse Vest) and also from RCN (in 2007).
Main research avenues are myocardial perfusion, obesity and risk factors and BECARE researchers are often invited speakers at international congresses. Large cohort studies are initiated and followed in BECARE.
Good infrastructure with accessibly accessibility to imaging machinery is mentioned. It is noteworthy that there is a need for technicians when 51 technicians in total are occupied by the institute.

Training, mobility and career paths
13 PhD students have defended within or in collaboration with BECARE over 5 years. The percentage that complete is not given. The ability to maintain young researchers beyond their PhD study is limited and described as a major challenge. Insecurity about replacement of retiring full professors is mentioned and no clear policy or strategy appears to determine this according to the cluster.
The part time contract with MDs to perform research is attractive and is mentioned as a possibility to maintain MDs in research. The mismatch between salary in academia and clinic is mentioned as a challenge. MDs do a PhD with research projects using and developing skills as in clinic (PIC, imaging). This makes it more attractive for MD, but perhaps this is not keeping up with current more molecular approach.

Research collaborations
Particularly the hypertension group has international collaboration with Weill medical School in New York. There are extensive local network collaboration and some national contacts and participation in international studies. In particular BECARE has traditionally adopted third world doctors in bilateral programs with Tanzania, Sudan and India. This continues.

Scientific quality

Research activities and production

Digital databases for echocardiography images have been a very good source for scientific achievement. Animal experiments on pigs within restenosis and ventricular dysfunction are performed. Stent coatings are tested and operative skills are trained.
The cluster is productive, it educates a high number of PhDs, and it is nationally and internationally active. Productivity is listed as 6-15 papers per year for 5 years for each of the 3 BECARE group leaders. A total of 128 publications are listed. Papers on population studies on vitamin intake and homocysteine intervention have been published in JAMA and NEJM; there are papers also from Lancet, whereas most papers are within cardiology-circulation journals of medium to high impact. Around 10 % of publications are self-reported as popular science. There are many publications with 5-10 authors and many with more than 10 authors.

Grading

Very good.

Societal impact

Societal impact of the research is of some significance since lifestyle factors are investigated with respect to predictive value and some study results have led to immediate change in other studies and patient treatment.

Recommendations

Allocate technical assistance according to activity within institute, since lack of assistance is perceived as a factor that impedes research.
Continue the model with part time research positions for post-PhD MDs to attract MDs to research.
Strengthen the infrastructure around the echocardiographic image databases which are very productive and lends merit to the cluster.
Increase cooperation with Stavanger in the Percutaneous Coronary Intervention-field.
Define and focus “own” fields of major research effort in order not to dissipate into multicentre studies.
The institute must make work of implementing a strategy for focus. The cardiology should improve its international position using their registries and seek out collaborations. There is a good potential for very relevant data mining the registries and improving the international position as leaders.

Renal Research Group (level 2)

Description of the evaluation unit (facts and organization)
Research is organized by Renal Section at the Institute of Medicine and the Department of Medicine at HUH. The research areas are quite diverse ranging from epidemiology in preeclampsia to renal blood flow control studied in rat models and retrospective biopsy studies.
The academic staff consists of one professor I, one professor II, one postdoctoral fellow, one researcher with PhD (100 % men). Other positions are divided between clinic and research to different degrees. Senior professors are retiring within few years. Five full PhD students are currently active; all academic staff are Norwegian and locally recruited.

General comments
Organisation, leadership and strategy
The research fields covered in the strategy appear very diverse and could benefit by focusing. The retiring head plans to lead projects also in the coming years.

The dynamic ability to divide positions between clinic/research dependent on demand appears attractive and could be copied by others. The close integration between university and clinical department in research efforts is a strength.

Resources and infrastructure
The group appears well equipped with standard lab machines for PCR, western and imaging. A strategy is presented where future initiatives should be focused on Fabry disease, biopsy projects, proteomics and preeclampsia.
The group hosts the Norwegian renal biopsy registry with 10.000 biopsies, animal facility and tradition for rat renal research on mechanisms of renal blood flow control.

Training, mobility and career paths
Two master students and eight PhD students have been recruited over the last five years. The recruitment situation is a challenge and no strategy is presented for recruitment efforts and no initiatives to increase mobility or internationalisation are planned. The comments on recruitment are very “local” and provocative statements on who is to take over full professorships are made “with no other candidates eligible”. The panel assumes that open and international calls determine this.

Research collaborations
The group collaborates with University North Carolina and INSERM, Paris.

Scientific quality
Research activities and production
Productivity compared to staff is rather good. Scientific production is reported as 43 publications and two book chapters. Group members are senior authors, papers in medium to high impact nephrology journals and some in the leading nephrology journal. There is an original publication in NEJM and some papers are in Norwegian.

Grading
Good but if a succession plan had been presented it would have been judged very good.

Recommendations
A recruitment strategy should be presented as soon as possible to keep the group from falling apart. Increase mobility and internationalization.
A search committee should be established to localize international candidates and maintain the 100 % research +20 % clinical work.
Research efforts should be focused: The utility of the biopsies appears very productive and the largest body of publications have been within renal blood flow control and highest impact in preeclamptic kidney changes - focus on this. Merging the rat approach with human studies should be considered - thus hypertension and renal blood flow control can be addressed in both species, or abandon rat field.
It should be made clear that the retiring head cannot still lead the unit.

LOCUS for Homocysteine and Related Vitamins (level 2)

Description of the evaluation unit (facts and organization)
Research is organized within two units – an academic and an analytical. The term LOCUS is given by the UiB to groups with at least five senior scientists within a certain field that work cooperatively.
By nature, LOCUS members have different affiliations. The academic staff consists of five professors I, two associate professors I, two postdoctoral fellows (56 % men). Senior researchers within the LOCUS are from cardiology, pharmacology, public health, genetic epidemiology and human nutrition.
The associated "BEVITAL" laboratory is organized as a series of high quality technical platforms also participating in PhD education. Robotic workstations analyse vitamins and vitamin markers in biological samples.
Research addresses vitamins, nutrition and risk of chronic disease (cardiac, cancer, congenital) in prospective population studies. B-vitamin markers have been shown to be risk factors for cardiovascular disease. The first longitudinal studies of vitamin B12 markers and lifestyle changes have been performed. Folat and colon cancer development is another area of interest.

General comments
Organisation, leadership and strategy
The LOCUS demonstrates extensive ability to manage complicated long-term prospective multicentre studies and large cross-sectional studies. There must be a highly skilled project management. The main challenge is really how to maintain this high level and develop it further. Since major faculty is retiring within a number of years, recruitment will be a central issue.

Resources and infrastructure
External funding is extensive and international sources contribute substantially, i.e. NIH, EU, National Cancer, Regional Health, and Norwegian Cancer society and RCN.
Several large biobanks have been established. Assays have been developed and transferred to routine laboratories.

Training, mobility and career paths
9 PhD students (8 national, one Russian) completed their study over the last 5 years. Two postdoctoral fellows were recruited from the Netherlands and 1 professor from Germany. Thus the LOCUS has an international profile.

Research collaborations
A list of 15 projects that involves national and international collaboration is presented. European multicentre studies on cancer and nutrition is a major area. Several international collaborations with other universities are listed.

Scientific quality
Research activities and production
Previous evaluations have pointed out that the group is unique and at international highly competitive level.
Between 25 and 40 papers have been published per year since 2005.
By 2010 the 4 senior researchers of the LOCUS have published 620 overall very highly cited papers.
The LOCUS maintains a strong focus on research area and combines this with technical innovation and development of assays. This approach has demonstrated to be very productive and innovative.

Grading
Excellent.

Societal impact
Societal impact is large with altered recommendations for infant vitamin supply and new information about risk factors for development of cancer and cardiac disease.

Recommendations
A strategy for recruitment and infrastructure development should be considered to maintain high activity and impact.
Consideration which technical platforms to continuously develop and which to close due to non-competitiveness is advised.
It is recommended that structural permanent anchoring of the LOCUS within the University is assured.

Bergen Respiratory Research Group (BRRG) (level 2)

Description of the evaluation unit (facts and organization)
The group unites researchers from the Institute of Medicine UiB and Clinical Departments. Focus is on respiratory disorders and physiology. The group contains 3 subunits, COPD, Asthma and biomarkers, Inflammation and respiratory physiology.

The academic staff consists of three professors I, three professor II, three associate professors, three postdoctoral fellows, three researchers with PhD, one senior researcher scientist (75 % men).

There is a strong research focus on COPD and Asthma in the evaluation period.
Three core areas will be pursued the next five years - COPD (DNA methylation-smoking, occupational exposures); Asthma (18-year follow up on development and environmental factors); inflammation and biomarker unit (vitamin D, antimicrobial peptides during COPD). Another area of interest is hyperbaric conditions and lung affection in divers. Projects are performed within Genetics of asthma, environmental influences and

significance of early life environment and treatment of obstructive disease. The group is organized with regular meetings, strategic seminars and external advisory board.

General comments

Organisation, leadership and strategy

Three thematically focused groups are presented but the projects cover a very broad range. The high quality respiratory research is based on outstanding and unique multigeneration biobanked material.

There is some integration between basic science and patient-related studies although less emphasis is given on diving physiology in the presentation. Animal studies are not described in the COPD/asthma fields. There appears to be clear research management structures within the division and good platforms for strategic discussions and decisions. This appears sustainable. Scientific advisory board accounts for high quality.

It is stated that leadership is assured after retirement of the central founder of the group, but it is not stated how.

Resources and infrastructure

The unit is successful in attracting grants from Regional Health authority, pharmaceutical industry and RCN. A major grant from GlaxoSmithKline allowed establishment of data registries and biobanks. Large biobanks of sputum, blood and aspirations are now established.

Technical and statistical assistance is lacking which appears paradoxical within an institute with more than 50 technical assistants.

Training, mobility and career paths

There are currently 21 PhD students enrolled. The majority of PhD students are recruited locally from the thoracic department and are MDs or medical students. There is little information on recruitment strategies: are attempts made to recruit researchers/MDs internationally? No other educational backgrounds are mentioned.

Seven of 15 completed PhD students have been abroad during their studies. Postdoctoral researchers are encouraged to go abroad. Most senior faculty have been guest professors at US or Canadian universities.

Research collaborations

International research facilities are extensively used on a collaborative basis.

Scientific quality

Research activities and production

The group has presented normative data on disease definition and performed basic research on biomarkers and inflammation as well as genetic aspects.

On average, three PhDs have been educated per year and 202 papers have been published with 35% in “level 2” journals. The volume is impressive although there is no publication list attached.

Excellence is achieved in some areas and one could argue that this could improve further if certain fields were focused and others were abandoned. Altogether, the international embedding is strong, senior faculty have solid publication output in leading journals in the field but it is difficult to evaluate the whole group

Grading

Very good to excellent.

Societal impact
Societal impact is great with many citations in international media. Respiratory work has impacted on guidelines

Recommendations
It is recommended that a recruitment strategy should be developed, both at PhD and faculty level, and that higher mobility is introduced.
Hiring of researchers with non-MD background where it can benefit projects should be considered.
Focus in fewer but stronger areas is advised.
Technical assistance should be provided by institute according to productivity.

Section for endocrinology (level 2)

Description of the evaluation unit (facts and organization)
The Section for Endocrinology has two research groups, Section of Endocrinology at the Department of Medicine and the Hormone Laboratory at HUH.
The ambition of the section for endocrinology is to perform high international level translational medical research in the field of endocrinology and metabolism including epidemiological, clinical and basic questions related to autoimmune Addison's disease (AAD) and polyendocrine syndromes (APS).
The research combines projects with human material and animal with basic molecular biology in the study of prevalent diseases such as obesity, diabetes, and breast cancer.

The academic staff consists of two professors I, one professor II, one of each associate professor I and II, three researchers with PhD, three postdoctoral fellows (55 % men and as of now no female professors).

General comments
Organisation, leadership and strategy
The group leaders express the intention to integrate the groups and use common scientific and methodological approach by combing clinical studies and phenotypic characterization with molecular biology.

Resources and infrastructure
The unit has funding through competitive sources on local and national level and also from EU.
The establishment of large patient registries on rare diseases, based on national and European networks opens the possibility to address questions that could not be answered in smaller cohorts. The Addison's disease biobank has unique qualities and the other disease related biobanks plays a crucial role in the research and collaborations. Concern is expressed for lack of funding for core facilities and updating existing platforms.

Training, mobility and career paths
The need for tenured research positions for non-MD is stressed as central to be able to fully use the research opportunities of the section. It is an ambition to increase mobility of researchers, including stimulation for foreign collaborators to join the groups. Currently a limited number of graduate students or postdoctoral fellows are recruited from international institutions.

Research collaborations
The section has a well-established disease related research network and project collaboration both within Norway and abroad.

Scientific quality
Research activities and production
The unit has an average of 2 papers published in international journals per year and scientist with submitted CV. The productivity of papers may be lower than average however the sections seems to give priority to quality rather than to the quantity of papers. Most papers have been published in good to very good journals and a number in excellent journals within endocrinology and general medicine and these have been highly cited by other international research groups.

Grading
Very good to excellent

Recommendations
With increased focus, collaboration and integration between the two lines of research within the section of endocrinology the research activity and training of PhD students have a potential to become excellent.

Section for gastroenterology (level 2)

Description of the evaluation unit (facts and organization)
Gastroenterological research within the Institute of Medicine has a split location and is located both at HUH and at Stord hospital. The main focus of the research is functional gastrointestinal disorders and ultrasound imaging addressed in several projects including ultrasonography, gastro-oesophageal reflux, food hypersensitivity, intestinal permeability, coeliac disease, subjective health complaints, and radiation injury.
The long and sustained R&D activities in ultrasonography have been rewarded with a National Centre of Excellence (National Centre of Ultrasound in Gastroenterology) by the Norwegian Health Authorities. The centre of excellence is mainly for clinical use and teaching.
MedViz is a Research & Development consortium between HUH, UiB and Christian Michelsen Research. MedViz is performs interdisciplinary research in advanced image analysis and visualization bridging the gap between “bench and bedside”.
The academic staff consists of two professors I, four professor II, one postdoc, one consultant with PhD (88 % men and as of now no female professors).

General comments
Organisation, leadership and strategy
The department is considering itself as leading in nutritional imaging, a new field. Pressure of clinical work is however inhibitory on research.

Resources and infrastructure
The Section has state of the art equipment for abdominal ultrasonography to be applied both externally and internally (endosonographic macro- and miniprobes).

Training, mobility and career paths
There is concern with respect to long-term continuation of the research because of retirements of 4 senior academics.

Research collaborations
The section has established national and international networks including collaboration with INSERM, Universities in Adelaide and Utrecht and has also recently hosted a guest professor from Aalborg University

Scientific quality
Research activities and production
The department considers itself as average in general but leading in nutritional imaging and echocardiographic imaging of peristalsis The unit has on an average of 2 papers published in international per year and scientist with submitted CV. Most papers have been published in good journals within the field of research interest of the section

Grading
Good

Recommendations
When recruiting or replacing retiring staff, research qualification needs to be given priority.

Section for infectious diseases (level 2)

Description of the evaluation unit (facts and organization)
The Section of Infectious diseases is organised in different research groups at the Section of Infectious diseases, Institute of Medicine and The Section of Infectious diseases, the Department of Medicine, the National Centre for Tropical Infectious diseases, and the Regional Centre for Infection Control located in HUH. In addition the groups collaborate with research group outside the institute on a number of projects, mainly at Gades Institute and Centre for International Health, UiB.
The research focus on global health issues, such as TB, malaria, HIV, leishmaniasis.
The academic staff consists of two professors I, three professors II, two associate professors II (86 % men).

General comments
Organisation, leadership and strategy
The Section has many different projects; each group is coordinated by a member of the academic staff and are cooperating with each other in most projects. All academic staff persons have a combined university and hospital employment, all employed at the Section for Infectious diseases at the hospital.
Considering the limited number of academic staff that performs research, the group addresses a large number of research issues and they recognize the need to focus. The group is now relatively young which opens possibilities for future research and project development. A proposed direction of future research direction is on acute and chronic infections with diagnostic tools as a theme.

Resources and infrastructure
The group finds it difficult to get funding for diseases common in the third world.

Research collaborations
Good connections with other Norwegian centres. In several of the projects, the groups have collaboration in Europe and third world, especially Africa.

Scientific quality
Research activities and production
No list of publication was provided for evaluation but during the interview it is stated that the group has published more than 75 papers during last 10 years which would indicate lower than average productivity in relation to the number of researchers. However, based on the CVs of the academic staff, publication is done in good and appropriate journals. Considering the generation change of the researcher the research activity could improve provided the research becomes more focused.

Grading
Good.

Recommendations
The large number of research topics should be reduced and a more unified and focused research strategy should be developed.

Department of Surgical Sciences (level 1)

General comments

The Department of Surgical Sciences at UiB comprises six research groups which collaborate with 11 sections at HUH. The priority of the university groups is on teaching while the hospital sections primarily have clinical demands. Staff comprises 15 professor I, 23 professor II, 18 associate professor, two postdoctoral fellows, three senior researchers, while 23 clinicians are involved in supervising PhD students. There are 46 PhD students. The departmental organisation is primarily organized based on the teaching requirements. Several of the professors are approaching retirement age, but the department has difficulty to fill these positions with persons capable to improve the external funding of the department.

There is a research board; the further organisation of research is not formalized. The department has commenced to encourage departments to collaborate, but no further specific measures are taken.

The department has funding from national organisations, limited from RCN and no EU grants. External funding is almost 40 % of the funding available. Clinical demands and teaching obligations have substantial effect on the time available for research.

PhDs concern MDs who are recruited from the associated university hospital departments. The PhDs follow the PhD courses and are midterm evaluated.

The department acknowledges that improvement is necessary for enhancing the scientific competence of postdoctoral researchers, but sees no clear solution for this problem.

There are national and international collaborations; the department has no particular strategy in this respect.

Follow-up of previous evaluation/s

As recommended in the previous evaluation, there has been a reorganization of the research, with grouping of some related groups into two larger, integrated groups. There are now in total six groups. Diagnostic imaging is one of these groups, which is not an integrated group and seems loosely connected. As in the previous evaluation, research seems the least prominent academic task and this remains a concern.

Recommendations

The department seems primarily driven by research demands of the linked hospital sections, which had led to a broad spectrum of research topics. In the present departmental structure and strategy it is questionable whether the research group on Diagnostic imaging is optimally positioned within the medical faculty structure. The department should consider strengthening existing and develop new research collaboration to support the research in this research group.

Diagnostic imaging (level 2)

Description of the evaluation unit (facts and organisation)
The academic staff consists of one professor I, two professors II, six associate professors, one postdoctoral fellow, three other researchers (77 % men). There are five PhD students. The researchers organize their research individually, mainly in cooperation with the clinical unit at HUH.

General comments
Organization, leadership and strategy
Research is to a large extent driven by external factors (research initiated by other departments, need of the university hospital). In collaborations with other researchers, the group improves their own scientific skills by taking advantage of the scientific expertise of other groups.

Resources and infrastructure
The majority of research is internally funded. The research group has external funding primarily by the regional health authority. There is at present no full RCN funding. The new PET-CT centre is funded partly by a private donation and partly by HUH and UiB. There are some revenues from pharmaceutical studies. There is more time allocated to research on two new clinical MRI scanners. The clinical demands limit the time allocated to research.

Training, mobility and career paths
The research group recruits PhD students from the university hospital. Some PhD students will proceed to postdoctoral level. Midterm the 3-year PhD project there is an evaluation. The group encourages radiographers to complete MSc and perform a PhD project.

Research collaborations
There are national and international collaborations. One professor II also holds positions at UCL and Great Ormond Street Hospital for Children, London, UK. The research group is involved in MedViz, a research cluster on translational preclinical projects (other partners HUH and Christian Michelsen Research).

Scientific quality
Research activities and production
There has been an increase of scientific output, including an increase in the proportion of department-initiated research. There is a broad spectrum of topics of which a few have international esteem. The department is involved in translational preclinical projects in MedViz. The research group wants to improve grant-writing skills to acquire external (RCN) funding.

Grading
Fair and some parts (e.g. advanced neuroradiology, advanced MRI techniques, involvement in MedViz) are good.

Societal impact
The research group on Diagnostic imaging has been involved in two patent applications

on perfusion modelling.

Recommendations
The research group has made steps to improve the research profile, but for flourishing research the research group should reconsider its research strategy and leadership. A more (pro)active strategy and focusing on a few high potential topics are important in this respect. This focusing will facilitate obtaining external competitive funding which at present is below average. The new PET-CT facility with radiopharmacy laboratories is an obvious choice for focused scientific efforts and here there is a need for academic ambition. The research group might need support in this change of strategy and it is unclear whether the department is sufficiently equipped to give this support.

Department of Clinical Medicine (level 1)

General comments

The DCM combines 21 research groups in six sections:

(1) Medical Genetics and Molecular Medicine
(2) Neurology
(3) Obstetrics and Gynaecology
(4) Ophthalmology
(5) Paediatrics,
(6) Psychiatry

Research groups often include participation from several sections. Sections are themselves multidisciplinary. The DCM works together with HUH (Helse Bergen). The DCM has two professor II positions at SUH (one in neurology, one in psychiatry) and is responsible for their Medicine PhD programme.

The DCM has a Head of Department and an administrative head appointed by the Faculty and vice-chairs for research and education and section leaders appointed by the department head. The DCM has a formal Department Board led by the head of department with members elected from all staff and students. Budget responsibility lies at the department level. Nearly all scientific staff have combined positions at the university and at the university Hospital. Hours per week for clinical work have been defined in a contract.

