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Developing Research in Radiology: The Estonian Outlook

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The University of Tartu, founded in 1632 is a national university in Estonia uniting different branches of science. The Faculty of Medicine in the University of Tartu is the only faculty for medical education in Estonia including radiology. Research and teaching are the major activities of the Faculty of Medicine and the Foundation University of Tartu Clinics. Its mission is to advocate for a highly-educated Estonia through internationally acclaimed research and the provision of research-based higher education. Due to the small size of our country, in order to develop radiology, we have had to implement several strategies to develop the academic, clinical and biomedical environment for research with close cooperation between domestic and foreign partners. This is to ensure that we are keeping pace with development across the globe. This article covers the steps we have taken to carry this out.

The department of radiology aims to guarantee academic sustainability which must be achieved by employing the best Estonian and foreign researchers in the radiology at the university of Tartu. Its main goals are to:

1. Make academic careers more attractive for junior radiologists, researchers and residents, and motivate them to consider this path;
2. Connect doctoral studies closely with university teaching to create a new generation of academic staff - career possibilities must be made clear to young specialists;
3. Raise the income level of academic staff. The low income level of academic staff and doctoral students compared to radiologists in clinical practice is one of the reasons why young specialists do not choose an academic career;
4. Provide individuals in academic posts with experience at a foreign institution when elected to academic posts; and,
5. Increase the proportion of members of the academic staff from abroad and support their involvement in the teaching and research of radiology in Estonia.

Status of Radiological Research

Research and teaching are, by necessity, closely connected. Due to Estonia's small size, there are only a few persons involved in research and teaching in radiology, with only two positions in the department of radiology. The department of radiology is led by the Professor, or 'Docent', who is responsible for the development of radiology in Estonia, for teaching radiology and resident training in the University of Tartu and who must be the leader of research in radiology. A senior assistant is also responsible for resident training. Other positions are filled by the senior radiologists from the Foundation University of Tartu Clinics, who are also involved in teaching students and radiology residents. Altogether there are only three radiologists in Estonia who have PhD degrees able to apply for grants and lead research projects. Only one of them now works at the University of Tartu. To bolster these low numbers, a guest professor is also nominated from abroad. Since September 2006, Professor H. Aronen from the University of Turku, Finland is working here in this capacity.

Young Researchers Give Hope for the Future

Due to the lack in Estonia of our own supervisors for doctoral studies, several Estonian doctoral students are sent abroad to outstanding

research centres in radiology in different countries, for example to the Karolinska Hospital, Sweden, the National Hospital, Oslo, etc. There, young researchers in radiology get supervision and funding to fulfil their research plans and increase their experience.

It is to be hoped that these young researchers will inject new life, after returning to Estonia, using new experiences in clinical practice and developing their own research projects in Estonia. Only with a strong competitive edge and an international focus in research and tuition is the development of the University of Tartu as an outstanding research centre, possible.

Developing Research Projects in Estonia

Several projects in radiological imaging in Estonia are based on cooperation with other clinical specialties. A long-standing cooperation connects research in radiology and neurology, oncology, paediatrics, neuropaediatrics, intensive care, rheumatology and orthopaedics. All these studies were funded nationally through different governmental grants.

The basic system for initiating clinical research studies in Estonia is to get approval from the Ethical Committee of Human Research in the University of Tartu. The committee includes physicians, lawyers, social workers, philosophers and priests. They evaluate the ethical and juridical aspects of the scientific value of the study and suitability of the planned research in humans. The evaluation is separated from the working place and the researchers. The Ethical Committee is based on the convention of human rights and biomedicine of the European Union (1997), other international documents of bioethics and Estonian legislation. The aim of the committee is to guarantee the human rights and the health of the research subjects.

Types of Research Funding

The Estonian Ministry of Education and Research is responsible for the planning, coordination, execution and surveillance of research and education policies. The Estonian Research Council is an advisory body to the Minister of Education and Research, members of which are nominated for three years by the government. The council is supported in its activities by nine expert groups. The channels of the Estonian research and development financing funding system are:

1. Targeted financing;
2. Baseline funding;
3. Research grant funding (the Estonian Science Foundation);
4. National research and development programmes; and,
5. Funding of research and development infrastructures.

Targeted financing is decided by the Minister of Education and Research following the recommendation of the Estonian Research Council. The aim is to ensure a competitive basic structure for scientific research. Open to all fields and all research groups, both basic and applied research is funded. The Estonian Research Council organises the peerreviewing of submitted applications and advises the Minister on opening funding for new research themes and the continuation of funding for previously approved ones. The funding period for approved research topics is up to six years, subject to periodical assessment of progress. The Estonian Research Council also makes proposals concerning the covering of infrastructure expenses of research and development institutions. 34 new research topics with a total budget of 58.54 million kroons were approved for targeted financing in 2007.

Baseline funding is a new instrument, introduced in 2005. The purpose is financing research institutions on the basis of research quality in order to support the development and initiative research of institutions. Also, it is aimed for co-financing of cooperation projects, international and local, between academia and industry.

Estonian Science Foundation & Research

The Estonian Science Foundation (EstSF), established in July 1990 by Estonian Government, is an expert research-funding organisation. Its main goal is to support the most promising research initiatives in all fields of basic and applied research. The EstSF uses state budget appropriations to award peer-reviewed research grants to individuals and research groups on a competitive basis. The purpose is primarily to support high-level initiative research, new ideas and studies. Project applications are evaluated by expert commissions and approved by the EstSF Council. In the year 2007 EstSF is financing 630 research projects - 144 new and 486 continuing. The overall sum of granting in 2007 is 101.6 million kroons.

Guidelines for a Knowledge-based Estonia

At present the main guideline and document for Estonian Research and Development policy is "Knowledge-based Estonia", the Estonian Research, Development and Innovation Strategy 2007-2013, which was approved by the Estonian parliament in February 2007. The strategy outlines the aspiration of Estonia to become a knowledge-based society where research and development are valued highly as one of the preconditions for the functioning and development of the entire society. Key principles of the policy is to promote high-quality and internationally competitive research with focus on human potential and infrastructure which can create high economic surplus value.

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