

**Evaluation of Research in Medicine (3):
Clinical Medicine (3.3), Public Health (3.4), Stomatology
(3.5), Environmental Health, Behavior Nutrition,
Occupational Therapy, Rehabilitation (3.7)
in Estonia**

Institutes evaluated

Faculty of Medicine, University of Tartu

Department of Pulmonary Medicine
Department of Cardiovascular and Thoracic Surgery
Department of Cardiology
Department of Stomatology
Department of Obstetrics and Gynecology
Department of Hematology-Oncology
- Chair of Hematology and Oncology
- Chair of Radiology
Clinic of Anaesthesiology and Intensive Care
Department of Surgery
Department of Neurology and Neurosurgery

Estonian Institute of Cardiology

Division of Clinical Cardiology

Department of Cardiac Arrhythmias
Department of Clinical Cardiology
Working Group of Rehabilitation

Division of Preventive Cardiology

Department of Adults' Preventive Cardiology
Department of Children's Preventive Cardiology
Department of Nutrition and Metabolism

Evaluation dates

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Part I

General Overview

Introduction

At the request of the Estonian Higher Education Accreditation Centre, Tallinn (EHEAC), an evaluation team (hereafter named the “Evaluators”) visited institutes in Estonia carrying out research activities in medicine (3). The evaluating team consisted of Prof. Ian Bone (Institute of Neurological Sciences, Glasgow), Prof. Raimo Sulkava (University of Kuopio), prof. Heikki Murtomaa (University of Helsinki) and prof. Karl-Göran Tranberg (Lund University).

The institutions to be evaluated were:

1) University of Tartu, Faculty of Medicine

- Department of Pulmonary Medicine (*Head: Docent Alan Altraja, MD, PhD*)
- Department of Cardiovascular and Thoracic Surgery (*Head: Ass. Prof. Andres Pulges, Dr.Med*)
- Department of Cardiology (*Head: Prof. Rein Teesalu*)
- Department of Stomatology (*Head: Docent Mare Saag*)
- Department of Obstetrics and Gynecology (*Head: Docent Helle Karro*)
- Department of Hematology-Oncology (*Head: Prof. Hele Everaus, Dr.Sci.Med.*)
 - Chair of Hematology and Oncology (*Head: Prof. Hele Everaus, Dr.Sci.Med*)
 - Chair of Radiology (*Head: Vladimir Järv, senior assistant*)
- Clinic of Anaesthesiology and Intensive Care (*Head: Prof. Joel Starkopf, MD, PhD*)
- Department of Surgery (*Head: Prof. A. Peetsalu*)
- Department of Neurology and Neurosurgery (*Head: Prof. Toomas Asser*)

2) Estonian Institute of Cardiology

Division of Clinical Cardiology

- (1) Department of Cardiac Arrhythmias (Head: Jüri Kaik).
- (2) Department of Clinical Cardiology (Head: Peeter Laane)
- (3) Working group of rehabilitation (Head: Aita Graf)

Division of Preventive Cardiology

- (1) Department of Adults’ Preventive Cardiology (Head: Olga Volozh, DmedSc)
- (2) Department of Children’s Preventive Cardiology (Head: Lagle Suurorg, PhD)
- (3) Department of Nutrition and Metabolism (Head: Merilaid Saava, PhD)

The evaluators were provided in advance with self-assessment reports from the institutions, prepared by the members of their groups.

After a brief orientation meeting at EHEAC, the evaluators visited the institutions to be evaluated in Tartu and Tallinn during four days. At these meetings staff members of the various departments presented their work. During these presentations as well as during the subsequent discussions additional information about the research activities was provided. This included additional documents such as copies of published papers.

Approach to the evaluation

The evaluators were asked to:

- 1) Judge the activities of research and development in the units evaluated and the research topics implemented by them to ensure the governmental funding for internationally recognised research and development. The Team was asked to concentrate on research units (university departments, laboratories) with specific comments to sub-units, groups if necessary.
- 2) Identify deficiencies in the activities of research and development units.
- 3) Give recommendations on the development concerning research and development and research areas to the state of Estonia.

The Team received the following materials: A working schedule, principles and criteria for evaluation of the research units, evaluation guidelines for the ranking of research units, and self-evaluation reports created by the research units themselves.

On a first evaluation point, the *quality of the research activities* was considered. This assessment is largely based on the records of scientific publications.