The thematic priorities are translational research, clinical research based on biobanks and epidemiological register-based research. The focus is on translational techniques in four research topics, Disorders of the brain and nervous system, Diabetes, Health issues of mother-and-child and Gynaecological cancer.

The total expenditure is 53.6 million NOK per year of which approximately 45 % comes from grants. There are 132 employees of whom 47 are professor II or above or clinicians with PhD. The basic salary budget is about 28 million NOK per year. A small nominal increase in the budget over the past five years has been insufficient to cover the increase in direct employee costs. The number of permanent positions at DCM has therefore been reduced by approximately 0.5 % per year. There is access to major equipment on the campus including fMRI, PET, PROBE, FUGE, MIC, Biobank (Department of Pathology), National and regional registries.

The neuroscientific research linked to genetic analyses of psychiatric disorders and registry-based cohort studies of neurological disorders linked to cutting-edge laboratory based parameters as are internationally competitive.

There are 75 candidates in the PhD program, 31 males and 44 females, many recruited from medical students and young doctors. Most candidates are MDs. The number of new candidates into the PhD program has been 14 in 2008, 9 in 2009, and 13 in 2010. All PhD students participate in the PhD programme provided by the Faculty of Medicine and Dentistry Research School for PhD students in Clinical Medicine), where PhD students present their work. PhD candidates are encouraged to work abroad. Students have at least two supervisors and a mid-way evaluation by an independent panel. The aim is to

complete full time projects in three years but the duration is not monitored. The completion rate is thought to be high.

Permanent academic staff, postdoctoral and research fellows have an international background, mainly from European countries. Nearly one half of Norwegian doctors are educated abroad. There is an unusually high, but appropriate, number of (15) postdoctoral fellows funded by a mixture of internal and external sources. Approximately half of postdoctoral researchers and research fellows are female. All postdoctoral researchers are expected to spend one year abroad. There is a rigorous search and international advertisement to fill permanent positions.

National collaborations include FUGE, NevroNor (a Norwegian Research Council initiative to stimulate neurosciences in Norway led by a member of this Department), Norwegian Microarray Consortium, National registers and competence centres, and Biobanks. Connections to industry are provided by Bergen Technology Transfer Office (BTO) and the University has its own company Innovest. There is a desire to forge closer links with University of Bergen basic science departments which has not yet started.

Follow up of previous evaluation/s
Previous evaluations stimulated the on-going development and formation of stronger and better-defined research groups, helped to define thematic priorities, further stressed the importance of external funding, stimulated international co-operation, and gave legitimacy to a more professional scientific leadership. The focus on external funding has increased. The number of publications has steadily increase from 107 per year in 2004 to >150 per year in 2010. The number of PhDs per year has increased from 5 or less in 2004-2005 to 8 in 2009 and 22 in 2010.

Recommendations
Recommendations for the level 2 Section of Neurology are given below. The other six sections in this unit 1 were not reviewed by the panel so that unit 1 recommendations cannot be given.

Section for Neurology (level 2)

Description of the evaluation unit (facts and organisation)
The university Section for Neurology and hospital Department of Neurology are in the same building in HUH. All professors are neurologists in the same hospital, except for one in SUH. The priority is translational research combining clinical and laboratory-based data, clinical research based on biobanks, and epidemiological register-based research. There are six interacting research groups on multiple sclerosis, mitochondrial disease, paraneoplastic disorders, myasthenia gravis, stroke and Parkinson disease. All are reported here except for Parkinson Disease, which is reported with SUH. Some researchers belong to more than one group.
The academic staff consists of four professors I, seven professor II, one postdoctoral fellow, five other researchers (82 % men).

General comments
Resources and infrastructure
The patient registries used for research are in part regional (stroke, Parkinson disease), in part national and disease-specific (multiple sclerosis, paraneoplasia, myasthenia gravis), and in part national health registries (birth registry, cause of death registry, prescription registry, cancer registry etc).
There is a formalised and extensive collaboration with specialised epidemiologists and their institutions. Epidemiological information is linked to the clinical and laboratory research data. The Department houses the national competence centre for multiple sclerosis. The other major research groups serve as reference centres for their specific patient groups (paraneoplastic neurological disorders, mitochondrial disease, myasthenia gravis) and provide the relevant national laboratory testing service.

Training, mobility and career paths
The PhD students have a well supported PhD programme organised at Faculty level. In 2010, 13 researchers obtained their PhD from this unit.

Research collaborations
The multiple sclerosis, mitochondrial research, paraneoplastic syndrome and myasthenia research groups have extensive national and international collaborations.

Scientific quality
Research activities and production
The multiple sclerosis research group is very strong with a spectrum ranging from animal models through registry based natural history cohorts to treatment trials and cost of illness studies. They founded the Norwegian Multiple Sclerosis Registry and Biobank which now has 2 100 DNA and serum and 500 cerebrospinal fluid samples. The Mitochondrial Medicine & Neurogenetics research group is the main mitochondrial disease research group in Norway and has an international profile. It studies the pathogenesis and treatment of common and rare mitochondrial disorders including transgenic mouse models created in their laboratory. The small paraneoplastic disorder research group investigates the identity of the antigens involved in paraneoplastic disorders. The internationally renowned myasthenia research group investigates the epidemiology of myasthenia gravis and the pathogenesis of rare variants. The stroke research group has a modest output confined to clinical research.

The number of publications has been steadily increasing with 289 scientific papers in international peer-reviewed journals since 2005. Most authors published their best papers in medium quality neurology journals and there were no first or last author papers in very high impact factor journals.

Grading
The multiple sclerosis, myasthenia and mitochondrial disorder groups are excellent, the paraneoplastic syndrome group very good and the stroke group good.

Societal impact
The department has been instrumental in setting national and international standards for the care of multiple sclerosis, which is the commonest cause of disability in young adults in the community and has a high prevalence especially in Nordic communities.

Recommendations
The department is functioning well and few recommendations are needed. Succession planning is in place but will be especially important in areas such as mitochondrial disease where excellence is limited within Norway. The department wishes to develop collaborations with basic science departments and this is encouraged. The stroke group is performing well in clinical research at a national level but needs support to reach an international standard.

Gade Institute (level 1)

General comments

The Gade Institute was founded as Institute of Pathology 1912. In 1957 the Broegelmann Research Laboratory was founded through funding from Broegelmann Foundation. It later became part of the Gade Institute.

In 2009 all research groups moved into a new and well-suited laboratory building at HUH. There is full physical integration between the institute and hospital sections.

The leadership at the institute consists of head of institute, head of research, and head of teaching activities. The heads of research and teaching activities lead their respective councils. The institute has two sections which have close collaborations with relevant clinical sections and specialists. From 2010 it has also an independent administration from the Department of Surgical Sciences.

There are three thematic research programs at the institute: infection, inflammation and cancer. The leaders of these programs are members of the institute's research council.

Follow-up of previous evaluation/s

The recent evaluation in the year 2000 was not appreciated very much and criticised the institute as having too much fragmented research. Several steps have been taken to improve, and a joint research laboratory FFL has been established. The molecular research in pathology was strengthened by a new professorship, and a better organisation has allowed an efficient utilization of common resources. The resource situation at the Gade Institute has to be described as very good, the external funding increased from 15 million NOK in 2007 to 29 million NOK in 2009. There is a number of core facilities, altogether a good basic infrastructure with good access for people interested.

There is also a high mobility and quite a significant percentage of international researchers (24 %). The institute has a high number of PhD students (48) of which 59 % are females. 33 % are international and they are well organized in the research programs Infection and Inflammation, connected to the Bergen Research School in Inflammation lead by the Broegelmann Research Laboratory.

Recommendation

The Gade Institute with the thematic research on infection, inflammation and cancer has certainly an urgent need to establish basic research departments for biology as well for immunology. Basic scientists in these areas would be of great support and help for the research foci mentioned above.

Inflammation (level 2)

Description of the evaluation unit (facts and organisation)
The evaluation unit Inflammation at the Broegelmann Research Laboratory including collaborating Rheumatology, Clinical Immunology and Diagnostic Immunology Departments is organized in three units: Rheumatology in Bergen, Broegelmann Research Laboratory and Clinical Immunology Stavanger.
The academic staff consists of five professors II, two professors I, three associate professors II, one associate professor, two senior researchers and four postdoctoral fellows (82 % men).

General comments
Organization, leadership and strategy
The head of the Bergen Research School in Inflammation and the Broegelmann Research Laboratory is an enthusiastic person, providing constructive leadership. The units are well organized, have clearly defined projects and a well thought through research strategy.

Resources and infrastructure
As pointed out on level 1 they have 4-5 excellent core facilities and have the privilege to receive a regular grant from the Broegelmann Foundation. They are also supported by the Bergen Research Foundation.

Training, mobility and career paths
They recruit PhDs as well as faculty internationally and have a significant percentage of female positions.

Research collaborations
The head of the unit is coordinator of several RCN and also EU funded projects. There is national and international collaboration particularly in the area of Sjögren's syndrome.

Scientific quality
Research activities and production
In the field of chronic inflammation, especially Sjögren's syndrome, there are not only nationally but also internationally leading scientists. The head of the unit is leader of an international training network (EU) and other international EU collaborations.

Grading
Very good to excellent in the field of chronic inflammation, especially Sjögren's syndrome.

Recommendations
The unit suffers from the fact that there is no full professorship for rheumatology at UiB. This needs to be established.
In addition there should be equal conditions for PhDs belonging to the University as well as those for the institute in the Bergen Research School in Inflammation (BRSI). Until now unfortunately the duration of the PhD thesis for PhD students from UiB is one year longer due to the fact that one year of teaching is expected as opposed for those at Gade Institute.

Currently there is also a lack of competence at the Bergen campus concerning basic biology and immunology. Certainly additional expansion in this field would support the other units as well as the whole institute very much. In addition competence in systems biology would also support the research at this institute. It must however be considered whether this should not be developed in a broader framework than the institute alone.

University of Oslo, Faculty of medicine, Institute of Clinical Medicine – Oslo University Hospital

Division of Medicine
- *Internal medicine*
- *Department of infectious disease*
- *Department of Gastroenterology*
- *Geriatrics*
- *Department of endocrinology*

Division of Specialised Medicine and Surgery
- *Haematology*
- *Inflammation and immunogenetics*
- *Transplantation*
- *Rheumatology*
- *Dermatology/Venereology*

Division of Cardiovascular and Pulmonary Diseases
- *Cardiac research*
- *Pulmonary research*

Division of Surgery and Clinical neuroscience
- *Department of neurology*

Division of Diagnostics and Intervention
- *Department of radiology and nuclear medicine*

Division of Medicine (level 1)

General comments
Oslo University Hospital (OUH) and University of Oslo (UiO) have a close collaboration with many active scientists in shared positions. The division staff is 45 people including 23 professors (two professors I and 21 professors II) and they have 93 active PhD students and a few researchers at postdoctoral level. Many of the researchers and most professors have combined positions at both UiO and OUH. With a few exceptions, the professors have a minor share of their positions allocated for research (professor II positions with 20 % research, which also includes teaching) and spending most time doing clinical work at the OUH.

During the past few years, there have been major organisational changes in the Oslo region, both in the health and the university sector. During the merger processes, major structural alterations are taking place within OUH, including a concentration of activities to fewer locations. However, some departments span more than one of the four major physically separated locations. Since 2010, OUH and UiO have had parallel organisations but unfortunately divide most specialities and subspecialties in internal medicine between divisions

There are reorganisations still going on, and some affected faculty members describe the structure as 'chaos'. Many faculty members and physicians view the merger and reorganisation as a top-down process, although they have been involved in the preparatory phase. The representatives indicated that this merger was primarily economically driven, but nevertheless see the potential advantage for research. Yet, at this moment this advantage has been used only to a limited extent. For instance, all units have different IT structures for patient records and other data used in research, which are not compatible.
The head of research is more positive about the changes the merger will give in the foreseeable future than some of the researchers. This might either be caused by more insight into the process or by closer identification with the process by the head.

The largest part of the total available budget is spent on personnel costs and the PhD student salaries are externally funded. No investments in local infrastructure, instruments or equipment are reported.

Follow-up of previous evaluation/s
In response to the last evaluation, the scientific leadership at all institution levels (divisions, departments, research groups) has been strengthened by change of organisation and formation of research units. From 2011 each researcher must be a member of a joint research group at UiO/OUH).

At the OUH institutional level, the Director for research, innovation and education is responsible for strategic coordination in close collaboration with the OUH/UiO Research Council and the OUH/UiO Forum of Research Heads from each division.

Recommendations
The negative effects of physically separated research activities at different locations need to be addressed. Since the reorganisation of the hospital and departments is still in progress, much of this process reflects a new leadership structure. It is to be noted that the

departments' representatives express concern that the transition to the new organisation has created many situations that affect research negatively. The leadership at all levels needs to pay attention to giving research the advantages of the changed hospital structure and a higher priority in the years to come. It needs to show that the hospital merits not only an excellent and highly specialized clinical service, but is also a leading university hospital with academic research and teaching, where both activities mutually benefit from each other.
Intermediate research career positions between postdoctoral and full professor levels are lacking.
Incentives for obtaining external national and international funding should be introduced.

Internal medicine (level 2)

Description of the evaluation unit (facts and organisation)
The research unit (four professors II, one clinician with PhD; 80 % men) is organized as three rather independent units with limited cooperation: Kidney disease and hypertension, Pulmonary medicine and acute medicine, Clinical toxicology and suicidal behaviour. Each unit is led by senior faculty members. The unit collectively reports having supervised 21 PhD students that successfully finished their doctoral degree since 2005 and currently reports having four professor supervising 27 PhD students. The unit does not have any postdoctoral fellows but has one senior research scientist. Most of the grants are small, most often covering salary for one researcher (doctoral student or postdoctoral fellow) only.

General comments
Organisation, leadership and strategy
The research area of interest is wide within the three relatively small units and they do not seem to support each other or collaborate in research agenda, techniques or funding to any notable extent. The different lines of research seem to have their own agenda and the unit is more of an administrative unit even if the administrative advantages on this level were not actively presented in the material or during the interview.

Research collaboration
Considering the relative few academic staff in relation to the large number of publications, a collaboration of notable extent has been established primarily within Norway but also with other countries for instance in the field of methanol intoxication. The Kidney Disease unit regrets the dissociation of the medical activities (dialysis) from the transplantation group.

Scientific quality
Research activities and production
The unit has a good productivity with an average of 7 papers published in international journals per year and per scientist with submitted CV, within a relatively large range of subject areas. Most papers have been published in good journals and a number in very good journals within the respective area of research. While the majority of publications are within the large medical scientific area encompassed by the unit, a few papers seem to be well outside the scope of the declared research agenda like invertebrate research and church history.

Grading
Fair to good.

Recommendations
If the constellation of research interest should remain as a research unit, increased collaboration is advised or reorganization with other groups would be of advantage. The nephrology unit expresses wishes for and should have the advantage of closer collaboration with other units with common research interest.

Department of infectious disease (level 2)

Description of the evaluation unit (facts and organisation)
The current department of Infectious Diseases, OUH is recently formed and consists of a large department at campus Ullevål and a smaller section at campus Aker. The department claims to be the largest department of its kind in Norway, with national responsibility for multiresistant TB, biological warfare, an outpatient policlinic with responsibility for about 1 200 HIV-infected patients, and centres for tropical diseases and antibiotics with responsibilities for education and research within their fields.
The academic staff consists of one professor II, one associate professor II, two clinicians with PhD and three postdoctoral fellows (71 % men)

General comments
Organization, leadership and strategy
The Department has a strategic intention of becoming a site for translational biomedical research and focus on phase I/II clinical trials in active partnerships. The department has substantial international funding from Bill & Melinda Gates´ foundation in addition to support from RCN that in part covers clinical trials and from OUH that is the primary support for different staff positions. The financial support from UiO is reported to be minimal.
The department is engaged in several HIV related early phase clinical trials and cohort studies.

Resources and infrastructure
The department has P2 and P3 labs within the ward and invested several FACS machines, which are part of a core facility for flow cytometry placed at the Department of Microbiology.

Recruitment and career (policies on education/training, mobility)
The expanding recruitment of PhD students is mainly done within the local university hospital even though training and supervision of PhD students from collaborating universities in Africa is done.

Research collaborations (national and international)
By necessity the international collaboration is extensive when doing research on the area of tropical diseases and chronic infections. Studies are performed in South Africa, Tanzania and Ethiopia in collaboration with local universities and other research collaboration is also established with several European universities. Some industrial collaboration is also reported.

Scientific quality
Research activities and production
The unit has reasonably good productivity with on an average 3 papers in international journals within the major research areas (tropical diseases, chronic infections and antibiotic use and resistance) published per year and scientist with submitted CVs considering that the department also participate in clinical trials. Most papers have been published in good journals and a number in very good journals within the respective area of research. There is a good international profile.

Grading
Good

Societal impact
Patenting of use of COX-2 inhibitors and exploring of new therapies in collaboration with industry.

Recommendations
The department works in an international context but the international research focus, mobility and international recruitment could be increased and is advised for at least PhD and postdoctoral levels. The department has a wide scope, given the limited human resources, and focusing is advised.

Department of gastroenterology (level 2)

Description of the evaluation unit (facts and organisation)
The gastroenterology department is split in two locations at Aker Hospital and Ullevål Hospital within OUH. The department's research areas comprise gastrointestinal motility, advanced endoscopy, liver diseases, inflammatory bowel disease, health care nursing, patients reported outcome and health economics.
The academic staff consists of two professors II, two associate professors, one clinician with PhD and one postdoctoral fellow (67 % men).
The department is running several clinical trials and cohort studies among them the IBSEN cohort including 20 years of data on patients with inflammatory bowel disease. The department also includes the nursing research group, an emerging area of research within clinical medicine.

General comments
Organisation, leadership and strategy
As for most departments at OUH and UiO, the department is recently formed primarily from two previous gastroenterology groups. Since then, these work to establish an organization fulfilling the needs for covering all areas in clinical gastroenterology as well as continuing the research activities already on going among these specialists. Furthermore several researchers have been included in the department's research group by their own request their research areas adding to already established scientific programs in the department. A specified unifying research strategy for the department is not

expressed as part of the evaluation but the presented research agenda includes several clinical trials and cohort studies.

Training, mobility and career path
Information on funding and extent of PhD training is not presented in the self-evaluation, but is described for some of the research groups as being of expected dimension considering the number of academic staff.

Scientific quality
Research activities and production
The unit has a lower than average productivity for this area with an average of 2-3 papers in international journals within the major research areas (gastrointestinal motility, advanced endoscopy, liver diseases, inflammatory bowel disease, health care nursing, patients reported outcome and health economics) published per year and scientist with submitted CVs. Most papers have been published in good journals within the respective area of research. A number of papers published in very good or excellent journals within gastroenterology have been highly cited in scientific papers from international research groups.

Grading
Good within the field of nursing research and good to very good within the field of gastroenterology.

Recommendations
From a research point of view, a unified location for research would be advised.

Geriatrics (level 2)

Description of the evaluation unit (facts and organisation)
Even if the evaluation unit comprises two departments (Department of geriatric medicine and Department of general internal medicine), both are focusing their research on different aspects of geriatric research and work as an integrated entity.
The research group is multiprofessional. The 18 PhD students comprise MDs, nurses, a physiotherapist, an occupational therapist, psychologists, and a pharmacist. While the researchers are MDs except for one who is an occupational therapist, the academic staff consists of one professor I, one professor II, one associate professor II, one senior research scientist and three postdoctoral fellows (71 % men).
The common denominator for the geriatric research is *cognition* and *cognitive impairment.* The research is performed within several themes:

(1) Dementia and depression in the elderly
(2) Delirium ("acute confusional state") in the elderly
(3) Stroke and
(4) Geriatric oncology and frailty.

Several randomized clinical trials are led by the department, for instance on drug use, quality of life, person-centered care, hip fracture and confusion, rehabilitation and stroke, stroke and cognition, treatment decision in the field of geriatric oncology.

General comments

Organization, leadership and strategy

The department leadership strives to create a positive, stimulating and learning-friendly milieu within the research group. It sees it as a priority to give talented researchers tasks as supervisors shortly after their own dissertation in on order to establish a larger group of supervisors that can mentor the PhD students. The present situation with 18 PhD students and two professors is not sustainable. The ambitions of the group are clearly communicated with the goal to bring clinical practice and research closer together in a multi professional environment.

Resources and infrastructure

The research is almost exclusively clinical, and closely connected to the patients in the own and other clinical departments. The department does not have lab facilities for experimental use, but cooperates with researchers employing such methods. The research is dependent on support needed in coordinating and analysing material and data from clinical trials. The department is establishing Memory Clinic Registry in collaboration with several Norwegian memory clinics for future use in research.

Research collaborations

The department is closely collaborating with geriatric research groups in Bergen and Trondheim. The group is also collaborating with other disciplines within the university hospital and university e.g. orthopaedics, oncology, pharmacy as well as international groups with common research interest mainly in Europe.

Scientific quality

Research activities and production

The department has published 1/3 of its papers in Norwegian journals and has a lower than average productivity with an average of 1-2 papers in international journals published per year and scientist with submitted CV. Considering that the department also participates in and has initiated a large number of randomized clinical trials, this will likely produce an increasing number of publications in clinical trials. Most papers have been published in average to good journals. With narrowing and increased focusing of the research agenda the ambition of the department to publish in higher impact journals will be more likely to succeed.

Grading

Fair, with the expectation that increased focus and activity in the near future may well improve this grade further.

