

Research Strategy

The Department of Orthopedic Surgery

2018-2022



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1. Introduction

The research strategy was developed by the Working Group for Orthopaedic Research Strategy appointed by the Orthopedic Research Committee and approved by the Head of Division.

The Orthopedic Clinic at Akershus University Hospital is one of the largest facilities in the country for emergency care, in addition to extensive elective orthopedic procedures. The clinic specializes in fracture treatment and, for instance, treats approximately 650 hip fracture patients annually. We offer modern treatment options and place a strong emphasis on professional development for the benefit of the patients. The broad patient catchment area, with primary responsibility for specialist healthcare services for around 500,000 patients, provides the Orthopedic Clinic with a significant advantage for conducting clinical research.

The clinic's research strategy is intended to present short-term and long-term goals and a vision for the research conducted and planned at the Orthopedic Clinic at Akershus University Hospital, anchored in the hospital's and the South-Eastern Norway Regional Health Authority's overarching research strategy. The strategy is designed to provide a clear signal about strategic choices and priorities for the current period, along with the means to achieve our strategic goals.

Organization of Research in the Orthopedic Clinic

Since the Orthopedic Department became an independent unit in 2014, research has been organized under the department's management, with a dedicated Research Director and a Research Committee that reports to the Director of the Orthopedic Clinic. The organization of research activities falls under the leadership of surgical sciences research, with Professor Asbjørn Årøen as the head. Below this level, research within the Orthopedic Clinic is organized as illustrated in the organizational chart (Figure 1)

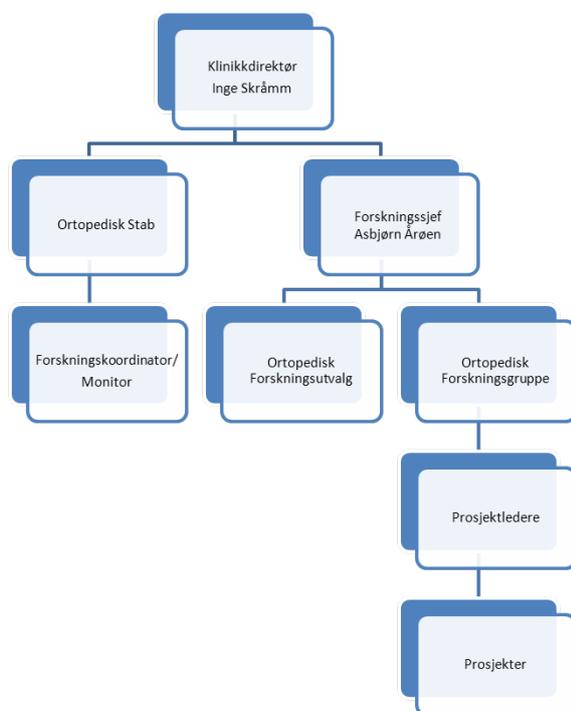


Figure 1. Organization of Research in the Orthopedic Clinic

The Research Committee

The Research Committee's primary task is to work towards promoting research and research education for everyone in the Orthopedic Clinic. The committee contributes to the development of research activity, ensures high research quality and publication frequency within the Orthopedic Research Group, and has overall responsibility for disseminating research activity. The Research Director in the Orthopedic Clinic serves as the head of the Research Committee. Additionally, the committee is composed of a representative from university staff in the Orthopedic Clinic, a representative from the departmental leadership for both nursing/administrative and medical staff, as well as a representative for supervisors with candidates enrolled in the doctoral program at the University of Oslo. Furthermore, there are plans during the strategic period to include a resident physician (LIS doctor) in the committee. The Research Coordinator actively participates in the Research Committee and serves as the meeting secretary. The committee is expected to hold monthly meetings except during holiday periods, ensuring a minimum of 9 meetings per year.

Orthopedic Research Group

The Orthopedic Research Group comprises an enthusiastic research community with 32 members, including 11 who have completed their PhDs and possess supervisory qualifications, along with 10 enrolled PhD candidates. On average, the group has conducted one doctoral thesis defense

annually since 2011. Currently, there are approximately 38 research projects covering various areas, including shoulder, back, hip, knee, fractures, pediatrics, foot, and hand, of which 8 are randomized clinical trials. All members of the research group conduct research in conjunction with their clinical work in the Orthopedic Clinic.