<i>Excellent</i>	<i>The majority of the submitted works are at a high international level and virtually all others at a good international level.</i>
<i>Excellent to good</i>	<i>At least one third of the submitted works are at a high international level and many others at a good international level, these together comprise a clear majority.</i>
<i>Good</i>	<i>The majority of the submitted works are at least at a good international level and virtually all others at a fair international level</i>
<i>Good to satisfactory</i>	<i>At least one third of the submitted works are at a good international level and many others at a fair international level, these together comprise a clear majority</i>
<i>Satisfactory</i>	<i>The majority of the submitted works are at least at a fair international level</i>
<i>Satisfactory to unsatisfactory</i>	<i>A minority of the submitted works are at a fair international level</i>
<i>Unsatisfactory</i>	<i>None, or virtually none, of the submitted works are at a fair international level</i>

Regarding the grading of the research activities, the evaluation team was instructed by the EHEAC to reserve the term **excellent** for groups, which were found to be among the best 10% of the European groups in the corresponding field. Similarly, the term **excellent to good** should be used if the evaluated group was found to be among the best 25 % of corresponding European groups. The full scale comprised 7 levels, in addition to the highest ones the grades are **good, good to satisfactory, satisfactory, satisfactory to unsatisfactory, and unsatisfactory**.

Secondly, the *over-all capability* of a research unit was evaluated based on a the combined assessment of the following criteria (each graded in three levels):

	Grade 0	Grade 1	Grade 2
Originality/novelty of past and ongoing research activity	descriptive, no novelty	some novelty/originality	original/novel
The strategy and	no or bad strategy, no or	fair strategy and	clear strategy and very

perspective of research	unclear perspective for further research	perspective for further research	perspective for further research
Multidisciplinarity and relevance for other research areas	no multidisciplinarity, no relevant for other research areas	some multidisciplinarity, some relevance	good multidisciplinarity, good relevance for other research areas
The competence of research groups and their capability for development	low competence	there is competence, but no young postgraduate and postdoctoral students	there is competence and postgraduate and postdoctoral students
National and international co-operation	no particular national and international co-operation	some national/international co-operation	good or tight national/international co-operation
Success in applying for funds and grants	no particular success	fair success	applying successfully for grants and funds

Excellent - 12-10 (total grade), **Good** - 9-7 (total grade), **Satisfactory** - 6-4 (total grade) and **Unsatisfactory** - 3-0 (total grade). As the result of this assessment one of the four grades **excellent, good, satisfactory** or **unsatisfactory** was given for the group.

Thirdly, the *implementation opportunities* for the research results and their importance for the Estonian society were commented upon.

Finally, on a fourth evaluation point *the critical comments and recommendations* were asked to be given by the evaluation team.

Part II

General Comments

Introduction

The task of the Panel was to review the research conducted between 1998-2002 at the Faculty of Medicine of the University of Tartu and the Estonian Institute of Cardiology (EIC). Self-assessment reports were provided to the Panel prior to this evaluation.

The Panel acknowledges the dynamic effort of the Dean and the Vice-deans of the Medical faculty to facilitate research during this complex period of transition. The following general comments were made:

- Biomedicum and the Center of Excellence offer a focused, high quality environment for collaborative studies of high international standard
- strong leadership was encountered in many departments and not necessarily in those with professorial appointments
- the Panel appreciates the devotion and motivation of young academics in the period of transition
- there seems to be a positive influence of doctoral students trained abroad on the research within the departments they return to
- many research programs were too broad and unfocused

- financial hardship is generally encountered by doctoral students
- some major public health issues are not addressed in current research programs
- doctoral studies complicate specialist training by not being incorporated into the residency programs
- there seems not to be a clear career development plan for doctoral students
- doctoral students represent the future of academic medicine of Estonia and need to be recognized as vital resource requiring appropriate investment
- output in peer reviewed journals is generally low in spite of a high number of abstracts at national and international meetings
- the panel remained unclear as to the way the grant applications were processed by various funding bodies they were addressed to
- cross-fertilization with academics from outside of Estonia was minimal with only one visiting professor and no academic appointees from outside the country
- in all departments heavy clinical and teaching commitments understandably reduce the opportunities for research
- the obvious need for organizational changes within the clinical and academic departments as well as groupings of the departments in order to facilitate research

For the purposes of this report the evaluators defined the **implementation opportunities** as changes in Estonian health care directly due to peer reviewed research carried out in Estonia. (where left blank this may reflect the time scale of this evaluation 1998-2002).