Recommendations

An increased focus of the research agenda is recommended and fewer PhD students per supervisor.

Department of endocrinology (level 2)

Description of the evaluation unit (facts and organisation)

The department of endocrinology consists of three research groups:
(1) Diabetes (Oslo Diabetes Research Centre),
(2) Other Endocrinology, especially Pituitary, and

(3) Calcium and osteoporosis.

The Oslo Diabetes Research Centre consists of researchers from several departments of whom many are not part of the department of endocrinology and are hence evaluated elsewhere. The department participates in several randomized clinical trials, different aspects of translational research addressing an array of scientific issues involving diabetes type I and II from gestation to adult life as well as pituitary diseases and bone metabolism.
The academic staff consists of one professor I, 12 professors II, one professor emeritus, one senior research scientist and one postdoctoral fellow (81 % men).

General comments
Organization, leadership and strategy
The department is led by one of the professors and each research group is chaired by its own professor. The academic staff and activities are located at three different locations within OUH.

Resources and infrastructure
Funding appears rather limited. Within the department, the Hormone Laboratory represents an important core facility for biochemical endocrinology that also serves research outside the department. It also has a basic lab, performing patient related investigations (endocrine tests, DEXA scans with bone and body composition, and basal biochemistry), which is integrated with the Institute of Internal Medicine Research with molecular biological facilities. This sharing of facilities is an advantage and strength.

Training, mobility and career path
The department has recently organized a PhD school in Diabetes, Endocrinology in part to overcome the negative effects of supervision by the academic staff that is spread over three different locations within OUH.

Scientific quality
Research activities and production
The unit has a reasonably good productivity with an average of 4-5 papers published in appropriate international journals per year and scientist with submitted CV. Most papers have been published in good journals within the respective area of research and a number of collaborative papers in excellent journals. Many of the papers are highly cited by other international research groups.

Grading
Good to very good.

Recommendations
The strength of an integrated research centre like Oslo Diabetes Research Centre where researchers from several disciplines collaborate is a good basis for continued high quality translational research and the model might also be implemented in other areas of research. The split location of the department's academic staff and activities is a challenge and if it cannot be overcome by other means, relocation may be a necessary option.

Division of Specialised Medicine and Surgery (level 1)

General comments
The Division of Specialised Medicine and Surgery (DSMS) is one of the nine clinics of this uniformed organisation and comprises the following departments relevant for this evaluation:
(1) Haematology,
(2) Inflammation and Immunogenetics,
(3) Transplantation,
(4) Rheumatology,
(5) Dermatology and Venereology.

DSMS is a novel construction that encompasses both medical and surgical activities primarily at a regional and national level. Except for haematology and paediatric surgery that included clinical activities at 2 or 3 locations, all other activities were located at Rikshospitalet. To build departments of reasonable size it was necessary to cluster different specialities in new departments.
Some specialities now included in the DSMS are also found in other clinics, more or less reflecting the organisational structure during the evaluation period 2005 to 2009. Clinical reorganisation of the different specialities in the DSMS is rather complex and still not finished.
The Research Institute of Internal Medicine (RIIM) houses most of the laboratory research within the DSMS. Effective from 2011 RIIM includes also the haematological research laboratory. There are also laboratories of gastroenterology, nephrology and rheumatology. Important other laboratory activities take place outside the DSMS, e.g. in the Institute of Immunology, the Department of Pathology, and the Institute for Surgical Research.

Research is organised along functional research activities also across departments and clinics, mostly in smaller groups with a group leader consistent with hospital´s formal organisation effective from 2011. The organisation also comprises a head of research who reports to DSMS and the ICM/UiO, but he is only an advisor to the director of clinic and has no decision power.
Also each department now has a research leader who reports to the head of research. There is also a research board with members from all relevant departments. They make formal decisions on strategy and funding, but the director of the division makes final decisions.
The research groups are scattered across 3 – 4 different hospitals due to the recent reorganisation.

The internal medicine with its different subspecialisations has the following strong research areas:

(1) cardiovascular inflammatory research as interdisciplinary activity of clinical medicine, immunology, genetics, biochemistry and molecular biology
(2) inflammatory diseases of liver and intestine with the Centre for Immune Regulation (CIR)
(3) thrombosis research
(4) clinical organ transplantation

One goal of DSMS is to utilise unique patient materials for randomized clinical studies and translational research.

Basic funding is very limited and currently shared between RIIM and haematology. Research is depending on external grants. There is no clearly earmarked money or time for research except for some low basic institutional funding.
RIIM will soon also host haematology. It is close to several core facilities, and close to clinical facilities and patients and there is access to major instruments and latest technology.

In regard to PhD students there are sufficient applications, but only now is a graduate school being established. There is a lack of post-doctoral positions. Mobility is too low - almost 90 % of faculty staff has graduated locally. For young people motivation for research appears to be low, incentives are missing.

Collaboration in research appears to be strong between clinical and basic groups, but also for core platforms. Specifically the RIIM is very instrumental in bringing together the inflammatory research from various disciplines. Several groups also have strong international collaborations.

Follow up of previous evaluations
The 2003 RCN report has had major influence on organisation and strategic plans for research. This concerns the building of core facilities with strengthening of inflammation research, the systematic collection of biological materials etc.
The comparison and follow up with previous evaluations is very difficult and almost impossible due to the very recent and still on going structural changes, particularly at the hospital level. Now it is a big problem that the reorganisation was not necessarily favouring research, moreover similar or identical disciplines are in different divisions.

Recommendations
For better exchange and efficiency one research group should be at one hospital and not scattered around over different buildings. The attractiveness of the PhD programs has to be increased and certainly the mobility in exchange with other institutions abroad has to be increased. There needs to be more motivation for Norwegian people to go abroad and international faculty to get attracted to DSMS.

Haematology (level 2)

Description of the evaluation unit (facts and organisation)
Haematology was 2008 on the basis of RCN recommendations merged into one department but still comprising three units that were merged into one effective from 2011. The newly developed research strategy includes the Centre for Thrombosis and Haemostasis Research (CTHR), the Cellular haematology and QoL and Health economy. The academic staff consists of one professor I, three professors II, two postdoctoral fellows, one senior scientist (71 % men)
They have 17 on-going PhD projects and can obviously easily recruit PhD students. Altogether there is little mobility.

General comments
There is high level research on 1) cellular haematology including basic translational clinical studies related leukaemia and multiple myeloma, 2) haemostasis and thrombosis with basic translational clinical studies and 3) QoL and health economy. But the groups certainly are too much scattered around in various institutions of Oslo.
There is extensive national collaboration and international collaboration with high ranked research groups in Israel, Italy and the Netherlands as well as UK. The department needs to be congratulated for their collaboration with the Institute of Immunology and their achievements for array based proteomics.

Scientific quality
Research activities and production
An extensive list of publications is presented.

Grading
Good to very good.

Recommendations
It should be an aim to create more performance-based funding. It would be important to merge the department to fewer locations. It is certainly a necessity to create more intermediate postdoctoral positions, maybe even a PhD program.

Inflammation and Immunogenetics (level 2)

Description of the evaluation unit (facts and organisation)
The present research collaboration within the Clinic for Specialized Surgery and Medicine is centred on studies of inflammation and immune activation in cardiovascular and related metabolic disorders (e.g. atherosclerosis and heart failure), in immunodeficiency and some selected infectious disorders and in gastrointestinal and liver disorders (i.e. celiac disease, inflammatory bowel disease IBD and primary sclerosing cholangitis).
The main aim of these studies is to define the causes and potential pathogenic effects of inflammation and immune activation in these disorders to generate the basis for new treatment modalities and identify new prognostic and diagnostic markers. The research activities of this group are mainly performed at the “Research Institute of Internal Medicine” (RIIM), with some activity also at collaborating laboratories..
The academic staff (reported group leaders) consists of one professor I, three professors II, one postdoctoral fellow, two clinicians with PhD, two senior scientists (78 % men). In addition, there are 8 postdoctoral fellows and 22 PhD students.

General comments
Organisation, resources and infrastructure
Main resources are the large numbers of clinical samples with a state-of-the-art biobanking system. In addition there is appropriate methodology available, such as high through-put facilities, advanced molecular and biochemical methods, animal models and various cells and cell lines.

Training, mobility and career path

During the past five years, 20 PhDs and six postdoctoral research fellows have been recruited. The PhD students are not yet in an integrated program. Only four of the postdoctoral researchers have spent time at a research institution abroad.

Research collaboration
The group represents an interdisciplinary collaboration at the intersection of clinical medicine with immunology, genetics, biochemistry and molecular biology. There is also very good collaboration with other local, national and also international networks.

Scientific quality
Research activities and production
The research activity is very high and the collaborative effort of the different groups has resulted in very good to excellent publications. In the IBD area there is the IBSEN study group, an EU network led by OUH. The PSC research is taking advantage of this environment and applying for a cluster of excellence. Celiac disease research is heavily interlinked with the Centre of immune regulation (CIR). The IBSEN leader also initiated an additional International organization for the study of IBD (IOIBD).

Grading
Very good to excellent.

Recommendation
The institute should create more and better core facilities. There is also a need for more intermediate-level postdoctoral positions. The institute also should develop a PhD program. In addition they should integrate the departments of rheumatology and dermatology better.

Transplantation Research (level 2)

Description of the evaluation unit (facts and organisation)
The Clinic for Specialised Medicine and Surgery at OUH has the national responsibility for the abdominal organ transplantation (kidney, liver, pancreas, islets) and organ donation. The transplant centre is one of the largest in Europe and is the leading centre for kidney transplantation and among the largest in Northern Europe for liver transplantations.
The transplantation research group consists of several interdisciplinary research teams within kidney, liver and pancreas islets transplantation heading by leading professionals in nephrology, gastroenterology, pharmacy, immunology, and transplantation surgery. The main facilities for research are the laboratories for renal physiology and the Institute for Surgical Research (IKF).
The academic staff consists of one professor I, three professors II, six clinicians with PhD, one researcher with PhD (89 % men).

General comments

Organisation, leadership and strategy

The department appears to be well organised, both clinically and resource wise. However there is insufficient interaction and collaboration with basic researchers, e.g. in immunology. The research activities are diverse due to different organs and different clinical challenges and complications. The focus is on cardiovascular complications, metabolism and infectious complications. Additional foci are in immunosuppressive drugs, therapeutic drug monitoring and clinical and experimental transplantation studies.

Resources and infrastructure

The department has good core facilities available. In addition there is a well-organised register and state-of-the-art biobanking system of more than 2 500 patients.

Training, mobility and career path

There appears to be a good recruitment of PhDs but all the MDs with PhDs hardly have any time for research. There is no problem in recruiting young people for research but there is a lack of grants for PhD students.

Research collaboration

The transplantation department has extensive national and international collaborations. They are involved in large international clinical trials.

Scientific quality

Research activity and production

The large clinical activity is unfortunately not reflected in the research activity although there is good productivity. Altogether the papers are not in the top journals.

Grading

Good to very good

Societal impact

Studies are important for further understanding and improvement of overall outcome of transplantation.

Recommendations

There is a strong need for research positions, particularly at the postdoctoral level, but also at professorial level. The department is ready to provide 20 % of its budget for research for an additional 7 or 8 research positions. There is already an agreement with the director of the clinic, but an obstacle is that these positions appear to be strictly regulated. Here more flexibility is needed for creating research active positions.

Rheumatology (level 2)

Description of the evaluation unit (facts and organisation)

The Department of Rheumatology at OUH consists of two clinical units:
(1) The Paediatric Rheumatology centre, which is the only centre for children with rheumatic diseases in Southern Norway and
(2) The section for Adult Rheumatology.

The adult section has undergone major structural changes since 2004, when Rikshospitalet and Diakonhjemmet sykehus made a joint decision of shared responsibility for local and regional functions. This meant that Diakonhjemmet took over all the adult patients with arthritis, while the rheumatology department at OUH received all the patients with systemic connective tissue diseases, vasculitis and arthritis with complications.
The academic staff consists of one professor I, and two professors II (67 % men).

General comments
Organisation, leadership and strategy
This is a very small and most recently established department. It started from scratch 2004 with a new director from 2009 only. They built up the clinics first, established already impressive cohorts for mixed connective tissue diseases and inflammatory myopathies, and respective databases.
The department appears to be well organized but MDs are 100 % clinical, missing their 20 % research time. The department only has two academic positions with combined activities, e.g. 50 % clinics and 50 % research.

Resources and infrastructure
The department has built up an important registry for connective tissue diseases with more than 2 000 patients, which was established with an electronic database in 2004. They also have a project in juvenile dermatomyositis, juvenile idiopathic arthritis, early undifferentiated childhood arthritis and immunogenetic factors. The registry also includes a biobank that currently contains sera and blood from more than 1 000 of the registered patients. In addition the department established sine 2005 a registry for off-label use of prescription called MEDUB.

Training, mobility and career path
The department has readily recruited PhD students. Many of the residents want to be involved in research projects, but there is no systematic policy for a research career path.

Research collaborations
The paediatric section does collaborate with many other departments in Norway and OUH could be better supported by basic immunology and inflammation departments. The section has also a long standing international collaboration with the Paediatric Rheumatology International Trials Organisation (PRINTO). The section is involved in international collaboration on systemic sclerosis (EUSTAR) and inflammatory myopathy (IMACS). They have also been involved in the DETECT study, a long-term study of systemic sclerosis patients financed by the pharmaceutical company Actelion.
Last not least the department has a wonderful collaboration with the Diakonhjemmet Hospital.

Scientific quality
Research activities and production
Given the most recent reorganisations and young directorship this small section does have a very good output.

Grading
Very good.

Recommendations
The section should be provided with more labs and equipment. It also should receive more support from the inflammatory research and immunology. Furthermore a career path should be developed and time for research for the few trainees should be provided. Currently MDs are 100 % clinical, and miss their 20 % research time. The research time or money should be marked clearly and transparently.

Dermatology/Venereology (level 2)

Description of the evaluation unit (facts and organisation)
The research unit is small; the academic staff (one professor II and three associate professors II; 75 % men) are embedded in the framework of a clinical staff with more than 14 residents and around 20 senior staff members with very high patient activity. The focus of research is mostly dependent on individual researchers' affinity to subjects in the fields of dermatology and venereology.
The dermatology section is small with only 14 beds. Most doctors are clinically active in outpatient clinics and two of the professors were only recently recruited back into academia. Nevertheless, this is the largest dermatology department in Norway.

General comments
Organisation, leadership and strategy
The section head recently re-entered academia and now tries to rebuild research. They have an excellent recruitment of young MDs but these do not stay after completing their PhD thesis.
The section does not have its own research group, research is based on PhD thesis work and on-going studies are dependent on external supervisors and are poorly interrelated.

Resources and infrastructure
See above.

Training, mobility and career path
Good recruitment of MDs but no research career path.

Research collaborations
Dermatology has research collaborations with other sections within OUH but no international collaboration. In venereology there is some visibility at international level and good collaboration nationally.

Scientific quality
Scientific activities and production
The activity and production is very low.

Grading
Weak but with chances of improvement.

Recommendations
The section needs to recruit external faculty staff and develop attractive academic career path for dermatologists. Certainly the field is very attractive for inflammatory research, also in conjunction with cancer (melanoma). There is a good environment for this

research available, new targeted therapies favour this research, and maybe registries should be established.

Division of Cardiovascular and Pulmonary Diseases (level 1)

General comments
OUH and UiO have established strategic leadership meetings, established Research and Educational Councils with participation from both institutions. Scientists have combined positions at both institutions (most of the professors). Six out of nine Division Heads hold joint OUH and UiO positions, while approximately half of the Department Heads hold joint positions. Heads of Department and Division in Cardiovascular and Pulmonary Diseases feel engaged with the process and able to influence decisions.

Strategic decisions regarding scientific focus are made in the respective research groups and clinic research leaders promote scientific development in their groups.
The academic staff are multidisciplinary (cardiologists, biochemists, physiologists, molecular biologists, physicists, etc.).
A single Head of Division, responsible both for the clinical and scientific activities has merged the leadership of the hospital and the university. The Deputy Head of Division is the leader of the Research Council of the entire hospital.

The division of working time between research and clinical work (beyond the 20 % set by the university) is mainly regulated by the Head of Department.
Funding for scientific positions is mixed university, hospital and external sources.

Research is divided into four thematic units (cardiac research, cardiothoracic research, vascular research and pulmonary research). These four units are within the Division of Cardiovascular and Pulmonary Diseases, but some of the cardiovascular researchers are in the Division of Medicine (due to on-going reorganisation). The Division of Cardiovascular and Pulmonary Diseases consists of six departments – the structures are quite complex but this is reported to be a work in progress leading to a better structure

The department leaders feel that they can follow clear lines of money that can and are being put aside for research.
The Division of Cardiovascular and Pulmonary Diseases and the University is more and more dependent on external funding. Most groups have fairly good funding. Financial support in cardiovascular disease has benefited from increased money through Helse that is accessible only to hospital-based research and is used for translational research.

Follow-up of previous evaluation/s
OUH developed a new research strategy linked to the strategic plans at UiO and the Faculty of Medicine. The scientific leadership at all institution levels has been strengthened. Each research worker is a member of a research group. The Director for Research, Innovation and Education is responsible for strategic coordination in close collaboration with the OUH/UiO Research Council and the OUH/UiO Forum of Research

Heads from each division. Centres of Excellence have been established in Molecular Biology, Immune Regulation and Cancer. This all has resulted in an increased focus on research innovation.

Recommendations
While OUH and UiO have a close collaboration with many active scientists having shared positions the major clinical/research departments of cardiology and respiratory medicine are on separate sites. This is a major problem to all those involved, inhibiting research and meaning that patients also have their care on different sites. There seems to be a separate mentality separating the hospital from the university. It also appeared as though the university is weak and only there to serve the clinical departments and the Hospital. There is a strange division between UiO and UOH in which UiO is the weak partner. The need to continue reorganisation and strategic planning in Respiratory Medicine is recognised.

There is a need to harmonise complex overall structures closely integrating clinical activities and research. There is also a need to address the problems related to a large organisation with different geographic localisations. There is a shortage of space for research within the hospital needs to be addressed. They should establish more postdoctoral positions with clear career pathways.

Cardiac Research (level 2)

Description of the evaluation unit (facts and organization)
The unit encompasses separate groups from different departments within cardiac research. The Ullevål/Rikshospitalet collaboration is organised in a Centre for Heart Failure Research, with PhD school. The academic staff consists of eight professors I, seven professors II, six postdoctoral fellows, 14 clinicians with PhD, and six researchers with PhD (83 % men).

General comments
Organisation, leadership and strategy
Research leadership is strong at the level of Divisions, and in network organizations/high level of involvement at Hospital management. The leadership on cardiovascular research has influence on the research strategy of the OUH (which may reflect the strong position of Cardiology, probably also through its research excellence through funding from university/Helse).

Group leaders that have achieved external funding have the main responsibility for choosing research strategy. The Centre for Heart Failure Research is an important strategic development.

Resources and infrastructure
There are good population cohorts, biobanks and an animal facility. This is well-organised and bottom-up. Biobanks are well-developed across different departments, with strong interaction with the Transplantation department. Biobank centralisation occurs both at Rikshospitalet and at Ullevål. They are forerunners in national effort to make a register of cardiovascular disease.

Research and clinical work (20/80 % set by the university) is regulated by the Head of Department.
Funding for scientific positions is mixed between university, hospital and external sources. The cardiovascular group wants a full-time scientist, who must however be financed by OUH, because there is no funding from UiO for such a position.

Training mobility and career
Institute for Experimental Medical Research (IEMF), and Institute for Surgical Research (IKF) each represent a "core facility" for experimental research, with collaborations throughout the hospital. A virtual Centre for Heart Failure Research was established in 2002 which also has an educational programme for PhD students called the PhD school with 80 students unique in Norway and most of the PhD students in the division are members. The centre organises an annual meeting with international speakers. It is currently establishing a career path for clinician scientist training. 50 % of the PhD students and postdoctoral fellows are not MDs. There is a Med Res programme in Graduate School (10 %).
There are however few opportunities for clinical academic career – this is being addressed but clinical training is too long. Combining PhD with medical specialisation takes 9 years, which is a hurdle: there is now the possibility in the medical curriculum that 10 % of students start a project with an additional 1-1.5 year after obtaining MD that can result in a PhD.
About 20 % of the scientists are not from Norway. However no clinical researchers are recruited from abroad. Tradition is that postdoctoral researchers go for one year abroad – this can be difficult to achieve as MDs take a long time to finish PhD and are older with family or other commitments.

Strong molecular cardiology has been developed in conjunction with the research institutes IEMF and IKF. The unit promotes multidisciplinary training, and several nurses have achieved a PhD degree or are currently in a PhD programme.

Research collaborations
There is inter-departmental collaboration (but not much international or national collaboration) and pharmaceutical industrial collaborations on large clinical trials.

Scientific quality
Research activities and production
Cardiac research is overall strong both at a national and international level.
Cardiothoracic research and vascular surgery are weaker though have a potential for improvement. Cardiology has a number of good and some excellent groups. Together they have 120 medium to high impact papers/year.

Grading
Institute of experimental Medicine: Excellent
Department of Cardiology: Good to excellent
Cardiothoracic and Vascular surgery: Fair to Good

Societal impact
A number of cardiology studies have positively impacted on patients and guidelines for best treatment.

Recommendations
The cardiology groups of UiO and OUS should be combined.
There is need to address academic clinical training and career development for PhD students. Specialist medical training time in Norway is substantially longer than in other European countries and could be shortened. Separation of clinical and academic activity on different sites detracts from translational research and should be addressed. More national and international collaborations need to be developed. University should also take a lead/stronger role in directing research.