Scientific Staff/University of Oslo

Over the past year, the clinic has increased its university positions by 20% in temporary roles, resulting in 4 scientific staff members affiliated with the University of Oslo (UIO). However, due to planned increases in both teaching and research activities, there is a need for further expansion in the number of professorship positions within the clinic. These positions share 5 fixed office spaces for research, located in the same premises as the Orthopedic staff and management, which are currently insufficient to meet present needs.

Professor:

This position is held by Asbjørn Årøen, who also serves as the Research Director in the Orthopedic Clinic and acts as a supervisor for the doctoral candidates Svend Ulstein and Christian Pollmann. Ulstein is involved in ongoing research projects related to knee injuries, while Pollmann is conducting research on hip fractures.

Associate Professor

In the Orthopedic Clinic, there is a 20% associate professor position held by Senior Consultant Stein Erik Utvåg. This position is associated with teaching orthopedics to medical students at AHUS and conducting research within the field. Stein Erik Utvåg serves as the primary supervisor for three doctoral candidates in the Orthopedic Clinic:

Filip Celestyn Dolatowski is working on a doctoral project related to hip fractures (lårhalsbrudd).

Stefan Bartels is engaged in a research project on hip prostheses.

Hendrik Fuglesang is conducting a doctoral project on the treatment of collarbone fractures (kragebeinsbrudd).

Furthermore, Utvåg is involved in his own ongoing projects focused on cytokine levels and the development of infections after ankle fractures

PhD candidate with teaching obligation

100% position

Hendrik Fuglesang is a researcher working on clavicle fractures (collar bone).

50 % position

Ola-Lars Hammers is a researcher focusing on distal radius fractures.

Departmental Staff Research Positions/Expertise

Research positions (funded by the Department of Orthopaedic Surgery)

As of 2018, there are two research positions in the clinic. These positions are currently held by Svend Ulstein, who is researching cruciate ligament injuries and cartilage injuries, and Christian Pollmann, who is researching hip fractures. Both researchers are under the guidance of Professor Asbjørn Årøen.

Supervisors:

As of 2018, the clinic has 11 medical doctors with doctoral degrees (PhD) and thus, supervisory qualifications. Three of them have candidates enrolled in doctoral programs, but the others are also actively involved in guiding research, in addition to conducting their research. It is a goal that everyone in the department with supervisory qualifications becomes involved in guiding research at the Orthopedic Clinic. New doctoral projects should have a primary supervisor directly affiliated with the Orthopedic Clinic and/or Akershus University Hospital, unless there are specific reasons to select an external primary supervisor. Furthermore, all supervisors have a responsibility to actively recruit resident physicians (LIS doctors) into their projects since it is a requirement that all resident physicians gain project experience.

Research Projects

As of 2018, the department has approximately 38 ongoing projects and projects in the planning phase. This offers significant opportunities but also requires the department, through the Research Committee, to take a more active role in allocating projects to ensure the best possible quality, increase the chances of successful completion, secure financing, and facilitate publication.

To ensure successful completion and quality of initiated projects, all projects must go through internal approval within the Research Committee before being presented to the departmental leadership or submitted for external approval from regulatory bodies or funding sources. All documents of archival value, such as applications, reports, agreements, approvals, change notifications, and meeting minutes, should be forwarded to the research coordinator/Research Committee for archiving and continuous evaluation of the outcomes and results of applications.

Approval of Projects

The following factors are given special emphasis when approving projects:

- High project quality
- Primary supervisor employed at Akershus University Hospital
- Financing plan
- Contract with Inven2, in the case of commissioned research

Only in exceptional cases will the Research Committee approve projects that do not meet these criteria. This may be most relevant for purely experimental studies where the department lacks its own resources.

Research Seminar

The Research Committee has been organizing research seminars since 2011. In 2014, the first external seminar was held, where both primary healthcare services and collaborating partners were invited. The external seminar has been conducted annually since then and has been very popular

with a high number of participants. The clinic intends to continue this practice and will hold it annually during the planning period from 2018 to 2022.

Starting in 2012, the clinic consciously invited external researchers from other national and international environments to provide valuable feedback on their research and to establish national and international partnerships for the department's projects. In 2016, the clinic resumed the practice of awarding the best publication of the previous year at its internal research seminar. This is important for motivation and recognition of research efforts.