Part III

Evaluation of institutions and research groups

1. Faculty of Medicine, University of Tartu

1.1. Department of Pulmonary Medicine (*Head: Docent Alan Altraja, MD, PhD*)

Main research fields

- 1) Pathogenesis of tissue remodeling in chronic inflammatory pulmonary disease
- 2) Inflammation-modifying properties of drugs used in the management of bronchial asthma
- 3) Pathogenesis of tissue injury in chronic obstructive pulmonary disease (COPD) and other chronic inflammatory disorders of the lung with special regard to extracellular matrix degrading enzymes
- 4) Reasons behind the ineffectiveness of treatment of tuberculosis
- 5) Elaboration and evaluation of the treatment of multidrug-resistant tuberculosis (MDR-TB): individualized vs. standardized drug regimens. Analytical epidemiology of multidrug-resistance in tuberculosis.
- 6) The genetic basis of susceptibility to tuberculosis

- 7) Distribution and resistance patterns of the lower respiratory tract pathogens
- 8) Characterization of oxidative stress in the lower airways in chronic obstructive airway disease
- 9) Prevalence of asthma and allergic respiratory disorders in Estonia

General Comments

The Panel found dr. Alan Altraja to be a good motivator for PhD students. His research was structured and focused. The small size of the department and the heavy clinical and teaching duties (including physiotherapists) have an obvious effect on research output. None the less the department has been reasonably successful particularly in the field of multi-drug resistant pulmonary TB.

Evaluation of Research Activities

The team of evaluators judged the overall quality of the research to be *Good to satisfactory*.

Evaluation of Overall Capability

The team of evaluators judged the overall capability to be *Good*.

	Grade
Originality/novelty of past and ongoing research activity	1.0
The strategy and perspective of research	1.5
Multidisciplinarity and relevance for other research areas	1.0
The competence of research groups and their capability for development	1.5
National and international co-operation	2.0
Success in applying for funds and grants	1.0

The implementation opportunities for the research results and their importance for the Estonian society

Through their research the department has been able to address a major public health problem in Estonia.

Recommendations

There seems to be potential and adequate facilities for research in the department. The department should be enlarged to accommodate more time for research.

1.2. Department of Cardiovascular and Thoracic Surgery (Head: Ass. Prof. Andres Pulges, Dr.Med)

Main research fields

In cardiac surgery:

- 1) Myocardial protection;
- 2) Acute renal failure (ARF), postoperative management in cardiac surgery, peritoneal dialysis;
- 3) Reconstructive operations on mitral valve;
- 4) Congenital heart disease, endovascular procedures.

In thoracic surgery:

- 1) Video-assisted thoracoscopic surgery;
- 2) Diagnostics and treatment of pleural empyema;
- 3) Epidemiology and genetics of lung cancer.

In vascular surgery:

- 1) Functionality of endothelium and peripheral arterial diseases;
- 2) Biofilm and vascular graft infection;
- 3) Allografts materials, reconstructive arterial surgery;
- 4) Ischaemia/reperfusion injury and abdominal aortic aneurysm repair;
- 5) Ischaemia/reperfusion injury and endarterectomy of the internal carotid artery;
- 6) Ischaemia/reperfusion injury of the rat brain and glutathione analogues.

General Comments

The panel appreciates the advances of this new department. The innovative and enthusiastic leadership of dr.Andres Pulges has obviously been important in this process. The quality of research presentations was of high standard.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *good to satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *good*.

	Grade
Originality/novelty of past and ongoing research activity	1.0
The strategy and perspective of research	2.0
Multidisciplinarity and relevance for other research areas	1.0
The competence of research groups and their capability for development	2.0
National and international co-operation	2.0
Success in applying for funds and grants	1.0

The implementation opportunities for the research results and their importance for the Estonian society

The outcome of their research has direct implementations to patient treatment.

Recommendations

The panel recommends that increased funding would allow continuation and expansion of these active research programs. This may, however, include reduction in the number of research projects.

1.3. Department of Cardiology (Head: Prof. Rein Teesalu, Ph.D, Dr.Med., FESC)**Main research fields**

- heart rate variability;
- arterial hypertension;
- preventive cardiology ;

- out-of-hospital sudden death;
- lipid lowering therapy in patients with ischaemic heart disease;
- myocardial infarction registry;
- measurement of carotid artery intima-media thickness – by ultrasound;
- post myocardial infarction heart failure;
- endothelial dysfunction

Target research funding from Estonian Ministry of Education

1998-2002 HEART FAILURE AND ISCHAEMIC HEART DISEASE – PREVENTION, FUNDAMENTAL AND CLINICAL ASPECTS. PI: Prof. Rein Teesalu. Total amount = 2 951 000 EEK

2003-2006 POST- MYOCARDIAL INFARCTION HEART FAILURE: DETERMINANTS OF SEVERITY, MANAGEMENT AND PROGNOSIS. PI: Prof. Rein Teesalu. For 2003 = 384 000 EEK

General Comments

The Panel was impressed by the quality of diagnostic equipment. The organization of clinical department was also impressive. The department seemed to have taken a large responsibility of disseminating up-to-date knowledge, guidelines and providing continuing education through local and own publications.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *good*

	Grade
Originality/novelty of past and ongoing research activity	1.0
The strategy and perspective of research	1.0
Multidisciplinarity and relevance for other research areas	1.0
The competence of research groups and their capability for development	2.0
National and international co-operation	1.5
Success in applying for funds and grants	1.0

The implementation opportunities for the research results and their importance for the Estonian society

The research is targeted to significant public health issues. The Estonian Myocardial Infarction Register provides valuable data on epidemiology and outcome of treatments to evaluate future trends. However, co-ordinated activities with public health institutions should be considered.