Pulmonary Research (level 2)

Description of the evaluation unit (facts and organization)
The Pulmonary research unit corresponds to research performed at the Department of Respiratory Medicine. The academic staff consists of one professor II, who is also the head of the department, and two associate professors I (100 % men).

General comments
Organisation, leadership and strategy
The unit has had a number of organisational problems over the last nine years which have resulted in a lack of leadership and have negatively impacted on research activity.
The research groups at OuH vs UiO do not interact either clinically or academically and there are no common structures. There is also surprisingly little collaborations with the Cardiac research groups.
The leader of Occupational medicine group is aged 61 and is responsible for most of the research output. There is no evidence of real succession planning and risk that when he retires all research activity will stop.
The department has unique opportunities being the only lung transplant unit in Norway – this area of research is being developed but in isolation. Opportunities exist to collaborate with immunology or other interested basic science units to develop an internationally competitive programme. Furthermore opportunities exist in lung cancer in conjunction with the Norwegian Cancer Registry – again this is being developed by the assistant professor (though this was not their area of specialism and this research theme is evolving). This would be helped by collaboration with the Cancer Centre or other basic science groups to investigate mechanisms/biomarkers in lung cancer.

Training, mobility and career paths
Two part time associate professors combining clinical work, research and teaching were established starting June 2009. Five PhD level research fellows are attached to the department. There are increasing efforts to recruit research staff through seminar programmes.

Research collaborations
International collaboration with the National Institute of Occupational Health, Centre for Environmental Medicine, Asthma and Lung Biology University of North Carolina exist.

National collaboration with the Institute of Immunology, the Research Institute of Internal Medicine OUH and the Department for Thoracic Surgery (Lung transplantation) and the departments of Pathology and Oncology (lung cancer).
Occupational medicine collaborates widely. Research and patient inclusion with research collaborations in Norway, Germany and UK.

Scientific quality
Research activities and production
The Pulmonary research unit has a modest output - eight publications per year. Most of the research output is from the leader in Occupational medicine. However there are great opportunities with cohorts in lung cancer and collaboration with immunology in lung transplantation. With strategic development, this could move the pulmonary research onto the national and international stage.
Grading
Pulmonary research as a whole: Fair.
Occupational medicine in particular: Good.

Societal impact
Pulmonary research has impacted in the occupational field influencing industrial practises with regard to cigarette smoking and dust in the aluminium industry.

Recommendations
Pulmonology should take advantage of the excellent work on cardiovascular research; the latter group could support pulmonology to increase the research.
There is a need to strategically plan for retirements of the leading researchers.
The existing nursing and patient based research strategies need to be developed.

Division of Surgery and Clinical Neuroscience (level 1)

General comments
OUH and UiO have a close collaboration with many active scientists having shared positions. A merger of the Rikshospitalet and the Norwegian Radium Hospital in 2005 and with Ullevål and Aker University Hospitals in 2009 has resulted in one large hospital, OUH. It has nine clinical divisions which all span activities on more than one of the four major sites. The Faculty of Medicine at UiO has also reorganized its activity at OUH within the Institute of Clinical Medicine. The Institute also has three divisions at Akershus University Hospital (Ahus).

The Division of Surgery and Clinical Neuroscience consists of: Department of Orthopaedic Surgery, Department of Ophthalmology, Department of Ear, Nose and Throat, Department of Physical medicine and rehabilitation, Department of Neuropsychiatry and psychosomatic medicine; Department of Neurology and Department of Neurosurgery.

To improve the research collaboration, strategic leadership meetings now occur between the OUH and UiO with Research and Educational Councils. The leaders of each organisation attend the executive meetings of the other and the research structures have been merged at divisional and departmental levels.

The reorganisation makes it difficult to describe the resources of each Division over the past 5 years. However the total expenditure in 2009 for OUH was 62.4 million NOK of which 45 % came from grants and that for Institute of Clinical Medicine was 28.1 million NOK of which 29 % came from grants. The merger has not yet seen an increase in research resources. The self-evaluation complains about the lack of time to write competitive research grant applications, and low success rate with the RCN (10 %).

The Division has 128 staff employees.

The Division houses three Centres of Excellence - Centre for Molecular Biology Centre for Immune Regulation and Centre for Cancer Biomedicine - appointed by RCN with UiO as the major host institution and OUH as the primary location. Also, the Centre for Research-based Innovation (Stem Cell Based Tumour Therapy) has been appointed with OUH as the host institution. However many of the units have not established “coherent clinical research groups”. Ten students obtained PhDs in 2009. There are difficulties in obtaining funding for PhDs, a lack of gender balance, difficulties with exchange from and to other countries and limited translational and interdisciplinary research.

Follow up of previous evaluations
Several of the major issues that were raised by the previous evaluations have now been addressed by both institutions. There is now clearly demarcated leadership and management linking hospital and university at all levels. The research units are now robust and more focused. From 2011 each research person must be a member of a research group.

Recommendations

The panel is hesitant to give recommendations for the level 1 unit since only one of its level 2 units were reviewed by the panel.

Department of Neurology (level 2)

Description of the evaluation unit (facts and organisation)
The Department was established in January 2010 by merging the Neurology Departments at Rikshospitalet and Ullevål University Hospital. It has returned nine faculty staff with CVs (all professors II; 56 % men) and has eight research groups:

(1) Movement Disorders (4 staff)
(2) Multiple sclerosis and neuroinflammation (3 staff)
(3) Pain and neuropathy (4 staff)
(4) Neuroophthalmology (2 staff)
(5) Cerebrovascular (5 staff)
(6) Ataxia and myasthenia (3 staff)
(7) Epilepsy (7 staff)
(8) Headache and vertebrogenic disorders (2 staff)

General comments
Organisation, leadership and strategy
The Departments used to be part of a Division of Clinical Neuroscience and being part of a Division of Surgery does not provide useful synergies. The department has no connection with the Department of Neurology in Ahus which is also part of UiO (Institute of Clinical Medicine) and which shares similar research interests.

Some staff members belong to more than one research group. These groups are based on the historical research interests of the department members and lack a unifying or coordinating research strategy other than "clinical neurology", which is worrying.

Resources and infrastructure
Particular strengths include having a major centre for deep brain stimulation, large patient registries and biobanks for multiple sclerosis, epilepsy and headache, and use of ultrasound to investigate the cerebral circulation. A common theme to most of the groups is neurogenetics in which the department wishes to invest.

Recruitment and career
On average each staff member supervised 2.3 PhD students who completed in 2005-2010 and is supervising 2.4 students at present. Recruitment is easy and many students spend time abroad. Each PhD student has two supervisors but there is no specific PhD programme within the Department or Division and the arrangements for monitoring PhD progress were unclear.

Research collaboration
There is extensive national and international collaboration by most of the groups (the Movement Disorders, Multiple Sclerosis, Cerebrovascular Disease, Myasthenia and Headache Groups). Some of this collaboration involves European or other international networks which are led by members of the Department (in epilepsy and cerebrovascular

research). There appears to be no collaboration with the nearby Department of Neurology in Ahus.

Scientific quality

Research activities and production

The output of this department is high considering that there are only nine staff of whom each has only 20 % academic time of which part is used for teaching. The staff submitting CVs published an average of 18.7 papers each from 2005 to 2010. The best papers were published in reasonable subspecialty or general neurology journals with some investigators forming part of large consortia publishing in top quality journals. Recently recruited staff are expected to raise the standard of research.

Grade

Good with the potential to become excellent with more focus.

Societal impact

The diseases being studied are mostly very common (cerebrovascular disease, Parkinson's disease, headache, epilepsy) or common (multiple sclerosis). Improvements in their treatment would have a major impact on society.

Recommendations

The department should reduce the number of research groups and focus on its areas of greatest strength so as to realise its potential to be a national and international centre of excellence in one or more research areas. Realising this potential would be greatly aided by identifying a core strategy and a unifying theme such as neurogenetics and possibly neuroinflammation.

The department should collaborate with the Department of Neurology in nearby Ahus which shares three research areas: Parkinson's Disease, Multiple sclerosis and Stroke.

The Department would benefit from re-establishment of a Division of Clinical Neuroscience with the Departments of Neurosurgery and Neuropsychiatry.

Reduction of the number of research groups should allow the creation of one or more clinical academic appointments with at least 50 % of research time to lead the prioritised research areas.

Division of Diagnostics and Intervention (level 1)

General comments
OUH is the result of a merger of four hospitals. This division of Diagnostics and Intervention is primarily a laboratory division and the departments have only in part common interests. The department of radiology and nuclear medicine is the largest department and is more involved with different clinical groups than with other departments in this division. The staff of the division comprises 19 professor I, 12 associate professors I, 29 professors II, 15 senior research scientists, 20 associate professor, 50 postdoctoral fellows; there are 76 PhD students.

The research in the division is a combined effort with the university department. There is a division head of research and per department, headed by respectively the head of division and head of the department. The research is organised at a department level, the division level is merely for administration.

Research funding is reported as approximately 50 % from external sources, primarily the regional health authority and RCN.

PhD students take part in the general PhD training at Oslo university hospital, but this PhD training program is only partly relevant to the needs of certain departments such as the department of Radiology and Nuclear Medicine.
The department stimulates gaining experience abroad for PhD students and actively seeks for postdoctoral researchers abroad.

The division has multiple collaborations at a national level (e.g. NTNU), EU networks and industry (primarily pharma).

Follow-up of previous evaluation/s
The division has taken action with respect to the comments of the previous evaluation. The division has implemented that research is now organised in defined research groups and scientific leadership is strengthened by a head of research at both division and department level. The division recognises that plans should be developed to increase the grant proposal writing skills of the staff of several departments, including Radiology and Nuclear Medicine.

Recommendations
Strengthening of the research organization at an operational level seems mandatory; this will facilitate improvement of the research at a departmental level. For example, support for developing grant writing skills and identifying high potential reseachers seem to be obvious topics.

Department of Radiology and Nuclear Medicine (level 2)

Description of the unit (facts and organisation)
The academic staff comprises five professors II, two associate professors, three clinicians with PhD (90 % men). There are 17 PhD students. The research is led by one of the professor II.

General comments
Organization, leadership and strategy
The leadership has recently reorganised research into ten research groups. The department recently established a section of R&D at one of the locations. The department wants to identify MD with promising research skills for leading a research group and allocate research time for them; this is an on-going process.

Resources and infrastructure
Almost all PhD positions are internally funded. Few grant proposals are written and (almost) none granted. There is no specific research equipment; the clinical equipment is used for the research which is primarily clinically orientated research.

Recruitment and career
There is concern about the career possibilities of MDs with a PhD. The number of professor II has substantially decreased. The new structure with research groups will give the possibility to give each leader of a research group one day of research per week. There are now a few resident positions with 50 % research.

Research collaborations
There is limited collaboration at a national and international level.

Scientific quality
Research activities and production
The research activity with respect to publications is modest given the size of the department and the number of staff actively involved in research is rather limited. The number of publications until now seems stable. The majority of the research performed at the department is initiated outside the department. The majority are collaborative studies. Important is that after the last evaluation the department has taken measures to increase the output. The number of PhD students has more than doubled as compared to the previous evaluation.

Grading
Fair to good.

Recommendations
It is advised to focus on a maximum of 4-5 high potential research groups and not to spread the resources between too many groups. Individuals with good academic potential (this might also include new staff) should be given ample time to develop these fields. Here involvement of physicists (and other non-MDs) is mandatory and having these individuals directly involved (and preferably employed) at the department seems important for the development of research.

The career possibilities of PhDs (and non-MD staff) should be further developed and academic positions should be made available. The department should consider establishing their own interdisciplinary PhD program.
It is important that external funding is brought to an acceptable level. For this purpose grant proposal writing skills should be developed, firstly for the research group leaders. At the university level, efforts should be made to split publication and PhD credits amongst faculties and departments, as the present system is detrimental to departments such as this.
There should be a separate earmarked research budget. The department should foster and further develop contacts with respect to nuclear medicine (e.g. chemistry). Collaborations for radiology should be strengthened, including with industry.

University of Oslo, Faculty of Medicine, Institute of Clinical Medicine - Akershus University Hospital

Cardiothoracic research group
Clinical neuroscience group

Akershus University Hospital, Ahus (level 1)

General comments
Ahus has gone through re-organization after becoming a University Hospital affiliated with UiO, in 2001 and is still building up its research organization. It has benefited from the recent addition of a new region to its patient catchment area with consequent increase in hospital beds and staff. It was housed in new buildings in 2008.
The university activity is organized in three divisions within the Institute of Clinical Medicine of UiO. There is formal agreement between Ahus and UiO regarding the academic and research activities and there are regular meetings between the different responsible heads at both sites.

The organisation of the research leadership is still on-going, but Ahus has a deputy head for its site within the UiO while a research committee consisting of members from UiO and Ahus advises the CEO of the hospital. The hospital has set the strategic goal that all research should be rooted in the clinical activity, in continuous interaction. Prioritized areas are thus clinical and clinical-epidemiological research, health services research and translational research. In a first attempt to narrow this down, based on current research performance and ambitious leadership, 8 research groups have been identified as core groups. These choices will be under continuous evaluation.

Consistent with its goal the hospital provides a strong support to research by allocating 40 %, and in certain divisions up to 75 %, of time to research for staff members, even if they have only 20 % UiO appointment and salary. Ahus also allocates money (4.55 million NOK) for strategic research grants and bi-annual awards for Ahus publications. According to the fact sheet close to half of the funding is through grants, including a growing input from the RCN. The hospital has a Research centre that provides support for clinical studies.

The reorganisation has put Ahus is in an advantageous position to boost its research program. It has made a strategic choice to build on its strengths. The leadership is supporting the research goals and opportunities, rewarding output and ambition. It is remarkable that Ahus manages to assign more time than average for research to its clinician-researchers.

Follow-up of previous evaluation/s
Not applicable.

Recommendations
The reorganization has been fruitful but there still are a lot of disparate research groups. A further rationalization should be considered while building on the current strength.

Cardiothoracic Research Group CRG (level 2)

Description of the unit (facts and organisation)
The CRG has six senior faculty members (one professor I, four professors II, one associate professor; 100 % men), 11 PhD students and a limited number of support staff. Three research disciplines are identified (cardiac, pulmonary, outcomes research) and one member of each, together with a member from the Radiology and one from the Clinical Chemistry group, constitute a scientific board. All senior staff has both academic and clinical duties.

General comments
Organisation, research leadership and strategy
The research board steers the research activities and strategy. The goal is to enhance scientific impact through quality publications. To achieve this, emphasis is on translational research and international collaboration in epidemiological and clinical trials. A limited number of topics are selected and these are based on the competitive advantage of Ahus and within the group emphasis is on common research tools and methods.

Resources and infrastructure
The group is young, all senior staff has been recruited after 2003, and received some start-up funding. More recently the group has obtained substantial competitive grant funding through the RCN (innovation program) and in the KG Jebsen Research centres. The group has access to experimental animal facilities through collaboration with the CHFR and within Ahus there are core facilities for molecular biology and equipment is available through the hospital (MRI, ultrasound).

Recruitment and career
Of the 11 PhD students, most have an MD background and most have been trained and recruited locally, early on during their training. Some have obtained independent fellowships. Although PhD students can visit other labs, this is limited. Because of the interaction with industry, students get to know this environment as well. International mobility is stimulated for the post-doctoral researchers who are expected to develop their independent research program. Although the program thus forms future academic leaders, there is no articulate plan for a further career path.

Research collaborations
This group has a strong link with Harvard and other US centres related to earlier research work at Harvard by members of the group, establishing a network. This gives access to a network for clinical studies and biobanks. There is also collaboration with groups from Milan and with Scandinavian groups.

Scientific quality
Research activity and production
The senior staff has a strong international network to build on and uses it to conduct translational studies in acute and chronic heart failure, and long-term management. In the field of cardiovascular biomarkers in heart failure and sepsis the group has co-authored and also led several high-impact studies, published among others in NEJM and leading cardiology journals. The cardiology group participates in many on-going clinical trials

and outcome studies and has made contributions in translating observations into diagnostic markers tested in clinical trials. The group is also part of the translational research within the Centre for Heart Failure Research of UOH. Pulmonary research emphasizes quality of life and outcome studies in COPD that have led to a significant number of publications in leading journals of the field, but with somewhat lesser impact.

Grade
Very good to excellent

Societal impact
Two patents have been filed for biomarker use and collaboration with industry has led to novel diagnostic tests.

Recommendations
This research group seems to have a sound research strategy. They could strengthen their position further by seeking European funding. It is important to also develop a further career plan for young researchers, as well as to further broaden the recruitment and international dimension of staff. The group should be careful not to dilute its efforts too much. The smaller size of the unit has a competitive advantage but also makes it vulnerable.

Clinical Neuroscience Group, CNG (level 2)

Description of the evaluation unit (facts and organisation)
The CNG academic staff consists of altogether six part-time research positions: two professors II, two associate professors II and two clinicians with PhD (67 % men). In addition there are three support positions and 12 PhD students. The CNG has access to a large patient population; it is expected that with the enlargement of Ahus, this will be the largest centre in Norway in terms of patient contacts. There are several research units, i.e. Memory Clinic, Head-and neck unit, Multiple Sclerosis, Parkinson's disease and Sleep Centre. There is an appointed head of the research group who coordinates across these different units. They meet weekly with an open agenda on all research-related issues.

General comments
Research leadership and strategy
The different units and the CNG head define the research strategy. In line with the overall Ahus strategy the focus is on patient-related research. There is no specific common focus area across the units, but CNG wants to work with common technologies and competences, such as biobanking, molecular biology, imaging and neuropsychology. Studies on early diagnosis in cognitive impairment, e.g. developing biomarkers in CSF, are considered an important field for the group that can also lead to clinical trials and potentially to industrial spin-off.

Resources and infrastructure
The CNG has a joint platform for proteomics, genetics, microscopy and MRI. It is stated that they have been successful in grant applications, mostly through the regional health authority, which funds age related and neurodegenerative disease research, but also to some extent through industry collaboration.

Recruitment and career
The group is successful in recruiting PhDs, mostly from physicians specializing in neurology. After their PhD, they mostly return to clinical work and there is thus a lack of continuity in the research. Mobility is low with an estimated 10 % of staff members who have significant working experience outside of Norway. Of the 6 CVs that were submitted, five are of Norwegian nationality and with an Oslo degree. There is no career plan for PhDs and junior staff.

Research collaborations
The patient population of Ahus is large; collaboration with other units within UOH or outside is not formalized, but regional collaboration is part of the patient recruitment strategy. However, there is less interaction with other units within UOH. Collaboration with Sahlgrenska in Gothenburg and New York State University is mentioned for proteomic research but there are no formal joint projects. The Head and Neck research group participates as leader in International Headache Classification and has an advisory function to the WHO; they also have international collaborations (not specified).

Scientific quality
Research activities and production
The group has a wide range of activities within the five units. The cerebrovascular disease group works on stroke with focus on optimization of early treatment and has contributed to guidelines for treatment. The group on cognitive impairment and dementia covers several disease entities with a common theme of multi-modal biomarkers for early disease detection that have potential for patenting and spin-off. The head and neck group works on headache from population data and has had significant scientific impact on this field as evident from citations. The multiple sclerosis group mainly works on cognitive rehabilitation. The global output in publications of the group has significantly increased over the last 5 years and for 2010 is good in volume. There are a few publications in top journals but globally the publication forum remains rather in specialized journals. The group has a high potential given its large catchment area and possibilities for new recruitment, but the current publication output of the CNG as a whole does not yet meet this potential.

Grading
Fair to good

Societal impact
Studies from the CNG have contributed to establishing best practice in stroke treatment and are cited in the Cochrane database. The biomarker studies have led to filing of a number of patents.

Recommendations
The group takes an opportunistic approach to selecting research projects, taking advantage of patient availability and collaborations, rather than a directed strategy, resulting in a lack of focus. This needs to be addressed and will need a review of the current leadership model that is rather loose. The position of the different groups in their respective field is variable and this creates opportunities for input on research strategies from the stronger units. The group should focus and establish solid scientific collaborations, reaching out to other neuroscience research groups in other hospitals within their own university and more widely in Norway.

NTNU, Faculty of Medicine & St Olav's Hospital

Department of Circulation and Medical Imaging
Ultrasound innovation in diagnosis and therapy
Magnetic resonance in diagnosis and therapy
Image guided therapy and minimal invasive interventions (in cooperation with SINTEF)

Department of Cancer Research and Molecular Medicine
Gastroenterology

Department of Laboratory Medicine, Children's and Women's Health
Neurodevelopmental disorders and brain imaging
Clinical microbiology and infectious disease (in cooperation with SINTEF)

Department of Neuroscience
Neurodegenerative diseases
Headache disorders

Department of Circulation and Medical Imaging (level 1)

General comments
The department constitutes seven research units which are further subdivided into project groups. The department is clearly multidisciplinary, is integrated in the university hospital and has close collaboration with other research organisations (e.g. SINTEF). The department houses one of the three Norwegian Centres of Research-based Innovation in healthcare (Medical Imaging Laboratory (MI Lab), a consortium of academia and industry.

The department gives substantial freedom to principle investigators, both for their research plans and budget. The department stimulates PhD student driven hypotheses. There is an intrinsic organisational challenge given the intertwined, matrix-like structure of the department and the large freedom of the units, but the present structure seems to work very well.