Collaborators

The Orthopedic Research Group currently has strong collaborations with various organizations and institutions, both nationally and internationally. These collaborators include the Center for Sports Injury Research, Norwegian Research Center for Active Rehabilitation (NAR), Martina Hansens Hospital, Østfold Hospital, Oslo University Hospital, Haukeland Hospital, Haraldsplass Hospital, Ålesund Hospital, and Kristiansund Hospital.

Additionally, the group has established partnerships with several international organizations, such as the Karolinska Institute in Stockholm, Skåne University Hospital, Sports Surgery Clinic in Dublin, Ireland, Heartland Orthopaedics in Virginia, USA, Steadman Philippon Research Institute in Colorado, USA, and OrthoSport in Victoria, Richmond, Australia.

Furthermore, the group collaborates with other research groups at Akershus University Hospital (Ahus), including EPIGEN and HELTEF. These collaborations contribute to a diverse and extensive network of research partners, enhancing the group's research capabilities and potential for international knowledge exchange.

Publications

In the last three years, the department has annually published between 8 to 17 publications (Fig. 2), which significantly exceeds the hospital's strategic goal of a 5% annual increase in publications.

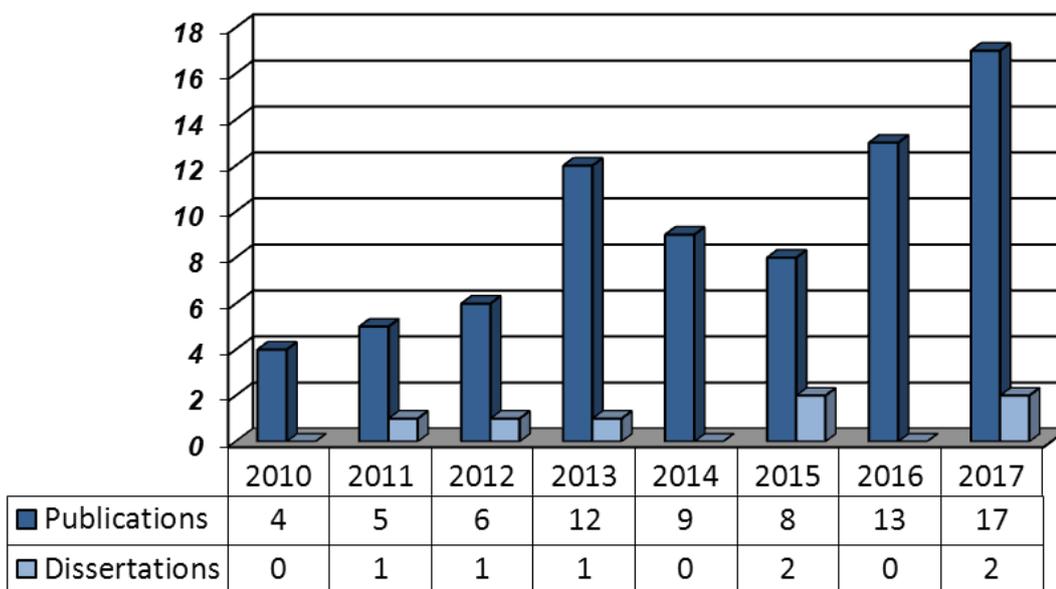


Figure 2. Overview of Peer-Reviewed Publications and Doctoral Theses in the Last Eight Years

Project Funding

The Orthopedic Research Group relies on external funding to conduct high-quality projects. In recent years, the group has received allocations from HSØ (Helse Sør-Øst) and cross-regional funds. They aim to increase external funding allocations by carefully reviewing all applications before submission, prioritizing projects with the highest relevance and funding potential. The goal is to secure a successful EU grant application during the next strategic period, which will require increased international collaboration. The group had two outgoing fellows in London during the previous planning period, and the aim for the next period is to increase both outgoing and incoming fellows, further enhancing international cooperation and knowledge exchange.

2. VISION

The Orthopedic Clinic aims to contribute to new knowledge and ensure that all patients, both now and in the future, receive the best possible treatment through high-quality clinical research with international recognition. Additionally, the clinic seeks to strengthen Akershus University Hospital as an excellent research environment in collaboration with the University of Oslo.