Recommendations

The high quality of clinical work together with modern and high-quality equipment available, links with biomedical and molecular research gives a sound basis for focused research in the future.

1.4. Department of Stomatology (*Head: Docent Mare Saag*)

Main research activities

Research is going on in four sections according to the fields of dentistry as follows:

- 1) Oral and Dental Diseases, responsible Docent Mare Saag
- 2) Orthodontics, responsible Docent Rita Nõmmela
- 3) Prosthetic Dentistry, responsible Docent Olev Salum
- 4) Oral&Maxillofacial Surgery, responsible Prof. em. Edvitar Leibur

Main research topics

- 1) Pathogenesis and treatment of periodontal diseases
- 2) Epidemiology and prevention of dental caries and malocclusions,
- 3) Transmission of mutans streptococci from dentally anxious mothers to their newly born children
- 4) Periodontal microecology in chronic periodontitis patients and radiographic changes in temporomandibular joints
- 5) Rheumatoid arthritis: pathogenesis, inflammatory mediators, cytokines, pain, serotonin antagonists
- 6) Evaluation of reparative regeneration and osseointegration in periodontology and implantology
- 7) Epidemiology, pathogenesis and clinical aspects of odontogenic tumors
- 8) Genealogical study of cleft lip and palate patients. Evaluation of complex treatment results (surgical and orthodontic)
- 9) Validation of identification and age estimation methods in forensic odontology.
- 10) Temporomandibular dysfunction : occlusal factors and functional overload
- 11) Dental aspects of obstructive sleep apnoe

General Comments

There is little laboratory-based research, which is seen as a problem by the department. There is potential within the department for addressing this issue. Heavy clinical and teaching commitment particularly among the clinical teachers as a result of the university department providing dental care services is an obstacle for research. The research output is moderate.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	0
The strategy and perspective of research	2.0
Multidisciplinarity and relevance for other research areas	1.0
The competence of research groups and their capability for development	1.5
National and international co-operation	1.5
Success in applying for funds and grants	0

The implementation opportunities for the research results and their importance for the Estonian society

Recommendations

Oral diseases present a preventable public health problem that needs to be addressed. The research projects should be reduced in number and clearly focused. To increase research output of the department, the clinical duties of the staff members has to be reduced and reorganized.

1.5. Department of Obstetrics and Gynecology (Head: Docent Helle Karro, DMSci)

Main research fields

The research is associated with reproductive health and fertility.

- 1) Perinatal epidemiology: association of perinatal outcome with different factors (mainly using data from the Estonian Medical Birth Registry)
- 2) Reproductive behavior and use of reproductive health services
- 3) Adolescents' sexual and reproductive health: factors affecting sexual maturation, reproductive behavior and teenage pregnancies
- 4) Epidemiology of infertility and its specificity in Estonia
- 5) Women's health in the climacterium: advantages and disadvantages of hormone replacement therapy in the postmenopausal period

New directions in 2003:

- 1) Improvement of infertility treatment using IVF in a natural cycle and Doppler ultrasound
- 2) Development of new diagnostic methods for preimplantation genetic diagnosis
- 3) Susceptibility to recurrent spontaneous abortion and genetic variation at chorionic gonadotropin beta genome cluster
- 4) Prediction of preeclampsia by oxidative stress markers and Doppler

General Comments

There has been no professor in the department for the last ten years. In this particular department this has had an effect on the research activities, funding and focus. There has been a considerable decline in research funding over the period of assessment. Only one third of doctoral students have defended their theses. We were encouraged both by the project on recurrent spontaneous abortions and the potential in research created by the links with the Institution of Molecular and Cell Biology.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *Satisfactory to unsatisfactory*.

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *Satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	1
The strategy and perspective of research	1
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1
National and international co-operation	0
Success in applying for funds and grants	0

The implementation opportunities for the research results and their importance for the Estonian society

Recommendations

In order to exploit the potential of the young, motivated staff members, academic leadership is essential. Collaboration within public health and health promotion regarding sexual behavior and related diseases is encouraged.