The department has substantial resources; approximately 60 % of funding is external, including a large grant (80 million NOK over 8 years) for MI Lab from the Norwegian Research Council. The department stimulates involvement in EU grants, but did not actively seek leadership in an EU grant until now. It aims is to obtain several ERC starting grants the coming five years.

The scientific quality is good to very good. Papers primarily concern innovation and feasibility studies which are published in esteemed journals in their field. From the traditional academic viewpoint the rather limited number of papers in highly ranked journals is a drawback. The department has an outstanding track record for innovation and valorisation of research. A large number of patents have been filed and there are several spin-off companies of which one is incorporated in GE. The results of MI Lab were rated as world class at the midterm evaluation in 2010.

PhD programme with the central university school. The average time to completion is not known. The completion rate is over 90 %.

There is substantial mobility at staff level, but most present PhDs had their MSc/MD in Trondheim. The department encourages PhDs to visit other institutions (mostly for a few months), but there are differences between units. After PhD completion there is ample opportunity to work at the department, other research organisations or industry.

The department has collaboration with several international renowned institutions as well as with industry. There are several guest professors that visit the department several times a year and participate in supervising PhD students.

The department (especially the unit Ultrasound Innovation in Diagnosis and Therapy) has an impressive track record for research valorisation. It holds tens of patents and has many recent patent applications. There are several spin-offs companies (one is acquired by GE) and involvement in the upstart of other companies. Together with GE Vingmed a pocket size ultrasound device has been developed which might proof valuable in third world countries.

Follow-up of previous evaluation/s

The department has made use of the recommendations of the previous evaluation, including steps to perform high quality translational research and involvement in nanomedicine. A point not substantially addressed is the relative paucity of larger clinical studies.

Recommendations

The department performs scientifically at a good to very good level, but it has clear potential to excel. The department should consider developing a strategy to increase the evaluation of the technical development to include large clinical studies, as also recommended in the 2003 evaluation. Further should be considered – and this fits well with the technology driven strategy of the department - to exploit the translational possibilities and to apply cutting edge technology to population based imaging.

The department seems somewhat insular with respect to scientific ideas. Involvement of clinical researchers should be further increased to ensure that technical developments will have fertile ground. An increased involvement of clinical researchers (such as 50 % research/50 % clinical work) is important in that respect.

The department has certainly built up a profile that is suited for leading EU granted studies. The department should look for a structure where the substantial administrative burden associated with such grants is largely performed outside the units.

Ultrasound Innovation in Diagnosis and Therapy (level 2)

Description of the evaluation unit (facts and organization)
The unit builds upon a long-standing tradition of innovative research in ultrasound. Research is organised in four project groups. The unit takes part in MI Lab and has strong ties with two spin-off companies. One spin-off company (GE Vingmed) has a R&D unit in the university hospital.
The academic staff consists of two professors I, two professor II, two associate professors, seven postdoctoral fellows, one senior researcher and three clinicians with PhD (94 % men).

General comments
Organisation, leadership and strategy
The research staff has a considerable freedom; each group leader makes important decisions based on discussion with the group members.

Resources and infrastructure
Funding is primarily externally, 13 of the 25 PhD students are funded by MI Lab. Resources and access to equipment also comes from the collaboration with GE. The unit has access to cutting edge equipment. From internal funds the unit has obtained non-GE ultrasound equipment to be able to also perform research independent from GE as well.

Training, mobility and career paths
The unit manages to obtain good PhD students, amongst other through MI Lab. There are good job opportunities after completing the PhD, both in research and industry.

Research collaborations
There is an extensive network with other institutions. There is intensive collaboration with GE Vingmed and through MR Lab with other smaller companies.

Scientific quality
Research activities and production
Both basic technological research and more applied technical research is performed. The technical research is at the forefront and the unit is benchmark for part of the research field. New developments include the development of high intensity focussed ultrasound in collaboration with other units. The last five years the number of publications varied between 11 and 24. The papers primarily concern innovation and feasibility studies. These papers are published in esteemed journals in their field.

Grading
Good to very good; excellent for innovation and entrepreneurship. A limitation is the rather limited number of papers in highly ranked general journals.

Recommendations
The unit should consider developing a clear strategy to increase the evaluation of the technical developments in larger clinical studies. The strong collaboration with GE Vingmed (and other companies) is a clear strength but to some extent also a threat as industry research policies may change over time. The development of generic applications

and perform research on non GE equipment (as started recently) should be part of the research strategy.

Magnetic resonance in diagnosis and therapy (level 2)

Description of the evaluation unit (facts and organization)
This research unit studies MR techniques for neurosciences/brain disorders and in cancer (prostate and breast) within five groups. There is a strong technological drive.
The academic staff consists of four professors I, three professors II, nine postdoctoral fellows, three clinicians with PhD, seven researchers with PhD (54 % men) and approximately 25 PhD students.

General comments
Organisation, leadership and strategy
MI Lab is a national Centre of Research-based Innovation. MI Lab is a major constituent of this unit (and is not limited to this unit) of which the leader is professor in this unit. The national Molecular Imaging Centre (FUGE technology platform), MR Metabolomics Laboratory and two national centres of competence in functional MRI and in clinical MR spectroscopy, are part of this unit. The strategy of the unit is to use MR as a research tool and to perform innovative technical research for better patient care. The unit is not a formal entity but functions based on collegial discussion, and collaboration with respect to research, funding and infrastructure.

Resources and infrastructure
The unit has substantial external funding, with funding in the framework of MI Lab as a sizeable constituent of the funding (involvement in an EU FP7 grant). For funding of a human 7T MR scanner MI Lab is involved in NORBRAIN, which is on the Norwegian Research Council roadmap for large-scale national research infrastructures.

Training, mobility and career paths
PhDs are recruited via the Norwegian School of Medical Imaging, NTNU neuroscience and foreign universities. PhD students find postdoctoral positions and there is ample opportunity for jobs in industry.

Research collaborations
The unit has several research collaborations, including four guest researchers. MI Lab is a consortium of academia and industry, partly funded by the Norwegian Research Council. There are also bilateral collaborations with industry. The Norwegian School of Medical Imaging is led by this institution.

Scientific quality
Research activities and production
The unit is involved in cutting edge MR research. It has all requirements to further grow as an outstanding international research centre on MR. The last five years the output varied between 12 to 25 publications; one could expect a somewhat higher number of papers. The papers are published in well-cited journals.

Grading
Good to very good with respect to scientific output; excellent for innovation.

Recommendation
The unit is ideally situated to exploit its translational possibilities and to apply cutting edge technology to population based imaging.

Image guided therapy and minimal invasive intervention (level 2)

Description of the evaluation unit (facts and organization)
The unit is a National Centre for 3D ultrasound and image guided surgery and the technological researchers are organised under this umbrella. The unit has a close collaboration with other units/groups at the university, St Olav Hospital and multiple combined positions with SINTEF.
The academic staff consists of two professors I, four professors II, two associate professors, one postdoctoral fellow, two clinicians with PhD, one researcher with PhD, three other researchers (79 % men) and 13 PhD-students.
The Operating Room of the Future (a collaboration of academia and industry), Innomed and Unimed Innovation are part of this unit and add technical and advisory staff (10 persons).

General comments
Organisation, leadership and strategy
Strategic decisions are made by a steering committee; the unit has an international advisory board. The unit is aimed at performing high standard research in image (especially ultrasound) guided therapy by combining technological and clinical expertise.

Resources and infrastructure
The unit has substantial funding from the regional health authority, Norwegian Research Council, industry and is involved in EU projects. The Operating Room of the Future includes six operating rooms for research and education. The research facilities require costly upgrades and together and The Interventional Centre at Oslo University Hospital have applied for Norwegian Research Council funding for the Norwegian Centre for minimally invasive therapy and medical technologies (NorMIT) (total budget 396 million NOK). NorMIT is on the Norwegian Research Council roadmap for large-scale national research facilities.

Research collaborations
The unit is involved/leads several large scale projects. The unit collaborates with national institutions (e.g. SINTEF) and international researchers. Input from other national and international researchers, including collaboration with recognized centres of expertise (e.g. Mass Gen).

Scientific quality
Research activities and production
Research encompasses several related topics with emphasis on navigation technology and ultrasound; other developments include nanomedicine and visualization. The unit is strong in applying technological developments into (future) clinical applications and training. The number of papers varies between 10 and 21 and primarily concerns papers on technical development and feasibility. The unit has particular strength in innovation by taking good advantage of its multidisciplinary set up and collaborations.

Grading

Good to very good.

Recommendations
The unit should consider putting more effort into the clinical evaluation of the technical developments. The unit requires substantial investment to keep its facilities up to date. Funding as proposed in NorMIT is crucial and alternative approaches with private/public funding should be defined if NorMIT is not granted.

Department of Cancer and Molecular Medicine, Gastroenterology (level 1)

General comments
The Department of Cancer Research and Molecular Medicine (IKM) consists of four research sections (Molecular Biology, Cell Biology, Gastroenterology and the section for Cancer and Palliation) and a core facility (Section for Applied Clinical Research) which also is national hub for ECRIN. With the exception of the core facility offering various services for scientists engaging in clinical research, all sections include research groups that consist of a combination of basic scientists and clinicians. Translational research and medical technology, including medical biotechnology, are two of the main focus areas for research at the medical faculty, and almost all research activity at IKM falls within these fields.
The research at the department is mainly researcher initiated rather than directed through centrally decided research programmes and activities. There are generally very good research infrastructures and a new purpose build translational research hospital.

Follow-up of previous evaluation/s
As a response to the pervious evaluations by RCN in 2000 and 2004 the department leadership has been strengthen by appointing the department head for longer time periods instead of electing by peers. Furthermore, the clear advice that was given in the two previous evaluations to enlarge the size of research groups has translated into a decision to build the research activity mainly around four milieus that have proven their ability to compete internationally.

Recommendations
The department has a too high proportion of temporary employed qualified researchers with independent research projects. It is strongly advised to create intermediate level staff scientist positions even within the existing budget if new resources for the purpose cannot be raised.

Gastroenterology (level 2)

Description of the evaluation unit (facts and organisation)

Within the gastroenterology unit, research is done on clinical and basic biomedical levels within three areas: gastroenterology, gastrointestinal surgery and endocrinology. Within the gastroenterology unit neuroendocrine mechanisms of gastric function have been a long-standing interest that has in part evolved into using molecular cell biology and systems biology in gastrointestinal tract projects and more recently initiated research on inflammatory bowels syndrome. The endocrinology group has a long-term focus on diabetes and obesity, which is addressed experimentally, and clinically including epidemiology to study geno- and phenotypes of diabetes within the HUNT study. The gastrointestinal surgery group performs experimental surgery studies on intestinal injury and repair, a long track record on research on clinical colorectal surgery. The group working on advanced laparoscopic surgery research is financed by the national health budget to evaluate and introduce new techniques.

The academic staff consists of seven professors I, two professors II, one associate professor, one associate professor II, one clinician with PhD, three research scientists and five postdoctoral fellows (55 % men).

General comments

Organization, leadership and strategy

Integration of research within a clinical department is the strength of this unit. There is a large staff with good output. Yet there is no clear plan for future staff and no strong leadership. Apparently there are many 50/50 clinical/research positions and priority for translational research. Translational research is also prioritized under funding pressure from the Health region.

Resources and infrastructure

The majority of the research budget is based on external funding.
The unit has state-of-the art laboratories in the Laboratory Centre and the Gastro Centre, and access to core facilities such as the Animal Experimental Unit and the national FUGE Microarray platform, which is run by the Gastroenterology research group. The funding is from RCN and NTNU. There are concerns of the funding when the contract with RCN terminates in the near future.

Training, mobility and career paths

The unit has presently 19 PhD students and the limiting factor for recruitment on this level is external funding. PhD students are often given the opportunity to spend 6-12 month abroad within their PhD project. The translational projects also attract clinicians to pursue a PhD, but they rarely continue a research career and instead pursue a clinical career. An important limitation to build attractive research careers is the high proportion of non-tenured research positions after PhD. An intermediate level tenured staff scientist position is missing altogether. The recruitment appears to be local and clear routines to advertise new positions outside the hospital could not be presented.

Research collaborations

The section has considerable international collaboration on a project basis with several leading universities in Europe and the USA and also reflected in participation in EU networks and projects (EMERALD) and the relatively large number of joint publications, but seems only sporadically to host researchers from other nations at the department.

Scientific quality

Research activities and production

The section of gastroenterology seems to be content with current activities and ambitions and has no immediate plans to change the way research is performed. The unit has a reasonable good productivity with on an average 2-3 papers published per year and scientist with submitted CV in international journals within the unit's major research areas. Most papers have been published in appropriate and good journals and a number in very good journals within the respective area of research. The surgeons have contributed to technical advancements in their field

Grading

Good to very good.

Recommendations

Considering the good conditions for translational research and infrastructure an active plan to recruit research staff from outside the university needs to be developed including to create tenured intermediate level staff scientist positions.

Department of Laboratory Medicine, Children's and Women's Health (level 1)

General comments
The group is part of a section, whose leader is appointed by the Head of Department, and is a member of the Operational Management Team and the Department Council. This team meets with the Head of Department who makes the decisions on research and resources and determines strategy and priorities etc., for research as well as other areas. All projects must be approved by the Department Head.
The unit has an outstanding Head of Department who is trying to drive a coherent strategy, to encourage collaboration and developed focused research. The panel feels confident that with this leadership, the potential within the Neurodevelopmental and Microbiology sections will be realised and that these groups can become nationally or even internationally competitive.

The unit takes advantages of the National FUGE (functional genomics) platforms, although funding is about to end soon. It is anticipated that the hospital or the regional health authority will ensure funding. The close relations with clinical departments, St. Olav's University Hospital and SINTEF greatly help the department's research strategies. St. Olav's has a state of the art new build research/translational hospital. They are establishing core facilities in histology, molecular medicine, biobank and translational research, which will all help develop the research capability and competitiveness of the groups.

There are good international collaborations. Visiting honorary Professors are encouraged e.g. by paying 20 % salary.

No courses in English limit recruitment of foreign senior members of staff.

PhD programmes have common structures with mid-term evaluation. However there is no strategy for recruiting PhDs and whether these enhance research or are correct for the research.

Follow-up of previous evaluation/s
There is still a lot of work, reorganisation and appointment of strategic individuals required to realise the ambition to generate research-based knowledge in all disciplines in the setting of the integrated university hospital as a foundation for improved clinical practice, as well as for excellent teaching of students and health workers, dissemination to the public, and innovation.

Recommendations
Leadership of the Head of department is outstanding and requires no further recommendations.
There is a need to ensure future continued funding for FUGE.
Consider teaching courses in English as this may enhance recruitment of foreign senior members of staff.

There is a need to develop a strategy for recruiting PhD students to ensure students benefit from the programme and that they these enhance the research effort.

Neurodevelopment disorders and brain imaging (level 2)

Description of the evaluation unit (facts and organization)
The group is involved in translational research, epidemiological and clinical research. There are 4 main programmes:

(1) Cerebral Palsy (CP) research program.
(2) Neonatal animal research program
(3) Long term clinical-MRI follow up program,
(4) Early diagnosis and neonatal intervention program

The academic staff consists of four professors I, one professor II, two associate professors, one postdoctoral fellow, two researchers with PhD (36% men).

General comments
Resources and infrastructure
Research collaboration with MR centre on newborn brain injury and brain development in children and young adults in addition a small animal scanner is available to support translational research. The animal scanning is done by the PhD students. Morphology, electron microscopy and other imaging are also available at the hospital.
There is access to national cohorts through the Cerebral Palsy Registry and link data with Medical Birth Registry of Norway and the National Neonatal Registry.
Time on the scanners appears difficult and funding technical support for both animal and human research is needed/applied for. In addition, an MR-compatible incubator for premature newborns is also needed.
Seniors have ~45 % of their time available for research, but also teach in this time.
Too few postdoctoral and permanent positions are available for researchers.
A significant limitation is lack of secretarial and administrative support. The animal research program needs more technicians.
The group is totally dependent of external funding. The group is experiencing difficulty with long term funding.

Training, mobility and career paths
Three PhD students are recruited each year. Postdoctoral financing has been achieved also from the RCN (NevroNor program).
There is an equal gender distribution within the group. Two of the four professors are more than 60 years of age and two are older than 50.
Plan to keep PhD students with in research group if permanent positions are available.
PhD students, postdoctoral/senior researchers have spent time abroad in collaborating institutions. Guest Professor from USA and at present the unit has one PhD student from Iceland and one from Sudan.

Research collaborations
The group has a number of international collaborations with USA, Germany and Iceland. National and international collaborations particularly within cohort study research. The group has close contact with the Neonatal Intensive Care Unit for head injury and access to national cohorts through the Cerebral Palsy Registry and link data with Medical Birth Registry of Norway and the National Neonatal Registry.

Scientific quality
Research activities and production
Approximately 10 papers are published annually in average/fair journals.
Research on neurodevelopmental disorders is recognized internationally for longitudinal, long term developmental studies on very preterm born infants.
The main focus is on injuries to the brain associated with preterm birth and on CP.

Grading
Fair.

Recommendations
The group has a unique opportunity to develop an internationally strong translational research programme incorporating their unique cohort of patients, clinical and imaging work and animal models. It appeared that the group hadn't fully appreciated the potential of incorporating their animal model and doing intervention and mechanistic studies. It is recommended that the group develops this to compete internationally and secure long term funding.
In view of the age of a number of Professors they need to have clear succession planning and devise a robust recruitment policy to attract the best possible candidates.
Funding for an MR-compatible incubator (3 million NOK) and administrative and technical support for both animal and human research would greatly help research output.

Clinical microbiology and infectious disease (level 2)

Description of the evaluation unit (facts and organization)
A large number of individual projects is undertaken by the group. The academic staff consists of three professors I, five associate professors, one postdoctoral fellow (70 % men).

General comments
Organisation, leadership and strategy
Microbiology has gone through a difficult times following the unexpected retirement of key professors. They also experienced problems with budget constraints in the hospital and had difficulty competing for funding.
The Head of Department is now leading the research strategy to focus on the successful research themes (e.g. key areas Microbial proteomics and genomics and Inflammation) by planning retirements and strategic appointments.

Resources and infrastructure
The microbiology group has limited competitive grant funding.
The unit has 9 PhD students and 1 postdoctoral position.
There is a *Pseudomonas aeruginosa* biobank established by unique strain collection for over 20 years of consecutive and systematic environmental and infection control in deep diving systems.

Training, mobility and career paths
International students have been engaged from international Master`s programmes at the Faculty. Available positions have been advertised in English in a searchable website

(JobbNorge). There are generally few applicants from industrialised countries (except from within Norway). Encouraging students to go abroad is difficult.

Research collaborations
There are local and SINTEF collaborations. Also international collaborations with USA, Nepal and Australia.

Scientific quality
Research activities and production
The multitude of research themes and variable scientific output makes it difficult to evaluate the unit as a whole.

Grading
The research of the unit is fair to good in general. The research focus on Respiratory tract infections in young children and Innate antiviral immune responses in particular is excellent.

Recommendations
The working conditions for some of the academic staff in relation to scientific work are poor, as compared to other contractual obligations and need to be addressed if research output is to improve. The Unit needs strategic succession planning - identifying and appointing key people to drive forward focussed areas of research.
There are basic research teams that microbiology should team up with to improve the quality of research.
There is need to improve ratio of PhD students to senior researchers as this is negatively impacting on research quality.
The research themes are at present too broad and lack focus however the department with the Head of Department are already addressing this problem.

Department of Neuroscience (level 1)

General comments
The Department of Neuroscience started in 2003 through a merger of three smaller departments, clinical neuromedicine, psychiatry and orthopaedics and rheumatology. It has eight sections:

(1) Neurocentre section, including neurology, neurophysiology, neurosurgery, ophthalmology, otorhinolaryngology, maxillofacial surgery, rehabilitation medicine, including spinal trauma department,
(2) Stroke and geriatrics, which are part of the hospital's department of internal medicine,
(3) Adult psychiatry and behavioural medicine,
(4) Regional Centre for Child and Adolescent mental Health, Mid-Norway
(5) Movement centre, including orthopaedics and rheumatology,
(6) The Norwegian Electronic Health Record Research Centre
(7) The Neuroscience laboratories in neurobiology, toxicology, and metabolic neuroscience,
(8) The Centre for the Biology of Memory, Kavli institute – formally attached to the department but reported separately and not evaluated by this panel

The department advanced its research strategy by having an open meeting for all employees, an open e-mail debate, and a two-day department seminar. Each employee's commitment to the research strategy is a main topic at their annual performance review with the department leader.

The research focus is on:

(1) Neurodegenerative diseases (Parkinson's disease and Alzheimer's disease), including groups in Neurology, Geriatrics and Stroke.
(2) Headache disorders, mostly centered around the Norwegian National Headache Centre and the Department of Neurology and Clinical Neurophysiology.
(3) Mobility disorders, connecting stroke, geriatrics, physical medicine and rehabilitation, orthopaedics and neurosurgery,
(4) Psychiatry

The department has given economic incentives to these groups (NOK 260 000) in 2010 for projects or events that can promote the integration of different researchers into the group.

The annual total expenditure is NOK 71.3 million of which 44 % comes from grants. Not counting the CBM/Kavli institute, there are 34 professors (17 professors I and 17 professors II; 4 women), 13 aged more than 60, and 17 associate professors (10 women), 3 aged more than 60.

The neurodegenerative disease group is somewhat unfocussed and faces strong national and international competition. The department recognises the need to focus and

collaborate with the Centre for the Biology of Memory. The research of the headache group is limited to epidemiology and drug trials.