3. STRATEGIC GOALS

Clinically Oriented Research

1. The main goal of the clinic is to conduct orthopedic clinical research, where all results can be immediately translated into improved treatment for our patients. This primarily involves research related to common fractures and joint injuries treated at the department, choosing the best treatment in prosthetic surgery, follow-up and rehabilitation, as well as managing and preventing treatment complications.
2. Research at the Orthopedic Clinic has thematically included two main areas:
 - "The Elderly Patient," which includes low-energy fractures in the hip, wrist, and shoulder, with several ongoing randomized studies and multiple projects in the planning stage. The goal is to include injury prevention in our research projects, aligning with the hospital's strategic focus on the elderly patient.
 - "Operative Sports Medicine," which encompasses cartilage injuries in the knee, ligament reconstruction, collarbone fractures, with several ongoing randomized studies.
3. A new focus area is to develop clinical comparative effectiveness research studies that leverage existing and well-functioning quality registries in orthopedics (National Hip Fracture Registry, Joint Prosthesis Registry, ACL Registry, and Quality Registry for Spine Surgery) and infection monitoring (Norwegian Surveillance System for Antibiotic Use and Healthcare-Associated Infections - NOIS).
4. At the Orthopedic Clinic, we want our researchers to combine research with clinical work. Our strength lies in the ability to conduct research on large patient groups, and active clinical research leads to better patient care. The clinic must work to facilitate opportunities for research, and important research results should be implemented in clinical practice. To achieve this, it is essential that the clinic continues to support specialization positions. At the same time, it is crucial that research activities are implemented and visible in the clinic's budget.

5. Musculoskeletal injuries are a leading cause of sick leave in the population and impose a significant burden on individual patients and their families. It is a goal that research contributes to a positive patient experience at the hospital. Therefore, it is an expressed goal that patients should be represented when projects are planned and carried out. The aim is to involve users in the planning and execution of research, and, in projects where appropriate, we want the hospital's user committee to contribute with their experiences to ensure that research takes into account the needs of the patients. Furthermore, it is essential to identify user organizations related to the projects.
6. Clinical research places strict demands on structure and resources. Our goal is for the Orthopedic Research Group to maintain high quality as a consolidated research environment. We want to strengthen clinical support functions in the form of a research nurse and research physiotherapist. These support functions will be specifically linked to the orthopedic outpatient clinic, performing bone density measurements (DXA), blood samples for research projects, postoperative testing, and follow-up of patients in the relevant randomized studies.
7. Clinical research also requires a high degree of interdisciplinarity to improve holistic patient care. It will be important to assist Orthopedic Physiotherapists and Department Nurses with the initiation of research projects.
8. Clinical research encompasses not only large comparative multicenter studies but also smaller quality assurance projects. Therefore, it is a goal in the clinic for all residents to have participated in a project and presented findings at an internal or external research seminar (Orthopedic Autumn Meeting). Employees with supervisor qualifications should act as catalysts for recruiting residents into projects. This is supported by the "Requirements for Educational Institutions in the Specialist Training of Physicians" adopted by the Specialist Council in 2005, which states that educational institutions should facilitate the participation of physicians in specialization in research projects and actively stimulate scientific activity.
9. Continuing research expertise after completing a doctoral degree is important, both in terms of supervisory roles and the initiation of new personal projects.

Increased emphasis on internationalization and recruitment of new researchers

1. Clinic-based research often requires significant resources, including financial funding. In recent years, there has been a strong focus on the need for health research environments to secure more funding through EU grants. Dealing with EU calls for proposals can be complicated and writing strong EU applications in line with EU requirements can be challenging. In addition, the reporting requirements are high and demanding to meet. Most institutions that succeed often have multiple highly competent individuals in a unit who are employed to assist applicants in finding the right calls for proposals and helping with the application process. To undertake large projects in the clinic, we become increasingly dependent on larger funding. Our goal is to increase our focus on international collaboration and stronger research support in our grant applications, which will be crucial for achieving EU funding.
2. We aim to focus more on "incoming" and "outgoing fellowships" and aim to introduce a 1-year fellowship that rotates through our sections. We will also work to encourage residents in our research group to apply for "traveling fellowships" in various international orthopedic associations or directly to collaborating hospitals and research environments

abroad. In the long term, we want to establish a fellowship position in the clinic funded as a senior consultant position.