1.6. Department of Hematology-Oncology (*Head of the Department: Prof. Hele Everaus*)

The structure of the department of Hematology-Oncology

- Chair of Hematology-Oncology (Head Prof. Hele Everaus)
- Chair of Radiology (Head: Senior Ass. Vladimir Järv)

1.6.1. Chair of Hematology and Oncology (*Pprof. Hele Everaus*)

Main research areas

- Aspects of hematopoietic stem cell differentiation in normal and pathologic conditions
- The effectiveness of high dose chemotherapy with or without hematopoietic stem cell support
- The role of immunohormonal interactions in hematopoietic malignancies
- Population based study of acute and chronic leukemias and lymphomas

Target financed research projects

TARHO 2142. TITLE: HEMATOPOIETIC STEM CELL TRANSPLANTATION IN LYMPHO-PROLIFERATIVE AND MYELOPROLIFERATIVE TUMOURS. Terms: 2002-2006. Financing organization: Estonian Ministry of Education. Financial support: 2002: 400 000 EEK; 2003: 400 000 EEK. Principal investigator: Prof. Hele Everaus

TARHO 0466. TITLE: EFFECTIVENESS OF CHEMOTHERAPY AND BONE MARROW TRANSPLANTATION IN LEUKAEMIAS AND LYMPHOMAS DEPENDING ON CANCER CLONE AND IMMUNE REACTIVITY OF ORGANISM. Terms: 1998-2001. Financing organization: Estonian Ministry of Education. Financial support: 1998: 193 400 EEK; 1999: 305 000 EEK; 2000: 309 000 EEK; 2001: 305 000 EEK. Principal investigator: Professor Hele Everaus

General Comments

It was difficult for the panel to understand how the structure of this large, multi-disciplinary department would benefit high-quality research. It was particularly

disappointing that we did not meet representatives of the surgical oncology team to better understand the organisation and responsibilities. Surgery is the most important treatment modality for solid tumours, and we have difficulties to understand its role within the department. Assessing the relevance and quality of publications as presented in the self-assessment was difficult.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *Satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *Good*

	Grade
Originality/novelty of past and ongoing research activity	1
The strategy and perspective of research	1
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1.5
National and international co-operation	1
Success in applying for funds and grants	1.5

The implementation opportunities for the research results and their importance for the Estonian society

The research activities within haematology have allowed a national service in stem cell transplantation with excellent clinical results.

Recommendations

We think that it would be advantageous to perform surgical treatment of solid tumours at the surgical department, which would benefit scientific activities and facilitate the use of new surgical techniques.

The same applies to the separation of diagnostic radiology from the department of haematology-oncology.

1.7. Clinic of Anaesthesiology and Intensive Care (Head: Ass. Prof. Joel Starkopf)

Main research activities

- Sepsis and multiorgan failure
- Oxidative stress and ischaemia-reperfusion injury
- Cardiopulmonary resuscitation

Sepsis and multiple organ failure. Key persons: R. Talvik, J. Starkopf, H. Kern, A. Sipria, J. Karjagin, K. Tamme, T. Metsvaht. Collaboration: Clinic of Anaesthesiology and Intensive Care, University of Tartu , Institute of Anatomy; Institute of Biochemistry; Institute of Pharmacology, University of Tartu, Department of Anaesthesiology and Intensive Care, Charite Hospital, Berlin Humboldt University

Oxidative stress, ischaemia-reperfusion injury, myocardial protection by hyperoxia. Key persons: J. Starkopf, K. Tamme, P. Tähepõld, I. Karu. Collaboration: Clinic of Anaesthesiology and Intensive Care, University of Tartu, Department of Biochemistry,

University of Tartu, Department of Cardiac Surgery, Tartu University Clinics, North-Estonian Regional Hospital, Department of Cardiac Surgery, Tallinn, Department of Medical Physiology, University of Tromsø, Norway, Crafoord Laboratory of Experimental Surgery, Division of Thoracic Surgery, and Division of Cardiothoracic Anaesthetics and Intensive Care, Karolinska Hospital, Sweden

Out of hospital cardiopulmonary resuscitation – effectiveness and prognosis. Key persons: A. Sipria, V. Reinhard

General Comments

We found it difficult to see the independent research profile of the department. We thought there were several reasons for this. Firstly, dr Starkopf, as recently appointed head of the clinic, is responsible for the administration and professional leadership of a great number of anaesthesiologists at several sites. We were also uncertain to which degree the link with the Humboldt University has been established. Unfortunately, we did not have the opportunity to meet the three doctoral students, which would have given the possibility to assess the quality of research in greater detail.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *Satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *Satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	1
The strategy and perspective of research	1
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1
National and international co-operation	1
Success in applying for funds and grants	0

The implementation opportunities for the research results and their importance for the Estonian society

Recommendations

In a situation of a small university department and a large clinical staff, the clinical burden will extinguish research. The panel feels that it is imperative to increase department staff within the department to create opportunities for research. The nature of some of the current research lends collaboration with other departments using the same or similar methodology.