The Department has trained 32 PhD students in the last three years and currently has about 30 students. There has been a marked reduction in numbers since 2008 attributed to the financial slump. Each student has at least 2 supervisors and has a mid-course evaluation. The completion rate is thought to be >85 % but neither the completion rate nor the duration of the PhDs are monitored. Each student must have three papers published to complete their degree. The gender balance is 50:50.

All PhD students go abroad for part of their thesis. Seven of the 51 professors or associate professors have a background in another country. There are only 5 postdocs in the Department and no sub-professor career positions so that the opportunities for research careers after obtaining a PhD are limited.

The Department has national and international collaborations which largely involve contributing material from biobanks and registries to research efforts led elsewhere.

Follow-up of previous evaluation/s
One of the general conclusions of the previous evaluation by RCN of this department was that research groups were too small, and there was a lack of strategic research leadership. The department has addressed this thoroughly. A postdoctoral researcher was hired for six months to map the activity of all researchers overseen by an internal reference group, and finally evaluated by an external group to focus research on the strengths of the department.

Recommendations
The panel only reviewed two of the research units. Recommendations made for these level 2 units include the need for the Neurodegenerative diseases unit to develop a core research strategy and links with basic science and especially with the Kavli institute in the same Department.

Neurodegenerative diseases (level 2)

Description of the evaluation unit (facts and organisation)
This is a new group formed as a result of the review described in Level 1 in response to the 2004 evaluation. This group had its initial meeting in April 2010, with strong international contribution. The group led by a basic scientist has nine members and two senior technicians. Eight CVs have been returned. There is a mix of nationalities. The neurobiological laboratory houses several biobanks: the Neurological Diagnostic Biobank, Neurological Research Biobank, Trønderbrain Biobank, Parkinson Biobank, and Headache Biobank each with several thousand samples.

The academic staff consists of one professor I, three professors II, one associate professor, one postdoctoral fellow, two other researchers (50 % men).

General comments

Organisation, leadership and strategy

A core research strategy has yet to emerge from this group. The group plans to disinvest in neurotoxicity research, which will help to increase the focus. Increased focus on core neurodegenerative diseases would be more appropriate than on multiple sclerosis on which they have recently embarked and which is a highly competitive field worldwide and in Norway in particular. Extension of this work to mild cognitive impairment has considerable potential. The link between basic and clinical science needs to be established. Strong leadership will be needed to increase the focus of this group.

Training, mobility and career paths

Since 2005 five PhD students have completed and all have obtained clinical or research positions. It has been difficult to retain staff in Trondheim after completion of their PhD degrees.

Research collaborations

The group is a partner but not a leader in several very strong and effective national and international collaborations.

Scientific quality

Research activities and production

The research strengths and opportunities lie in Parkinson and Alzheimer diseases. The Department has made a significant contribution to identifying the genes responsible for familial Parkinson Disease. It has built a biobank that will be a useful resource for future research. It has also built a large registry and biobank of Alzheimer disease, which has already been exploited to study the genotype of the disease and the protective effect of education.

The core Parkinson and Alzheimer disease groups have the potential to compete in the international arena with increased focus and adoption of a strategy to develop and lead their own projects rather than merely participate in the work of others.

Grading

Good.

Societal impact

Parkinson disease and Alzheimer disease are the most important neurodegenerative diseases, which have a major and increasing effect on the health of the ageing population. Enhanced understanding of their pathogenesis should aid the design of improved treatments.

Recommendations

The group should develop a core research strategy focusing on appropriate aspects of Parkinson disease or Alzheimer disease, link their clinical research with basic science research and collaborate with the Centre for the Biology of Memory, Kavli institute.

Headache disorders (level 2)

Description of the evaluation unit (facts and organisation)
Organisation, leadership and strategy
The core of the group is the Norwegian National Headache Centre, which is a national centre of competence founded in 2000. There is an external reference group from other parts of Norway. Two members are non-Norwegian.
The academic staff consists of three professors I, one adjunct professor, one professor, three other researchers (88 % men) and two PhD students.

Training, mobility and career paths
Since 2005, five PhD students have completed their degrees.

Research collaboration
The group has extensive national and international collaborations including being a partner in an EU network.

Scientific quality
Research activities and production
They have been recognised as a national centre of competence and have a vision to lead a worldwide network to resolve the problem of headache. To achieve this they have performed internationally recognised studies of headache epidemiology in Norway, building on the HUNT project. Their research in this field is internationally leading. They are also involved in cost studies and service organisation and delivery and have led treatment trials. They are applying for status as a WHO Collaborating Centre in headache. They have built a small biobank and have contributed to a genome wide study of genes responsible for migraine.

Grading
Very good to excellent.

Societal impact
Headache has been identified as one of the ten most disabling disorders globally by WHO. They are proposing the Trondheim Collaborating Centre for Headache and Global Public Health as the first WHO collaborating centre in this field.

Recommendations
The group is small and needs to expand and collaborate with other Norwegian centres to achieve critical mass. The department needs to address the issue of succession planning if research in this field is to be sustained and the ambition of becoming a WHO Collaborating Centre in headache is to be fulfilled

University of Tromsø, Faculty of Health Sciences

Department of Clinical Medicine

Haematological research group (HERG)
Endocrinology research group
Research group of cerebrovascular diseases and atherosclerosis

Department of Clinical Medicine (level 1)

General comments
The department replaces the former Institute of Internal Medicine and corresponds largely to the clinical unit of Internal Medicine. Currently there are (still) sixteen research groups again with corresponding specialty organizations in University Hospital of Northern Norway (UNN). Five of these groups are headed by a professor II and are evaluated under UNN, but eleven have a full-time professor I as head of unit.

The head of Department (HD) is expected to take a strong leadership position and responsibility in dialogue with the leaders of the research groups (meetings every 4-5 weeks). Currently this position is not filled as originally intended. The review panel got the impression that the vice-dean of research of the faculty, also head of the Haematology research group within the department, has taken a lead position. He seemed to have developed a working relation with the hospital administration to promote an integrated research strategy.
Research strategy in terms of priority still remains to a large extent the responsibility of the smaller units, i.e. the research groups. Yet, there are some common themes that are considered of major importance.
One is the Tromsø population study that is a source of high quality population studies by several research groups. Support for this study is considered a priority. Other priorities among groups are dictated by their research output, but stronger and weaker areas are not clearly defined. However, there is a strategic decision that funding allocation will be based on output taking into account quantity and quality (level 2 publications). There is full transparency in this process.

Follow-up of previous evaluation
The Faculty of Medicine and the Department of Internal Medicine have clearly acted upon the previous recommendations for reviewing their organisation and leadership. It is a very positive evolution that however still needs to be reinforced. Although it was stated that a new head of department still had to be recruited, the interim leadership has done a good job. A close interaction and good relations with UNN, as well as with the regional Health Authority, have been important in this process. The move towards allocation of a part of the available funding based on research output, together with awards and incentives for quality are also positive evolutions.

Recommendations
A permanent HD needs to be appointed, consolidating the current collaboration and good relations between hospital and department. The current constellation works well and should be considered in the appointment procedure.
An important issue is human resources and the time available for research in different positions in which people are working closely together. In 100 % academic positions, the teaching load may be too high, but also, some professors I may also have to take up clinical duties. For professor II often not enough research time is available and it is suggested that a better balance is implemented between clinical and research duties for professors II, with an appointment that reflects their commitment. This will also reflect in an improved recruitment potential of clinician-researchers. Also for professor I level this balance must be checked, including the teaching load.

The current process of research funding with a system of rewards and incentives is to be maintained, but also evaluated on a regular basis.

Haematological Research Group (HERG) (level 2)

Description of the evaluation unit (facts and organisation)
This research group is anchored at UiT since its head is Professor I at UiT, but has an integrated research activity between UiT and UNN. The academic staff consists of two professors I and two professors II, one associate professor, one postdoctoral fellow, and three researchers with PhD (44 % men). There is a 20 % outside recruitment in the younger researchers, a good gender balance and the mean age is below 35 years. There are three sections defined with a leader.

General comments
Organisation, research leadership and strategy
The group leader is responsible for a strategic plan, but there is no clear priority presented regarding content. Although not clearly articulated, major emphasis is on the use of the population-based cohort studies as they constitute an asset to the group. This includes biomarker studies, but also mechanistic studies and involves collaborations across different groups, which is a strength of the research groups.

Resources and infrastructure
Major financing comes from the Health Authority with a successful increase in funding in recent years. There is no funding mentioned by the RCN, and there is currently no European funding.
The group contributes to and has access to the data and biobank of the Tromsø study (storage is in part at the HUNT biobank in Levanger). A clinical research centre at UNN supports clinical studies with trained staff and hospitalization possibilities.

Training, mobility and career path
The number of PhD students recruited is around 15 and there is also a positive trend that more (5 out of 11) PhDs continue in postdoctoral research, and an increased recruitment among MDs. About 25 % of PhDs have a degree from another centre than UiT. There is an active program for exchange with collaborating centres in the US and the Netherlands as part of the career path.

Research collaboration
There is an established international network with leading centres in the US (Scripps Institute, UCSD) and with the Netherlands (Leiden), including an international guest professor at level 1.

Scientific quality
Research activities and production
The group has a defined focus on venous thrombo-embolism, using a population-based approach within the Tromsø study. The group publishes on a regular basis in leading journals in the field with a solid number of citations. They have contributed to some major international studies that were published in top journals. The group has good international collaborations that hold promise for further growth in output and quality.

Grading:
Very good

Recommendations
The major recommendation is to retain focus and build on international collaborations to be anchored in jointly funded projects.

Note: the Endocrinology Research Group (level 2) was not represented because the group's leader was on sabbatical leave in Australia. The panel thus did not have the opportunity to review the report with the members of this group and therefore does not have sufficient insight to give a proper recommendation.

Cerebrovascular Diseases and Atherosclerosis (level 2)

Description of the evaluation unit (facts and organisation)
This research group is also anchored at UiT since its head is Professor I at UiT. The academic staff consists of three professors II, one professor I, and one associate professor (60 % men). One of five staff members is non-Norwegian, and two have significant appointments outside Norway. The expertise is diverse, from neurology and neurosurgery to ophthalmology, resulting from a recent merger.

General comments
Organisation, *research leadership and strategy*
The group leader is responsible for a strategic plan, but there is no clear priority presented except for the goal to publish in top journals and have impact, including through dissemination to the general public of relevant health-related findings.

Resources and infrastructure
Human resources are limited and preclude full use of the available data. Major financing comes from the Health Authority and from UiT. The access to imaging is below optimal to conduct the studies. On the other hand, collaborations with SINTEF and engineering departments at UCSD have given access to modelling resources that have advanced significantly the aneurysm project. There is no mention of the RCN and there is no European funding.

Training, mobility and career path
There are 5 PhD students recruited but there is a lack of postdoctoral researchers. There is hope that this will improve with the creation of joint appointments at this level between UiT and UNN. There is no specific strategy but two senior researchers have spent one year abroad.

Research collaboration
There is good collaboration.

Scientific quality
Research activities and production
The research revolves predominantly around the Tromsø cohort study, with focus on carotid atherosclerosis and on aneurysm formation.

The group has participated in major studies with its data on carotid artery atherosclerosis and holds a good position in the field that results in co-authorship on major collaborative studies published in top journals. However, the publication output overall as lead authors in leading journals is still modest, related to the small size of the group.

Grading:
Good with clear growth potential.

Recommendations
Further focus on quality can increase the funding and the output. Building on international collaborations and optimal use of the local access to valuable patient material hold promise for the future. The unit should be more confident in taking leadership and pro-actively seeking European funding.

University Hospital Northern Norway

Gastroenterology and nutrition group
Metabolic and renal research group

The University Hospital of North Norway UNN (level 1)

General comments
UNN comprises four units with a large geographic spread: Tromsø, Harstad, Narvik and Longyearbyen with a total of 6 000 employees. UNN was reorganized into 12 clinical divisions in 2007. 1.8 % of its budget is spent on research. There is close collaboration and interaction within these hospitals with UiT, which is however a separate entity as of 2010.The representatives suppose that the profile of the hospital was a main reason for this division, which seems counterproductive in the long term. In the short term it might be effective because of the funding system.

Activity is reported from 15 groups with most in Tromsø and no activity in Longyearbyen. Weaknesses are many small research groups that cover a large range of areas and permanent loss of personnel to Southern Norway and lack of strategic planning of priorities with low external funding. The research groups have the freedom to choose the direction they want to proceed but do not have to live up to a defined strategy or goal at any level. A strength is that the economy is in overall balance.

Research output is comparable to other regions in Norway judged by "Publication Points" and "money spent per publication".

Infrastructural research support is provided through a Clinical Research Centre with a Clinical Research Unit. This infrastructure is supported by UiT, The Regional Health Authority and Norwegian Cancer Society. The hospital supports epidemiological and translational research and hosts cohort databases.
There are no declared incentives to perform research. The academic positions constitute 20 % of time often on top of full time ("100 %") clinical work.

A permanent challenge due to remote location is recruitment. Faculty were recruited simultaneously in the 1970s and are now retiring. The groups experience difficulty in obtain funding for technicians, it is easier to obtain funds for PhD's. Production of PhD candidates has gone up from 15 in 2007 to 21 in 2009. Permanent academic positions are often occupied by faculty with sparse research experience.

Follow-up of previous evaluation/s
There has been no previous evaluation of UNN as an institution but the Clinical Institute at UiT was evaluated. In 2008 an organisational research strategy was agreed upon. A research committee is established but its domain of action is not described. Specific initiatives are not described.
Some Central facilities – microarray, sequencing, and imaging have been establish
No initiatives or strategies were implemented as an effect of the previous evaluation.

Recommendations
For the evaluation panel the rationale for the division of UiT and UNN is not clear. This seems counterproductive, certainly in the long term. There should be focus to remedy the lack of academic leadership in clinical departments and lack of research focus.

In order to attract qualified applicants with academic skills the unique northern location should be used as an advantage and specific areas should be in focus. A formalised PhD programme could be started.

Metabolic and Renal Research Group (level 2)

Description of the evaluation unit (facts and organisation)
The unit comprises Departments of Nephrology and Clinical Medicine and has an academic staff of three professors II and one associate professor (75 % men and all above 50 years of age). There are also six clinicians with PhD but no academic employment but performing research, four PhD students, one lab technician and one engineer. Six academic positions from other units are attached to the group. The group was appointed as a European centre of excellence in hypertension. What it takes to become a centre and what it provides is not clear.

General comments
Organisation, leadership and strategy
Research is focused on metabolic disturbance and kidney dysfunction and cardiovascular disease. Projects use retrospective collections of plasma (Tromsø study) but also animal experiments and clinical trials. Prospective studies employ protocol renal biopsies to test the effect of allopurinol. A broad array of areas is presented: albuminuria, predictive value of markers of low-grade renal injury, importance of glomerular hyperfiltration. Several fields are covered by a small group and there appears not to be a joint strategy and research management.
The planned renal biopsy project appears highly original whereas other research efforts are large cooperative epidemiological projects.

Resources and infrastructure
Lab facilities are situated at UiT and at the hospital. The Institute of Clinical Medicine provides limited basic annual funding (150 000 NOK). UNN provides budget assistance, a fully financed bioengineer and liability for PhD students. There are no postdoctoral fellows attached and funding is exclusively extramural and mainly from the regional health authority. The group was not successful with RCN. A complaint is that there is only short term funding, but on the other hand there do not seem to be major hurdles to get funding when needed. For 2011 the research budget is 3.7 million NOK. External funding in the period 2005-2010 was 4.5 million NOK. There are no core lab facilities for basic science investigations in the groups; if needed (e.g. PCR, array) collaborative efforts must be agreed upon with the UiT basic institutes.

Training, mobility and career paths
There are five completed PhDs the last 10 years.

Research collaborations
There is little international collaboration and exchange at all levels. Collaboration with Oslo within cardiology is established. Judged by the publication list, the collaborative partners are often the senior authors.

Scientific quality
Research activities and production

85 publications are listed between 2005 and 2010. Most are in international renal/physiology/transplantation/hypertension field journals of low-to medium impact. Judged on originality, senior authorships and impact, the total research is judged to be fair to good. Altogether it is impressive that the group manages to produce a substantial amount of research on top of full time clinical work with few facilities and a counterproductive infrastructure.

Grading:
Fair to good.

Recommendation
It is suggested to focus efforts on fewer areas where original contributions can be made, e.g. the renal transplant patients in the allopurinol project that could be combined with basic animal research. This would combine original ideas, unique and rare patients and prospective RCT. This needs integration of basic lab facilities.
From a scientific point of view, it does not appear rational to separate UiT and UNN. There would be a need for more basic equipment and lab facilities close to the research groups. How can animal experiments be planned without this?

Gastroenterology and Nutrition Research Groups (level 2)

Description of the evaluation unit (facts and organisation)
The unit comprises two professors and one assistant professor, all with 20 % research time on top of 100 % clinical positions, one 100 % research position and one 50 % postdoctoral fellow (100 % men). Additional group members include four MD-PhDs with no academic employment and seven listed MD PhD students. A bioengineer and a research nurse are also attached. The infrastructure contains two locations with laboratories at UiT and UNN and collaboration is established to perform array analysis with Trondheim University.

General comments
Organisation, leadership and strategy
An ambitious research plan is put forward to promote 10 papers and 1-2 PhD per year. In the period 2005-10, 46 papers have been published, the majority in international journals with impact factors 3-5 and notable exceptions up to 25. 4 PhD students have been promoted since 2005.
No core research strategy is presented, but a tendency to focus on mucosal aspects of Inflammatory Bowel Disease and cancer research over the next years is presented. This comprises projects with GI-immunological profile: immunophenotype definition to better determine choice of medication (qPCE analysis of biopsy material); Hepatitis C molecular immunopathology (characterization of HCV genome, host immunological determinants with UiT microbiology and Arkhangelsk researchers); Obesity (plasma biomarkers for obesity with predictive value measured before and after weight loss); Fructose malabsorption in IBD (prospective RCT with diets with different fructose content); Immunological aspects of Helicobacter pylori infection; Immunological characterization of colon mucosa transition from adenoma to carcinoma.

Training, mobility and career paths

The unit has currently 6 on-going PhD students and 2 postdoctoral researchers. The latter are not routinely expected to go abroad but the group has recruited international postdoctoral fellows (US, China). There is a lack of possibility to maintain MDs in academic positions beyond PhD.

Research collaboration
Industrial collaboration is also established. Collaborations are established with NTNU in Trondheim on IBD but not with Bergen and Oslo.

Scientific quality
Research activities and production
With limited time allotted to research and the main production of data associated with PhD studies, what has been achieved is rather impressive. Excellence and highest productivity are associated in certain fields of the range covered. The research areas display a significant spread in areas and some appear very solidly anchored evidenced by series of publications (Characterization of mucosa in IBD/Helicobacter/colon by arrays) while others (obesity) have unclear or no hypotheses and no tradition within the group. Moreover, the impact of the biopsy-mucosa fingerprinting is reflected by integration of the biopsy-related research within international collaborative networks and possible translation into diagnostics. Altogether, the translational approach appears very productive.

Grading:
Good to very good

Recommendation
Split positions of "post-PhD MDs" would be one possibility, i.e. 50-50 % to promote academic achievements. It is recommended to further pursue the translational approach with comprehensive molecular characterization of patient biopsy material and thereby exploit the advantage of accessibility of human tissue of interest. There should be emphasis on focusing further and deepening efforts within IBD instead of broadening research through opening further research fields at pre-graduate level. Infrastructure could be improved to bring together UiT and UNN and to qualify PhD education further by e.g. a PhD programme.

Stavanger University Hospital

Cardiology research group
Research group of the Norwegian centre for movement disorders

Stavanger University Hospital, SUH (level 1)

General comments
SUH was until 2000 largely a regional hospital (serving a region of 300 000 inhabitants) but has gradually expanded its research activities. A large number of staff has a PhD. The hospital drafts a global plan for research, the last one in 2009, defining a number of research groups, currently 15 across all disciplines.

The SUH monitors closely its research output and aims to be at par with the university hospitals at Tromsø and Trondheim. This goal will be achieved through making more funding available for research and stimulating cooperation and publications. Presently SUH accounts for 4.8 % of the production of Norwegian hospitals, with a very high citation index.
Research areas are prioritized at hospital level (5 identified, including cardiology and neurology); a research director is appointed by the hospital for each major area. The research director is responsible for setting out a strategy for each research group, taking care of a PhD program and managing a budget through the hospital.

The hospital is the main funder. UiB provides an important contribution in salaries and external funding mainly comes through the Western Norway Health Trust. The research board has a budget of 1 million NOK for strategic support. Within SUH research output is followed for each research group.

Follow-up of previous evaluation/s
Not applicable.

Recommendation
The SUH has a sound global research strategy and a strong position in Norway. It should seek to retain and improve relations with the UiB medical faculty.

Norwegian Centre for Movement Disorders, NKB (level 2)

Description of the evaluation unit (facts and organization)
NKB was founded in 2004. It consists of 20 researchers, though some being part-time, and is headed by a research director. The academic staff consists of two professors I, five postdoctoral fellows, four senior researchers with PhD, three other researchers (64 % men). About 40% of the staff is non-Norwegian.

General comments
Organisation, leadership and strategy
The leaders of five subgroups form a research board that is chaired by the research director, who takes final responsibility for the strategy. The goal is to provide support for the most ambitious research projects, including those which are high-risk, with a focus on the area in which a strong international position has been achieved, i.e. Parkinson's disease.