3. We aim to establish strong collaborations with centers involved in larger European studies. We will invite international participants to our research seminars and focus on greater participation in international forums.
4. The hospital has a legal requirement to conduct research on par with its other areas of responsibility. To meet this requirement, we need to recruit physicians at various stages of their careers into research. In the previous planning period, the research group was able to successfully support 1 doctoral dissertation each year, and we aim to maintain this as a goal. The Research Program was established in the autumn of 2002 at all four medical faculties in Norway. This is an offering to medical students who are interested in medical research and envision a future research career. These students are strong candidates for future doctoral degrees, and on average, they complete their doctoral degrees 10 years earlier than those who are not part of the Research Program. One of the goals described in Akershus University Hospital's development plan 2017-2030 is to recruit the best researchers and research candidates. Our goal is to recruit 1-2 Research Program students to the orthopedic research group in the upcoming period. The Research Program will function as a recruitment tool by capturing medical students interested in research at an early age.

Increased focus on interdisciplinary collaboration and nursing research.

As of today, there are no nurses with a master's degree working in orthopedic inpatient units at Ahus. There is a need for an increase in research competence among nurses to meet the society's demand for evidence-based nursing services. Within the focus areas of the hospital's development plan 2017-2030, it is stated that the hospital should facilitate further education opportunities for employees in various fields. The Orthopedic Research Group will work to recruit more nurses into projects and be a driving force for initiating nursing research within the clinic. In 2017, one nursing position was recruited for one of the projects in the Orthopedic Research Group. Furthermore, a nursing project related to factors affecting functional levels after hip fractures is planned. This motivates, generates interest, and fosters an understanding of research among nurses. Additionally, it can encourage nurses to pursue master's education and engage in crucial and possible research areas in collaboration with the research group. It is desirable to facilitate more nursing research and physiotherapy research. Eventually, we aim to establish leave arrangements that support master's programs. It would be desirable to have a master's degree position divided into 50% patient care and 50% research. Beyond this strategic period, the goal is to extend this to a doctoral degree in nursing.

Visibility of research activity

1. In the past two years, the number of publications has remained stable, but it is important for the research group to increase the frequency of publications in well-ranked journals. Our goal is to establish orthopedic research at the Clinic at a high international level. This means one or more publications in a top-ranked journal. This will require the research group to think creatively and address topics and issues that have a broader interest across multiple disciplines. This involves an increase in both quality and quantity. The aim is to publish between 20-30 articles by the end of the strategic period. In recent years, the department has had several publications in the highest-ranked journals in the field of orthopedic surgery. The goal for the next planning period is to increase the number of articles in top-ranked journals. To achieve this goal, it is important that the research group works hard to maintain the quality stamp on the research in the Orthopedic Clinic, as well as to broaden the perspective beyond comparing orthopedic surgical

methods. One goal is that a minimum of 30% of publications from the orthopedic research group will be in a level 2 journal.

2. We aim to have an external Orthopedic research seminar annually, where we invite several relevant partners. The research seminar should be a forum for presenting and highlighting our research and research activity, as well as a potential platform for networking.
3. We want to strengthen our media strategy by focusing on project descriptions in newspapers, the internet, and intranet, as well as other relevant media outlets like forskning.no. This will contribute to increased visibility, increased patient recruitment for both research projects and the Orthopedic Clinic as the patient's first choice for treatment.

Innovation

Orthopedics is a field that provides opportunities for innovation since a significant portion of the treatment we offer to patients involves surgical procedures or other practical components. It is a goal within the Orthopedic Clinic to increase awareness of the hospital's commitment to innovation and to continuously evaluate the potential for innovation in research projects. When good ideas and potential innovation studies arise, consideration should be given to involving the hospital's Idea Clinic, and collaboration should be established with Inven2 and Kjeller Innovation for evaluation, patenting, and potential commercialization.

4. MEANS

The key measures to achieve the clinic's strategic goals are to strengthen research support for clinic-adjacent research. The overhead introduced in 2016 will be essential for funding one position shared between a physiotherapist and a nurse to provide clinical support in the projects. This will also help free up time for working on applications for financial funding. Furthermore, there should be a focus on increasing the proportion of incoming and outgoing fellowships, as well as participation in the research program's recruitment seminars to recruit and strengthen the research environment in the Orthopedic Research Group. To achieve the goal of EU funding and fellowships, it is essential to emphasize increased international collaboration. Recruitment of research line students, fellowships, enhanced internationalization, research support, and the goal of one doctoral thesis per year can contribute to increasing the number of publications from the research group. Information and motivation efforts targeted at master's and research work among nurses can promote interdisciplinary collaboration and a stronger focus on nursing research. This will also contribute to improved patient care and further strengthen the research environment. We will continue to focus on proposal writing as a topic at the annual internal research seminars and introduce the clinic proposal to increase the funding for our projects.