1.8. Department of Surgery (Head: Prof. A. Peetsalu)

Structure of the department

- 1) Chair of General Surgery
 - o Department of General and Plastic Surgery, incl. Endocrine Surgery (Head: Docent U. Lepner)

2) Chair of Surgical Diseases

- Department of Paediatric Surgery (*Head: Senior Ass. K. Varik, Cand Med*)
- Department of Urology and Kidney Transplantation (*Head: Senior Assistant G. Timberg*)
- Department of Abdominal Surgery (*Head: Docent T. Väli*)
- Department of Out-patient Surgery, incl. Day Surgery (*Head: Dr. T. Tikk*)
(the department is also a base for the Chair of General Surgery)

Main research fields

- 1) General and abdominal surgery
- 2) Plastic surgery
- 3) Urology
- 4) Paediatric surgery

Target financing

"ACUTE INFLAMMATION AND REJECTION REACTION IN SURGICAL PATIENTS – EARLY DIAGNOSTICS, OPTIMAL TREATMENT, REDUCTION OF COMPLICATIONS AND PROPHYLAXIS." (No. 0180420Bs98). Period: 1998-2001. Project leader: Prof. A. Peetsalu. Principle investigators: Dr. T. Sillakivi, Dr. A. Mägi, Doc. U. Lepner, Dr. M. Peetsalu, Dr. A. Tein. Total amount: 932 000.

General Comments

It was difficult for the panel to evaluate the research activities because of the large variation in disciplines and projects. The size of the department has decreased considerably during the last years due to subspecialty development (cardiothoracic surgery). Most of the research is descriptive and unfocused. However, the research on peptic ulcer disease and its complications is of good quality. We also note the efforts to establish a project with the departments of molecular pathology and internal medicine on the pathogenesis on gastric diseases. We were disappointed that there are only two doctoral students within this large department.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *Satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *Satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	1
The strategy and perspective of research	1
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1
National and international co-operation	1
Success in applying for funds and grants	1

The implementation opportunities for the research results and their importance for the Estonian society

The peptic ulcer research has important implications for the Estonian Society.

Recommendations

There is a great need to reduce the number of research projects, to focus on only a few areas and to become familiar with research methodologies. A comprehensive data base would make it easy to conduct audit and separate this from research.

1.9. Department of Neurology and Neurosurgery (Head: Prof. Toomas Asser)

Main research fields

- Clinical epidemiology of neurological diseases. Quality of life.
- Haemodynamic, hydrodynamic and biochemical changes after acute brain lesions
- Neuropathology and molecular neuropathology. Mechanisms of glioma invasion.

Targeted research funding

1998–2001 EPIDEMIOLOGY OF ACUTE AND DEGENERATIVE DISEASES OF THE CENTRAL NERVOUS SYSTEM IN ESTONIA, AND PATIENTS' QUALITY OF LIFE IN RELATED DISEASES. PATHOGENESIS AND MORPHOLOGY IN BRAIN DAMAGE, MECHANISMS OF VASOSPASM IN ACUTE BRAIN DISEASE. PI: Professor Toomas Asser. Total amount: 2 807 000 EEK

2002–2006 DIFFERENT PATHOGENETIC ASPECTS OF DISEASES OF NERVOUS SYSTEM, PREVALENCE AND FACTORS INFLUENCING QUALITY OF LIFE OF PATIENTS. PI professor Toomas Asser. For 2002: 600 000 EEK. For 2003: 720 000 EEK

General Comments

The panel noted the strong history of neurology and neurosurgery at the university and the transition from observational studies to laboratory research. We noted 11 doctoral students, all working in different fields, and would have welcomed the opportunity to hear some of them present their research to us. We were impressed by quality of work at the neuropathology department at the Biomedicum and the active co-operation with all the colleagues in neurobiology. The importance of establishing a tissue bank is acknowledged. We noted that certain frequent disorders like dementia has received no research attention.