Resources and infrastructure

There is good external funding that supports 50 % of all researchers. This dependence on external funding for salaries is felt as a weakness and vulnerability. Also the lack of long-term outlook of funding is considered a problem. There is no EU funding and no funding from the RCN since 2008.
The infrastructure is good, access to PET and fMRI is lacking for in vivo studies. The latter is mostly due to lack of expertise, since the MR capacity is available and accessible for research.
The researchers mostly have a MD degree. However, it is stated that there are not sufficient senior positions provided by the hospital.

Training, mobility and career paths
The number of PhD students has been high but is declining (10 PhD defended in the last five years, but at present there are only three active PhD students), in favour of more postdoctoral researchers. The inflow of PhDs through UiB is currently suboptimal. This is ascribed to the lack of a complete medical training at SUH. In contrast there is good external recruitment through open international calls. 80 % of all PhD students have a basic degree that is not from the same institution. During the PhD, training and education remains within SUH and UiB. At postdoctoral level, all researchers are expected to go abroad. The group has the goal for postdoctoral researchers to develop into independent scientists and future leaders.

Research collaborations
In the region the group coordinates the Norwegian Park West study. There is collaboration with UiB and Ahus for imaging, and internationally with UCLA and Buffalo NY. They are in a network with Barcelona. For the epidemiological studies there are collaborations and co-publications with UCLA and London (Ballard, Kings' College London).

Scientific quality
Research activities and production
The group has a focus on Parkinson's disease keeping registries and strong epidemiological research in the region (Park West), but also nationally and internationally. This has led to many publications in leading journals in the field. On a smaller scale there is a study on multiple sclerosis epidemiology and work on neuroimaging.
The group has more recently also developed collaborations with the University of Stavanger CORE group which is very strong and well-positioned in cell organelle research; there is a first joint publication in a leading journal of cell biology on Parkinson's disease. This discovery is expected to yield interesting leads for new biomarkers.
Overall the research is high quality at an international level, with a strong network internationally and growing translational research. There is a strong group of young researchers that holds promise for the future.

Grading
Very good.

Recommendations
This group has a strong focus and good position in Parkinson's disease to further build on but should avoid dilution in too many subprojects. It would be advisable to specify more

clearly the hypotheses being tested in the registries and to include treatment studies within their scope.
The collaboration with CORE is promising but care should be taken to keep this within the translational goal of the research group. The group should aim to further strengthen its position in the world stage by seeking international financial support. Its aspiration for a larger medical school at SUH should be put into perspective of the national policy. Opportunities for collaborations with the neuroscience research at UiB should be exploited.

Cardiovascular Research Group (level 2)

Description of the evaluation unit (facts and organization)
The Cardiology research group has four subgroups with special interests. Three are led by part-time professors (UiB) and one by a cardiologist without an academic appointment. One is a US citizen, the others are Norwegian but two have also trained at other institutions in Norway, in Canada and the US. There is one postdoctoral fellow from the Netherlands, and seven clinical staff members with PhD, of which one holds a position as part-time associate professor. The academic staff consists of three professors, one associate professor, one postdoctoral fellow, two other researchers (71 % men). The research is also supported by the Stavanger Health Research unit that provides clinical research nurses and supervises the external research activity in Argentina (lipid and CAD studies). The research is tightly connected to the clinical work and patient care.

General comments
Organisation, leadership and strategy
The group organizes monthly research meetings but there is no formal research board coordinating the activities across the group or setting out strategic goals.

Resources and infrastructure
The running costs are mostly covered by external funding. This comes through the Regional Health authority for the populations-based studies. A number of large international clinical trials are supported by drug and device companies. There also is EU funding and support for fellows though local and national funds and from the European Society of Cardiology.
Infrastructure is within the clinical service (MRI, cathlabs, clinical chemistry). A weakness is the absence of cardiac surgery that precludes research into advanced invasive studies. The studies on biomarkers would benefit from a stronger clinical chemistry lab for more basic research.

Training, mobility and career paths
There is a growing number of PhDs; currently six are in training. They are mostly recruited locally but one PhD from Argentina is working at SUH in a joint project. Young medical doctors are especially encouraged to start a PhD and are informed about the importance of research for their future career. A combination of PhD with clinical work provides further incentive. After their PhD researchers are expected to train abroad and the European Society of Cardiology has awarded 4 fellowships for incoming trainees. There is one postdoctoral researcher, recruited from the Netherlands.

Research collaborations

Members of the group have been initiators and leaders of large international clinical trials which involved major European centres outside Norway (e.g. Hannover and Leipzig for stem cell research, the Netherlands for thrombosis and biomarkers) and also in the USA and Canada. For imaging there is a good collaboration with NTNU and for heart failure with OUH. There is a strong involvement in the European Society of Cardiology in leadership positions. There is an active research program with Argentina.

Scientific quality

Research activities and production

The main activity is in de the domain of coronary artery atherothrombosis and heart failure. They have developed biomarkers and procedures for percutaneous interventions. Members of the group have been leading major international clinical studies and participated in formulating treatment guidelines. This has led to an impressive publication output and citations, though this is not equal among all subgroups.

Grading

Very good to excellent

Societal impact

The group has contributed significantly to evidence-based approaches in cardiology, being the leaders for guidelines in heart failure treatment and use of devices. The work on biomarkers has led to patenting in collaboration with industry.

Recommendations

This group clearly is among the leaders in clinical research in cardiology. However it should develop a strategic plan for its research activities regarding content, external competitive funding and future leadership.

Diakonhjemmet Hospital

Department of rheumatology

Diakonhjemmet Hospital (level 1)

General comments
Diakonhjemmet Hospital (founded 1893) is a private non-commercial hospital within the Diakonhjemmet Foundation in Oslo, Norway. The hospital is responsible for general hospital services (internal medicine, surgery and radiology, plus laboratory services) for approximately 124 000 inhabitants in its particular sector in the western part of Oslo. The hospital has a staff of approx. 1 350, supplying 170 beds in somatic medicine.

The professional profile of Diakonhjemmet Hospital reflects the responsibilities arising from its function as a local hospital. It is based on interdisciplinary expertise, primary nursing and modern medical science. The hospital's function also includes a specialized central and regional hospital department for rheumatology.

The hospital has a research committee with representatives from all departments. The CEO of the hospital has a scientific advisor. Research is part of the hospitals responsibility as visualised in the hospital strategy and the research strategy for the hospital. The hospital research strategy is focusing on research activities that will lead to improved patient care, but the strategy is overall coherent with the strategy of the health region. Patients are actively involved in various research activities as advisors and collaborators. Diakonhjemmet Hospital has collaborative activities both on national and international level in research, in particular in rheumatology.

The hospital spent 4.0 % of its total budget on research (4.6 % of its total budget on research and development) in 2009. More than half of these resources were financed internally. The spending on research has increased considerably during the last 5 years (the figure in 2008 was 3.4 % of total budget, or 3.7 % spent on R&D).

The scientific output as measured by number of publication shows an increasing trend. Importantly, Diakonhjemmet Hospital is the non-university hospital in Norway with highest scientific output based on the publication points in 2009 and every year since 2003.

Follow-up of previous evaluation/s
In previous evaluations it was seen that there is an ambitious leader aiming at high scientific standards. It was also suggested that the unit gets access to expertise in basic science not to be easily overrun in this very competitive area of research.

At the current evaluation it became clear that the leader professor has put the research on a broader base and developed a research committee as well as a scientific advisor for the CEO of the hospital. This time a postdoc and PhD were also present at the evaluation panel meeting.

The publication productivity has significantly increased from the last evaluation.

They have also followed the recommendations of 2004; they are involved in a new innovative medicine initiative of the EU and prepare currently an application for a Jebsen centre for rheumatology in Norway.

In general the institution has developed its research in an excellent way although not even having the status of a University Hospital. There is an increasing publication record and very good interactions with the University, even exchange of MDs during their training between Diakonhjemmet and OUH.

Recommendation
In the long run it is necessary for the Institution to obtain expertise in basic science or develop such a collaboration with the university institutions.

Department of Rheumatology (level 2)

Description of the evaluation unit (facts and organization)
The Department of Rheumatology also includes the National Resource Centre for Rehabilitation in rheumatology and the National Competence Centre for Rehabilitation in rheumatology. The Department of Rheumatology has been closely linked to UiO since 1996 since the hospital/department leader is a professor II in rheumatology at UiO.
The responsibility for diagnosis and management of rheumatic diseases was divided between Department of Rheumatology at Diakonhjemmet Hospital and Rikshospitalet (now OUH) in 2004. The department of Rheumatology at Diakonhjemmet Hospital is responsible for rheumatic joint diseases (rheumatoid arthritis, spondyloarthritis, osteoarthritis and related diseases) in the city of Oslo and has also regional responsibilities in the South-East health region. OUH has the responsibility for connective tissue diseases and rheumatic diseases in children.
The department has two main research areas which each has a professor as leader:
(1) General medical research in rheumatology
(2) Rehabilitation research in rheumatology (NRRK)

The academic staff consists of two professors II, one professor, one associate professor, two postdoctoral fellows and six senior researchers/clinicians with PhD (42 % men).

General comments
Organisation, leadership and strategy
The organisation with divided responsibilities between Diakonhjemmet and OUH has been successful for both parts and for the patients care since both now have the opportunity to focus both clinical work and the research in the direction of their main competence and strengths. Physicians in training are rotating between the departments and there are also joint educational meetings.
The leader is editor of the leading European Journal in Rheumatology and has excellent collaborations with European centres for performing his basic research. He is also acknowledged as a leader in clinical rheumatology research, nationally and internationally.

Resources and infrastructure
The department has successfully recruited young ambitious health professionals and MDs who want to do their research in the department. There are 8 rheumatologists or residents in training who do their own research and supervise PhD students. In addition there is a cardiologist as a postdoctoral fellow in the research group.

Training, mobility and career paths
The number of the PhD students is 19 (all females, six are external). Guest professors from Copenhagen as well as from Leiden are supervising PhD students. Further, senior researchers/professors within the research groups are supervising six PhD students who are working in other hospitals in Norway.

Research collaborations
Department of Rheumatology has been the leader of a regional Helse Sor-Ost Research Network (focus early arthritis and rehabilitation) since 2010 and is leading several multicentre studies in Norway.
The research groups have excellent national and international collaboration. Both research groups are focusing on network activities, on a national as well as on an international level.

Scientific quality
Research activities and production
The department is since 2008 a EULAR Centre of Excellence in Rheumatology based on scientific output.

Grading
Very good to excellent.

Recommendation
In order to perpetuate the high level of scientific quality at the Diakonhjemmet Hospital and the Department of Rheumatology an additional research professorship should be created and a closer interaction with the University should be sought.

Abbreviations used in the report

Ahus	Akershus University Hospital
CEO	Chief executive officer
COPD	Chronic obstructive pulmonary disease
CV	Curriculum vitae
FACS	Fluorescence-activated cell sorting
HUH	Haukeland University Hospital
IBD	Inflammatory bowel disease
INSERM	French National Institute of Health and Medical Research
JAMA	Journal of the American Medical Association
MD	Medical doctor
MR	Magnetic resonance
MRI	Magnetic resonance imaging
NEJM	New England Journal of Medicine
NIH	National Institutes of Health
NTNU	Norwegian University of Science and Technology
OUH	Oslo University Hospital
PET	Positron emission tomography
QoL	Quality of Life
R&D	Research and development
RCN	Research Council of Norway
RCT	Randomized controlled trial
SUH	Stavanger University Hospital
TB	Tubeculosis
UCLA	University of California Los Angeles
UiB	University of Bergen
UiO	University of Oslo
UiT	University of Tromsø
UNN	University Hospital of North Norway
WHO	World Health Organization

Appendices

Appendix 1. Mandate for the evaluation

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. The Division for Science has decided to evaluate research activities in biology, medicine and health and psychology in Norwegian universities, university hospitals, relevant research institutes and relevant university colleges.

Evaluations have previously been performed within these subjects/fields, in biology in 2000 and medicine and health in 2003.

1. The objective of the evaluation

The main focus of the evaluation should be the scientific quality of Norwegian research within biology, medicine and health and psychology in Norwegian universities, university hospitals, relevant research institutes and relevant university colleges.

The evaluation will reinforce the role of the RCN as advisor to the Norwegian Government and relevant ministries. The evaluation will give knowledge, advice and recommendations on biological, medical and health related research and give the institutions as well as the RCN and relevant ministries a better basis for determining future priorities within and between fields of research.

Specifically, the evaluation will:

- provide a critical review of the strengths and weaknesses of the above fields, both nationally and at the level of individual research groups and academic departments. The scientific quality of the research will be reviewed in an international context.
- assess to what degree the previous evaluations have been used by the institutions in their strategic planning
- discuss to what degree the research units perform research in accordance with the strategy of their institution
- identify the research units which have achieved a high international level in their research, or have the potential to reach such a level
- identify areas of research that need to be strengthened in order to ensure that Norway in the future possesses necessary competence in areas of national importance. A key aspect is to enable the RCN to assess the situation regarding recruitment within the scientific fields
- discuss to what extent the research meets the demand for interdisciplinary research and future societal challenges

2. Organization and methods

International evaluation panels will be appointed for the following fields:

- Botany-, zoology- and ecology- related disciplines
- Physiology related disciplines including corresponding translational research
- Molecular biology, including corresponding translational research
- Clinical research, including corresponding translational research (two panels)
- Public health and health-related research
- Psychology and Psychiatry

Self-assessments including information about the organization and resources, as well as future plans, will be provided by the research units. In addition the panels will be provided with bibliometric analysis. Representatives from the involved units will be invited to meet the panels for presentations and discussions.

Each of the evaluation panels will write a report with evaluations of the different research units as well as specific recommendations. These reports will be sent to the research units for factual control. In order to provide general recommendations at a national level for research within these fields, Joint Committees will be established comprising members from each of the different evaluation panels/research areas.

Specific criteria for inclusion and exclusion – see attachment.

3. Tasks of the evaluation panels

The panels are requested to

- Evaluate research activities with respect to scientific quality, national and international collaboration. Scientific quality should be the main focus
- Evaluate how the research is organized and managed.
- Submit a report with specific recommendations for the future development of research within biology/medicine/health/psychology in Norway, including means of improvement when required.

Aspects to be assessed in the panel reports:

3.1 National level

- Strengths and weaknesses
- Research cooperation nationally and internationally
- Recruitment and mobility
- General resource situation regarding funding and infrastructure
- Cooperation with other sectors of society (e.g. industry)

3.2 Institutional level

To be defined as the institution as such, or as a university department, or a research institute.

Depending on the size of the institution level 3.2. and level 3.3. may be merged. In case of two levels, level 3.2 focus on organisation and strategy, level 3.3. on research quality and production.

- Organisation, research leadership and strategy
  - Including follow up of recommendations given in previous evaluation/s
- Resource situation

    - Funding, staffing, infrastructure and the balance between resources and research activities
- Scientific quality
    - Including the description of a publication strategy
- Training, mobility and career path
    - Recruitment and policies for recruitment
    - Policy for mobility and career path
    - Policy for gender and age balance in academic positions
- Research collaboration
    - Collaboration and networking activities at national and international level including interdisciplinary and multidisciplinary research activities, as well as translational research (from basic to applied research or vice-versa)

3.3 Research units

- Organisation, research leadership and strategy
    - Including resource situation (staff and funding) and research infrastructure
- Research activities
    - Scientific quality and production
- Training, mobility and career path
    - Recruitment and policies for recruitment
    - Policy for mobility and career path
    - Gender and age balance in academic positions
- Research collaboration
    - Collaboration and networking activities at national and international level including interdisciplinary and multidisciplinary research activities, as well as translational research (from basic to applied research or vice-versa)

4. Time schedule

Panel meetings will take place in Oslo March-June 2011
Deadline for submitting draft panel reports August 2011
Deadline for submitting final reports October 2011
Deadline for joint reports November 2011

5. Miscellaneous

Other important aspects of Norwegian biological, medical and health related research that ought to be given consideration.

Attachment

Delimitation and organisation

The panels are asked to base their evaluation on self-assessments from the research units, factual information, bibliometric analysis and hearing meetings.

Starting point for the present evaluation will be the research performed at the institutions in question. The university departments and several institutes in the institute sector are too large to be evaluated as one single research unit. In order to give an overview of the research the evaluation will be carried out as follows:

Departments at the universities and university colleges and institutes in the institute sector (named institution)

1. The institution – level 1 – describes its organisation and research strategy in a written document as well as factual information including funding, number of permanent and preliminary positions etc.
2. The level below the institutions (section, group, program etc.) is the unit that will be evaluated and which prepare the self-assessment for the research – level 2.

In some institutions the level 2 units might be placed in different panels. If so the institute structure and strategy will present their activities to all relevant panels. Large evaluations units within level 2 belonging to different panels may split in different evaluation units or will be evaluated in a panel covering the main content of their research.

The units to be evaluated at level 2 need to be units already established. However it is important that the evaluation units to be evaluated have a certain minimum size. If the research performed within two or more evaluation units belong together thematically, it may be an advantage to prepare a joint self-assessment making it clear that the self-assessment describes the research in two or more groups. Level 2 units with minor scientific activities and production, are to be described on level 1, the general description of the institute.

Research at the university hospitals

The research performed in the university hospitals is often part in integrated research units between the university and the hospital. It will normally neither be practical, nor natural to separate the self-assessment from these units. It is preferable that these integrated units give a joint self-assessment and a joint oral presentation at the hearing meetings. The universities are asked to take the main responsibility for the self-assessment when the research unit is led by a researcher who has his/her main position at the university. The same is asked from the university hospital when the research unit is led by a researcher who has his/her main position at the hospital.

Appendix 2. Criteria for grading

Excellent	Research at the international front position: undertaking original research of international interest, publishing in internationally leading journals. High productivity.
Very good	Research with high degree of originality, but nonetheless falls short of the highest standards of excellence. A publication profile with a high degree of publications in internationally leading journals. High productivity and very relevant to international research within its sub-field. .
Good	Research at a good international level with publications in internationally and nationally recognized journals. Research of relevance both to national and international research development.
Fair	Research that only partly meets good international standard, international publication profile is modest. Mainly national publications. Limited contribution to research
Weak	Research of insufficient quality and the publication profile is meagre: few international publications. No original research and little relevance to national problems.

Appendix 3. Letters to the institutions

Forskningsrådet

Se vedlagte adresseliste

	Vår ref.	**Oslo,**
Vår saksbehandler/tlf. Berit Nygaard, +47 22037174	201002437 **Deres ref.**	21. juni 2010

Fagevaluering av biologi, medisin og helsefag, inklusive psykologi
invitasjon til informasjonsmøte og invitasjon til å plassere forskningsenhetene i evalueringspaneler

Det vises til tidligere informasjon om fagevalueringen i brev av 25.2.2010, samt våre nettsider om evalueringen; www.forskningsradet.no/biomedhelseevaluering

Informasjonsmøte
Vi inviterer til informasjonsmøte på Gardermoen, Radisson Blu Airport Hotel
tirsdag 24. august kl 10.30 – 15.00
Informasjonsmøtet er primært for representanter for ledelsen ved involverte fakulteter og institutter i UoH-sektoren og instituttsektoren.

Hensikten med møtet er å informere om evalueringen med fokus på organiseringen, mandatet for evalueringspanelene, egenvurderingene og faktainformasjon, tidsplan med mer. Program for møtet og lenke til påmelding legges på www.forskningsradet.no/biomedhelseevaluering i løpet av uke 26. ***Påmeldingsfrist er mandag 16. august***, og det er mulig å melde seg på allerede nå https://web.questback.com/norgesforskningsrd/kyl3fa8ebo/ . På våre nettsider vil vi i uke 32 legge utkast til faktaark og mal for egenvurdering. Kommentarer til disse dokumentene kan gis på informasjonsmøtet.

Dialog og tilbakemelding
Vi inviterer med dette institusjon/institutt til å plassere sine evalueringsenheter i de ulike panelene, se definisjon i vedlegg 3, Avgrensning og organisering. For å være sikre på at vi har etablert hensiktsmessige paneler og at vi får en noenlunde jevn fordeling av evalueringsenheter i panelene, ber vi om en tilbakemelding fra alle institusjoner/institutter med forslag til plassering av evalueringsenhetene for den enkelte institusjon/institutt så snart som mulig og senest ***fredag 27. august.*** Tilbakemelding til evalbiohelse@forskningsradet.no. Ta gjerne kontakt underveis ved behov.

Vi ber også om å få oppgitt en kontaktperson ved hver institusjon/institutt. Det vil blant annet være behov for dialog i etterkant av fristen slik at sammenlignbare forskningsfelt ved de forskjellige institusjonene, så langt mulig, plasseres i samme panel.

Panelinndeling
Det planlegges en inndeling i syv paneler (se vedlegg 4). Panelinndelingen er basert på Norsk inndeling av vitenskapsdisipliner (vedtatt av Universitets- og høgskolerådet i 1994) for klassifisering av forskning. I arbeidet med å rekruttere eksperter til fagpanelene er følgende kriterier lagt til grunn:

- Det enkelte panel skal dekke disiplinene innenfor panelet
- Det tilstrebes å finne eksperter med bred kompetanse som kan dekke flere områder
- Det vurderes om det er mulig å få med ett medlem i hvert panel som deltok i forrige evaluering for å bidra til kontinuitet
- Det tilstrebes at hvert panel har minst 40 % av begge kjønn
- Det tilstrebes en viss spredning i alder blant medlemmene

Det er lagt strenge habilitetsregler til grunn ved utnevning av panelmedlemmene.

Mandat for evalueringen
Mandatet for evalueringen følger vedlagt, vedlegg 3.