Evaluation of Research Activities

The team of evaluators judged the overall quality of the research to be *Good to satisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability to be *Excellent*

	Grade
Originality/novelty of past and ongoing research activity	1
The strategy and perspective of research	2
Multidisciplinarity and relevance for other research areas	2
The competence of research groups and their capability for development	2
National and international co-operation	1
Success in applying for funds and grants	2

The implementation opportunities for the research results and their importance for the Estonian society

The demographic and quality of life studies have provided a good basis for health care planning. Staff members have been active in establishing societies for Parkinson's disease and epilepsy. Development of telemedicine has improved diagnosis and care of the patients throughout the country.

Recommendations

In order to do competitive research at an international level the department needs to focus on one or two specific areas of research. The new developments in MR technology will allow new research areas in the future. The tissue bank should receive continuing funding.

2. Estonian Institute of Cardiology (Director: Jüri Kaik, MD, PhD)

2.1 Division of Preventive Cardiology

Structure of the division

Dept. of Adults' Preventive Cardiology (*Head: Olga Volozh, DMedSc*)

Dept. of Children's Preventive Cardiology (*Head: Lagle Suurorg, PhD*)

Dept. of Nutrition and Metabolism (*Head: Merilaid Saava, PhD*)

Main research areas of the Division of Preventive Cardiology

During the existence of the Division of Preventive Cardiology the following directions of scientific research in the field of epidemiology and prevention of cardiovascular diseases (CVD) have been elaborated:

- Prevalence of CVD and the main risk factors in the population of working age (entire free-living population of Tallinn, working population of industrial enterprises);
- 20-year trends in the prevalence of CVD and risk factors in the adults' and children's population;
- Nutrition (structure, habits); 15 years trends; assessment of nutritional status;
- Relationship between risk factors, risk factors and CVD, risk factors and diet;
- Predictive value of risk factors and some other factors for CVD incidence and mortality;
- Some other factors related to CVD (psychological, heredity, biochemical factors, etc);
- Prevention CVD in high-risk contingent at the level of family;
- CVD, risk factors and diet in relation to aging; healthy aging activities;
- Reliability of Estonian mortality statistics;
- Development of the research on primary prevention of early onset and/or decrease of risk factors in childhood and high-risk approach;
- Integrated intervention on the basis of the health promotion strategy and the help to the health policy planning.

Target-financed projects:

THE BASIC PROJECT NO.0300002S98 "LONG-TERM TRENDS OF CARDIO-VASCULAR RISK PROFILE IN ADULTS AND CHILDREN IN RELATION TO DIET AND LIFE-STYLE (results of cross-

sectional epidemiological surveys, years 1981-2000). Duration: 1998-2001. Target (basic) funding 2,339 000 EEK (1998 –500 000; 1999 –610 000; 2000- 614 000; 2001 –615 000 EEK). Project leader Merilaid Saava.

THE BASIC PROJECT no.0302155S02 “CARDIOVASCULAR DISEASES, NUTRITION AND MAIN RISK FACTORS IN AGING (an epidemiological-clinical investigation)”. Duration: 2002-2005. Targeted-finances 2002: 550 000 EEK. Project leader Merilaid Saava, PhD.

General Comments

Whilst having a good picture of the research programs, the panel had little information on financing and administration. Similarly, the strategic position of the department in relation to other departments of public health and health promotion was unclear.

Evaluation of Research Activities

The team of evaluators judged the overall quality of the research to be *Satisfactory to unsatisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability to be *Satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	0.5
The strategy and perspective of research	1.5
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1
National and international co-operation	1
Success in applying for funds and grants	1

The implementation opportunities for the research results and their importance for the Estonian society

We appreciate the existing database on health and health-related behavior in young Estonians covering the last two decades. This should be used a reference for continuing studies. Their latest studies point to the rising problem of malnutrition in the elderly population.

Recommendations

We found research competence within the area of preventive cardiology, which should be preserved in a more functional context. Collaboration with other experts within the field should be encouraged.

2.2. Division of Clinical Cardiology

Structure of the Division of Clinical Cardiology

- (1) Department of Cardiac Arrhythmias (*Head Jüri Kaik*).
- (2) Department of Clinical Cardiology (*Head Peeter Laane*)
- (3) Working group of rehabilitation (*Head Aita Graf*)

Main areas of research

Clinical cardiology in general, especially prevention of sudden cardiac death (SCD) in various high-risk subgroups of CAD patients as well as in patients with hypertensive heart

disease with significant changes in left ventricular geometry, physical rehabilitation after myocardial revascularization procedures (PTCA, CABG), evaluation of soft- and hardware for new non-invasive diagnostic methods of life-threatening arrhythmias -mainly in cooperation with the Biomedical Engineering Centre of Tallinn Technical University (TTU).

Target-financed project

Target-financed project 0300001s98 THE CLINICAL AND PROGNOSTIC SIGNIFICANCE OF LEFT VENTRICULAR HYPERTROPHY IN DIFFERENT HEART DISEASES. Duration: from 01.01.1998 to 31.12.2001. Project leader: Jüri Kaik, PhD, MD, Director. Finances: 1st year 1998 - 400 000 EEK; 2nd year 1999 - 490 000 EEK; 3rd year 2000 - 466 000 EEK; 4th year 2001 - 460 000 EEK. Total -1 816 000 EEK.

Target-financed project 0142084Bs02 (2002-2006) MYOCARDIAL ELECTRICAL INSTABILITY IN DIFFERENT LEFT VENTRICULAR GEOMETRIC PATTERNS - COURSE AND PROGNOSIS. Duration: 01.01.2002 -31.12.2006. Project leader: Jüri Kaik, PhD, MD, Director. Financing in 2002 - 590 000 EEK

General Comments

Regrettably, we did not have the opportunity to meet with members of the department of clinical cardiology or the working group of rehabilitation and therefore based our assessment on the department of cardiac arrhythmias. We noted that there were no defended academic degrees during the period being assessed. The research training potential is not being exploited. The panel did not get any information on the biotechnical background of the project, which made the assessment very difficult. It would have been helpful to have seen the laboratory equipment and the methods for analysis. Similarly, the strategic position of the department in relation to other departments of cardiology was unclear.

Evaluation of Research Activities

The Evaluation Team judged the overall quality of the research to be *Satisfactory to unsatisfactory*

Evaluation of Overall Capability

The team of evaluators judged the overall capability of the research group to be *Satisfactory*

	Grade
Originality/novelty of past and ongoing research activity	2
The strategy and perspective of research	1
Multidisciplinarity and relevance for other research areas	1
The competence of research groups and their capability for development	1
National and international co-operation	0.5
Success in applying for funds and grants	1

The implementation opportunities for the research results and their importance for the Estonian society

We acknowledge the clinical excellence by virtue of the fact that complex arrhythmia cases are referred to the department from the whole Estonia. We noted that the department has been successful in getting two patents.

Recommendations

Structural changes seem to be needed. We would advise that this is accomplished with the aid of external specialist cardiologic review. We understand that the Institute is open to co-operation with all involved parties.

Part IV

Summary of evaluation

The panel met with representatives of 9 different Departments in Medical Faculty of University of Tartu and The Estonian Institute of Cardiology in Tallinn. The individual assessments of both quality and research and overall capability ranged from excellent to satisfactory/unsatisfactory.

Part V

General recommendations

- To get improvement in the quality of research in a short time the investment in human resources should go together with the investment in equipment and buildings.
- Improve conditions for researchers, especially PhD students and post docs. This may be achieved by raising the PhD scholarship salary and/or integration of clinical work and research, allowing research at office hours with preserved salary.
- Ensure a higher salary for a person having acquired a PhD degree as compared to a person with similar qualifications but without a PhD degree.
- Make a clear and committed announcement of the value of having performed research, including a thesis, for the career within the medical field with opportunities for continuing research and teaching.
- Research should be an integral part of the work at the department and time for this should be reserved for the PhD student and the tutor.
- It is important that clinical research is initiated and led by a doctor performing clinical work. This is the best way to ensure that relevant problems are studied and that the right questions are asked. At the same time, it is important to utilise the skills and knowledge that the pre-clinical institutions have and to seek their advice and co-operation.
- High quality research requires expensive facilities and equipment as well as specialised skills. It is especially important for a small country like Estonia to co-operate between

institutions and to share advanced and expensive facilities and equipment. For the same reason, it is important to focus the research in a few areas, which may involve more than one institution (in research programs).

- It is important to clarify the rules for funding, especially so-called targeted funding.
- International reviewers of grant applications should be used.
- It should be possible to prolong research funding for a particular topic if the project is good and productive.
- Provide collaborative courses in research methodologies, especially covering general techniques in clinical and experimental research, but also in specific areas such as neurobiology and angiology/cardiology.
- There is a need for restructuring within certain clinical departments and groupings.
- Work should be published in peer-reviewed international journals in order to ensure quality and to create international contacts. This would also help to avoid doing studies that have already been performed and published. As far as possible epidemiological studies should be population-based with molecular-genetic approach combined with proper interventions.
- Visits to international institutions for PhD studies or for acquiring specific skills/methodology. When someone is sent abroad, there should be a contract specifying the goals and, especially, what should be brought back home with respect to know-how and methodology.
- Participation in multi-institutional international studies should be encouraged.
- There is a need for establishing links/partnerships and exchange with the international academic and scientific communities.

VI. Acknowledgements

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