Utvidet tidsramme
Det har tidligere vært gitt tentativ tidsramme for evalueringen. Tidsrammen har nå blitt noe utvidet. Dette medfører at høringsmøtene blir forskjøvet til perioden 20. mars -10. juni, kun ukene uten helligdager. Den utvidede tidsrammen gir noe mer tid til dialog med miljøene og arbeidet med egenvurderingen, samt bedre tid til ferdigstillelse av rapportene. Evalueringen vil være avsluttet i løpet av 2011. Se tidsplanen i vedlegg 5.

Avgrensning og organisering
Hovedfokuset i evalueringen skal være vitenskapelig kvalitet i forskningen. Evalueringen er på gruppenivå, ikke enkeltforskernivå. Evalueringen vil bli gjennomført av fagfeller i paneler sammensatt av meritterte utenlandske forskere (”peer review”) og alt materialet i evalueringen skal være på engelsk.

Evalueringen omfatter mange ulike institusjoner og antallet forskere er stort. Forskningsrådet har satt en grense for minstestørrelse for institusjon/institutt som inviteres til å delta i evalueringen. Det angitte antallet vitenskapelig ansatte gjelder innenfor hvert fagområde, dvs. innenfor biologi eller medisin og helsefag. Noen forskergrupper/forskere har deltatt i nylig gjennomførte fagevalueringer, disse skal ikke evalueres på nytt.

Kontaktpersoner i Forskningsrådet
Spørsmål i tilknytning til evalueringen kan rettes til:
- Prosjektleder Berit Nygaard, telefon 22037174, bn@forskningsradet.no – (ferie 5.7. – 9.8)
- Prosessleder Malena Bakkevold, telefon 95750533, post@malena.no – (ferie 5.7 – 16.8)

Hvert av panelene har en egen fagrådgiver, se vedlegg 4 med oversikten over panelene.

Parallelle evalueringer som berører flere av forskningsmiljøene
Formålet med fagevalueringer er å foreta en kritisk gjennomgang av forskningen med hensyn til kvalitet relatert til internasjonalt nivå, styrker og svakheter, rammebetingelser

for forskningen og rekrutteringssituasjonen. I tillegg innhentes råd om hva som skal til for å styrke forskningen og hvilke prioriteringer som peker seg ut. De to første evalueringene nevnt nedenfor evaluerer spesielle satsinger i Forskningsrådets regi og overlapper bare delvis med fagevalueringen.

Evaluering av FUGE
Det er en pågående evaluering av FUGE (funksjonell genomforskning) for å se på merverdien av programmet, og bla å få innspill til det videre arbeidet med satsing på bioteknologi.

Midveisevaluering av SFF-II
Formålet med evalueringen er å bedømme de vitenskapelige resultatene sentrene har oppnådd og å gi en vurdering av planene sentrene har utarbeidet for forskningen i siste 5-årsperiode.
Evalueringen finner sted i 2010 – 2011.

Midtveisevaluering av SFI
Evalueringen skal vurdere de forskningsresultater som er oppnådd og om virksomheten i senteret underbygger senterets mål. Evalueringen skal videre gi en vurdering av planene for virksomheten i den mulige siste 3-årsperioden. Evalueringen gjennomføres høsten 2010.

Evaluering av idrettsvitenskap (sports sciences)
Parallelt med fagevalueringen vil det bli gjennomført en felles nordisk evaluering av idrettsvitenskap 2010-2011. Evalueringen blir administrativt ledet av Finlands Akademi. Forskningsrådet ønsker at relevante norske miljøer skal delta i denne evalueringen, og vi vil sende ut separat informasjon om dette. Finlands Akademi avholder et informasjonsseminar om evalueringen 17. august, kl 12.00 – 15.30 i Helsinki.

Evaluering av deler av instituttsektoren
Fiskeri- og kystdepartementet (FKD) og Landbruks- og matdepartementet (LMD) har initiert evalueringer av deler av sin instituttsektor – se vedlegg 1

Med vennlig hilsen
Norges forskningsråd

Hilde Jerkø (sign.)
Avdelingsdirektør
Divisjon for vitenskap

Mari Nes (sign.)
Avdelingsdirektør
Divisjon for vitenskap

Vedlegg 1

Institusjonene som omfattes av fagevalueringen

Universitetene
Alle instituttene ved de medisinske fakultetene omfattes av evalueringen. Når det gjelder biologi og psykologi (bortsett fra ved UiB og UiT) vil evalueringen omfatte institutter og naturvitenskapelige museer som er deler av naturvitenskapelige og samfunnsvitenskapelige fakulteter.

Helseforetakene
Alle helseforetakene med universitetsfunksjon omfattes av evalueringen. I tillegg kommer Diakonhjemmet. For integrerte forskergrupper mellom universitetsinstitutter og helseforetak se vedlegg 2 Avgrensing og organisering. Når det gjelder øvrige helseforetak ber vi om at de regionale helseforetakene vurderer om det er andre helseforetak som faller innenfor rammene for evalueringen. Vi vil gjerne ha en dialog om disse med de regionale helseforetakene.

Instituttsektoren
For instituttsektoren generelt kan det ved enkelte institutter være at nivå 1 og nivå 2 er sammenfallende – se vedlegg 2 Avgrensning og organisering.

Forskningsrådet er kjent med at Fiskeri- og kystdepartementet (FKD) parallelt med fagevalueringen vil evaluere Havforskningsinstituttet. Havforskningsinstituttet ønsker å være en del av fagevalueringen og FKD ønsker å benytte seg av det innsamlede materialet som delinnspill til sin evaluering og i tillegg benytte panelets delrapport om instituttet fra fagevalueringen.

Landbruks- og matdepartementet (LMD) har bedt Forskningsrådet om å evaluere bla Bioforsk, Norsk institutt for skog og landskap og Veterinærinstituttet i løpet av 2010. Rapporten for denne evalueringen skal være ferdig 1. desember 2010 for å kunne være en del av grunnlaget for en ny melding til Stortinget om landbruks- og matpolitikken. Disse tre instituttene inviteres også til å delta i fagevalueringen av biologi, medisin og helsefag. Som vi skrev i vårt brev i februar er skillet mellom grunnleggende og anvendt forskning nå mindre fremtredende og det er økt samarbeid på tvers av forskningsart både innenfor biologiske fag og medisin og helsefag. Det er derfor ønskelig å evaluere hele forskningsfeltet innenfor de ulike fagområdene og institusjonene samtidig. Forskningsrådet ser det som viktig at også instituttsektoren deltar i denne brede fagevalueringen. Vi regner med at det materialet som ferdigstilles til evaluering av vitenskapelig kvalitet i LMD's evaluering vil kunne være et viktig grunnlag for materialet til fagevalueringen.

Høyskolene
Som i instituttsektoren kan det være at ved enkelte høyskoler er nivå 1 og nivå 2 sammenfallende.

Vedlegg 2

Avgrensning og organisering

Panelene skal basere sin evaluering på egenvurdering fra forskningsmiljøene, faktainformasjon, bibliometrisk analyse og møter med forskningsmiljøene.

Evalueringen vil ta utgangspunkt i instituttene og den forskningen som foregår der. Universitetsinstituttene og flere institutter i instituttsektoren er imidlertid for store og sammensatte enheter til at instituttet kan være evalueringsenheten. For at evalueringen skal gi oversikt over forskningen i *faget* gjennomføres evalueringen etter følgende modell:

Institutter i UoH-sektoren og instituttsektoren

1. Instituttet beskriver organisering og strategi for forskningen ved instituttet og gir faktainformasjon (finansiering, antall ansatte og stipendiater med mer) (nivå 1)
2. Nivået under instituttet (instituttgruppe, avdeling m.m.) *er den enheten som evalueres* og disse lager egenvurdering for forskningen (nivå 2)

Nivå 2 har ulike benevnelser ved de forskjellige institusjonene (instituttgrupper, seksjon, avdeling, forskergruppe, tematiske program m.m.). Ved enkelte institutter vil det være slik at enheter på nivå 2 hører hjemme i forskjellige paneler. I de tilfellene vil instituttbeskrivelsen følge til alle panelene. Robuste/store undergrupper på nivået under nivå 2 som *kan* høre hjemme i forskjellige paneler, plasseres der hvor hovedtyngden av forskningen hører hjemme (mestprinsippet).

Enhetene som skal evalueres på nivå 2 skal være etablerte enheter, ikke konstruerte grupper for denne evalueringen. Det er viktig at enhetene ikke er for små. Dersom instituttene ser at forskningen i forskergrupper/evalueringsenheter tematisk hører sammen, kan det være en fordel at disse forskergruppene lager en samlet egenvurdering hvor det framgår at det er en fremstilling av forskningen i flere grupper. Evalueringsenheter/forskergrupper på nivå 2 som har liten vitenskapelig aktivitet og produksjon, beskrives i instituttets (nivå 1) generelle omtale i egenvurderingen.

Minstestørrelse på institusjon/institutt som inviteres til å delta i evalueringen er:

UoH-sektoren, inklusive helseforetak med universitetsklinikkfunksjon

1) Minst 5 vitenskapelig ansatte (professor I, førsteamanuensis I) innenfor hvert fagområde (biologi, medisin og helsefag) eller

2) Minst 5 fast ansatte forskere/klinikere med doktorgradskompetanse som har 40 % eller mer av sin stilling definert som forskning

Andre helseforetak

Minst 5 fast ansatte forskere/klinikere med doktorgradskompetanse som har 40 % eller mer av sin stilling definert som forskning

Instituttsektoren

Minst 5 fast ansatte forskere med doktorgradskompetanse som har 40 % eller mer av sin stilling definert som forskning innenfor hvert fagområde (biologi, medisin og helsefag).

Forskning ved universitetssykehusene
Ved universitetssykehusene er det i svært stor grad integrerte forskergrupper/enheter mellom universitetsinstituttene og helseforetaket. Det vil normalt verken være hensiktsmessig eller naturlig å skille egenvurderingen og presentasjonen av disse enhetene. Det er ønskelig at integrerte enheter mellom universitet og helseforetak gir en felles egenvurdering og en felles presentasjon.
Vi ber om at universitetet tar hovedansvar for egenvurdering og eventuell presentasjon når forskergruppen/enheten ledes av en som har hovedstilling ved universitetet, mens helseforetaket tar hovedansvar for egenvurdering og eventuell presentasjonen når enheten ledes av en som har hovedstilling eller hele stillingen ved helseforetaket.

Kriterier for eksklusjon

- Nylig evaluert i annen fagevaluering (eks sosiologi, økonomi, farmasi, kjemi, fysikk, geofag)
- Idrettsmedisinske fag – tas ikke med i denne evalueringen fordi en felles nordisk evaluering av idrettsvitenskap (sports sciences) vil bli gjennomført i 2010-2011.
- Sosialfaglig forskning (barnevern, sosialtjenester) inkluderes ikke i evalueringen.

Appendix 4. Time schedule for hearing meetings

Time schedule for the hearing meetings in Oslo, Radisson Blu Plaza Hotel, April 4th – 8th

Monday 4.4.2011

Time	Institution/department	Unit
0830-0900	*Panel meeting*	
0900-1045	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Oslo University Hospital** **Division of Medicine**	Internal medicine Department of infectious disease Department of gastroenterology Geriatrics Department of endocrinology
1045-1130	*Break/panel meeting*	
1130-1230	*Lunch*	
1230-1415	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Oslo University Hospital** **Division of Specialised Medicine and Surgery**	Haematology Inflammation and immunogenetics Transplantation Rhematology Dermatology/venerology
1415-1445	*Break/panel meeting*	
1445-1545	**University of Tromsø - Faculty of Medicine,** **Department of Clinical Medicine**	Hematological research group (HERG) Endocrinology research group Research group of cerebrovascular diseases and atherosclerosis
1545-1600	*Panel meeting*	
1600-1700	**University Hospital Northern Norway**	Gastroenterology and nutrition group Metabolic and renal research group
1700-1800	*Panel meeting*	

Tuesday 5.4.2011

Time	Institution/department	Unit
0830-0900	*Panel meeting*	
0900-1115	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Oslo University Hospital Division of Cardiovascular and Pulmonary Diseases**	Cardiac research Pulmonary research
1115-1200	*Break/panel meeting*	
1200-1300	*Lunch*	
1300-1345	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Oslo University Hospital** **Division of Surgery and Clinical Neuroscience**	Department of neurology
1345-1400	*Panel meeting*	
1400-1445	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Oslo University Hospital** **Division of Diagnostics and Intervention**	Department of radiology and nuclear medicine
1445-1515	*Break/panel meeting*	
1515-1615	**University of Oslo - Faculty of Medicine, Institute of Clinical Medicine, Akershus University Hospital**	Cardiothoracic research group Clinical neuroscience group
1615-1700	*Panel meeting*	

Wedensday 6.4.2011

Time	Institution/department	Unit
0830-0900	*Panel meeting*	
0900-1100	**University of Bergen - Faculty of Medicine and Dentistry and Haukeland University Hospital** **Institute of Medicine**	Bergen cardiology research cluster Bergen respiratory research group Locus for homocystine and relative vitamins Renal research group Section for Endocrinology Section for gastrocrinology Section for infectious diseases
1100-1115	*Break*	
1115-1200	**University of Bergen - Faculty of Medicine and Dentistry and Haukeland University Hospital** **Institute of Medicine (cont.)**	
1200-1230	*Panel meeting*	
1230-1330	*Lunch*	
1330-1430	**Stavanger University Hospital**	Cardiology research group Research group of the Norwegian centre for movement disorders
1430-1445	*Panel meeting*	
1445-1545	**Diakonhjemmet Hospital**	Department of rheumatology
1545-1615	*Break/panel meeting*	
1615-1745	**Meeting with post docs**	
1745-1800	*Panel meeting*	

Thursday 7.4.2011

Time	Institution/department	Unit
0830-0900	*Panel meeting*	
0900-1100	**Norwegian University of Science and Technology - Faculty of Medicine, St. Olavs Hospital** **Department of Circulation and Medical Imaging**	Ultrasound innovation in diagnosis and therapy Magnetic resonance in diagnosis and therapy Image guided therapy and minimal invasive interventions (in cooperation with SINTEF)
1100-1115	*Break*	
1115-1200	**Norwegian University of Science and Technology - Faculty of Medicine, St. Olavs Hospital** **Department of Circulation and Medical Imaging (cont.)**	
1200-1230	*Panel meeting*	
1230-1330	*Lunch*	
1330-1430	**Norwegian University of Science and Technology - Faculty of Medicine, St. Olavs Hospital** **Department of Cancer Research and Molecular Medicine**	Gastroenterology
1430-1500	*Break/panel meeting*	
1500-1600	**Norwegian University of Science and Technology - Faculty of Medicine, St. Olavs Hospital** **Department of Laboratory Medicine, Children's and Women's Health**	Neurodevelopmental disorders and brain imaging Clinical microbiology and infectious disease (in cooperation with SINTEF)
1600-1800	*Panel meeting*	

Friday 8.4.2011

Time	Institution/department	Unit
0830-0900	*Panel meeting*	
0900-1000	**Norwegian University of Science and Technology - Faculty of Medicine, St. Olavs Hospital** **Department of Neuroscience**	Neurogenerative diseases Headache disorders
1000-1015	*Break/panel meeting*	
1015-1100	**University of Bergen - Faculty of Medicine and Dentistry and Haukeland University Hospital** **Department of Surgical Science**	Diagnostic Imaging
1100-1130	*Break/panel meeting*	
1130-1230	**University of Bergen - Faculty of Medicine and Dentistry and Haukeland University Hospital** **Department of Clinical Medicine**	Section for neurology
1230-1245	*Panel meeting*	
1245-1345	*Lunch*	
1345-1445	**University of Bergen - Faculty of Medicine and Dentistry and Haukeland University Hospital** **Gades Institute**	Inflammation
1445-1600	*Panel meeting*	

Appendix 5. Overview of all panels

Panel	Includes
Panel 1 Botany, Zoology and Ecology-related Disciplines.	Evolutionary biology, ethology, marine biology, limnology, plant physiology, systematics and agricultural sciences
Panel 2 Physiology-related Disciplines, including corresponding translational research.	Anatomy, physiology (human and zoophysiology), neurobiology, toxicology, pharmacology, embryology, nutritional physiology, pathology[8], basic odontological research, fish health, veterinary medicine
Panel 3 Molecular Biology, including corresponding translational research	Microbiology, immunology, cell biology, biochemistry, molecular biology, genetics, genomics, biotechnology including breeding and bioinformatics
Panel 4A Clinical Research, including corresponding translational research	All surgery, anaesthesiology, oncology, physical medicine and rehabilitation, gynaecology, paediatrics, dermatology and venereology, ophthalmology, otolaryngology and all clinical odontology
Panel 4B Clinical Research, including corresponding translational research	All internal medicine (cardiology, nephrology/urology, gastroenterology, endocrinology, haematology, infectious diseases, respiratory tract diseases, geriatric medicine), neurology, rheumatology, radiology and medical imaging and other clinical medical disciplines
Panel 5 Public Health and Health-related Research	Public health, community dentistry and community nutrition. Epidemiology and medical statistics. Health services research, preventive medicine, nursing research, physiotherapy, occupational medicine, behavioural research and ethics, other health-related research
Panel 6 Psychology and Psychiatry	Clinical psychology, social-, community- and workplace psychology, organizational psychology, personality psychology, developmental psychology, cognitive psychology, biological psychology and forensic psychology. Psychiatry, including geriatric psychiatry, child and adolescent psychiatry, biological psychiatry, and forensic psychiatry. Behaviour research

[8] Other para-clinical disciplines in the panel where the institution finds it most relevant

Appendix 6. List of panel members

Name	Institution
Professor Håkan Billig (chair)	Institute for Neuroscience and Physiology, Sahlgrenska Academy at University of Gothenburg, Sweden
Professor Richard Hughes	MRC Centre for Neuromuscular Disease, Institute of Neurology, University College London, UK
Professor Boye L. Jensen	Institute for Cardiovascular and Renal Research, University of Southern Denmark, Odense, Denmark
Professor Reinhold E. Schmidt	Department of Clinical Immunology and Rheumatology, Hannover Medical University, Germany
Dr Tariq Sethi	Department of Respiratory Medicine and Allergy, Denmark Hill Campus, London, UK
Professor Karin Sipido	Department of Cardiovascular Diseases, Katholieke Universiteit Leuven, Belgium
Professor Jaap Stoker	Academic Medical Center, University of Amsterdam, The Netherlands
Dr Teresa Ottinger (secretary)	Swedish Research Council, Sweden (task however not performed on official duty)

Appendix 7. Brief CVs for the panel members

Name:	Professor Håkan Billig
Degree(s):	1.M.D. 2.Ph.D.
Research field(s):	1. Reproductive physiology 2. Endocrinology and metabolism 3. Cellbiology
Present position:	Professor of physiology, Sahlgrenska Academy at Gothenburg University, Sweden

Name:	Professor Richard Hughes
Degree(s):	1. MA 2. MD 3. FRCP 4. FMedSci
Research field(s):	1. Clinical Neurology 2.Neuroimmunology 3. Clinical trials 4. Outcome measures 5. Systematic reviews
Present position:	Emeritus Professor of Neurology, King's College London Honorary Professor, University College London President, European Federation of Neurological Societies Honorary Consultant Neurologist, University College Hospital

Name:	Professor Boye Lagerbon Jensen
Degree(s):	1.M.D 2.PhD 3. Dr. med. Sci (Dr. med.)
Research field(s):	1. Effect of cyclooxygenases and prostaglandins on renal function and blood pressure regulation 2. Mechanisms of hypertension in proteinuric diseases with emphasis on the epithelial sodium channel 3. Fetal development of kidneys and programming of adult hypertension
Present position:	Professor, Head of Research, Dept. of Cardiovascular and Renal Research, Intitute of Molecular Medicine, University of Southern Denmark, Odense, Denmark

Name:	Professor Reinhold E. Schmidt
Degree(s):	1. MA 2. MD
Research field(s):	1. Clinical Immunology 2. Basic inflammatory immune mechanisms 3. Clinical trials 4. Infectious diseases 5. HIV
Present position:	Professor of Medicine and Immunology, Medical University Hannover Dean of Hannover Biomedical Research School (HBRS)

Name:	Dr Tariq Sethi
Degree(s):	1. MA 2. Ph.D 3. FRCP
Research field(s):	1. Respiratory Medicine 2. Cancer 3. Signal Transduction
Present position:	Head of Repiratory Medicine King's Health Partners London.

Name:	Professor Karin R. Sipido
Degree(s):	1. MD, medical degree 2. PhD 3. Board-certified Internal Medicine/Cardiology
Research field(s):	1. Cardiovascular biology 2. Translational research in cardiovascular disease Main topics are the role of altered calcium regulation in arrhythmogenesis and molecular and cellular mechanisms underlying chronic ischemic heart disease. Research is porganized in collaborative, multidisciplinary projects, including clinical and basic scientists.
Present position:	Professor, Dept of Cardiovascular Diseases, Katholieke Universiteit Leuven, BE Research Coordinator for the group Biomedical Sciences, Katholieke Universiteit Leuven, BE Vice-President Alliance For Biomedical Research on behalf of ESC (European Society of Cardiology)

Name:	Professor Jaap Stoker
Degree(s):	1. MD 2. PhD
Research field(s):	1. Abdominal imaging 2. Evaluation diagnostic tests 3. Systematic reviews
Present position:	Professor of Radiology, Department of Radiology, Academic Medical Center, University of Amsterdam, The Netherlands

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