RC-Specific Evaluation of MS Group – Medication Safety Group

Seppo Saari & Antti Moilanen (Eds.)
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI 2005–2010

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Seppo Saari & Antti Moilanen (Eds.)

Summary:
Researcher Community (RC) was a new concept of the participating unit in the evaluation. Participation in the evaluation was voluntary and the RCs had to choose one of the five characteristic categories to participate.

Evaluation of the Researcher Community was based on the answers to the evaluation questions. In addition a list of publications and other activities were provided by the TUHAT system. The CWTS/Leiden University conducted analyses for 80 RCs and the Helsinki University Library for 66 RCs. Panellists, 49 and two special experts in five panels evaluated all the evaluation material as a whole and discussed the feedback for RC-specific reports in the panel meetings in Helsinki. The main part of this report is consisted of the feedback which is published as such in the report.

Chapters in the report:
1. Background for the evaluation
2. Evaluation feedback for the Researcher Community
3. List of publications
4. List of activities
5. Bibliometric analyses

The level of the RCs’ success can be concluded from the written feedback together with the numeric evaluation of four evaluation questions and the category fitness. More conclusions of the success can be drawn based on the University-level report.

RC-specific information:

Main scientific field of research:
Medicine, Biomedicine and Health Sciences

Participation category:
4. Research of the participating community represents an innovative opening

RC’s responsible person:
Airaksinen, Marja

RC-specific keywords:
patient safety, medication safety, medication management, collaborative practice, pharmaceutical services, (medication-related) health technology assessment, effectiveness, cost-effectiveness, cost-utility, pharmaceutical policy

Keywords:
Research Evaluation, Meta-evaluation, Doctoral Training, Bibliometric Analyses, Researcher Community

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Foreword

The evaluation of research and doctoral training is being carried out in the years 2010–2012 and will end in 2012. The steering group appointed by the Rector in January 2010 set the conditions for participating in the evaluation and prepared the Terms of Reference to present the evaluation procedure and criteria. The publications and other scientific activities included in the evaluation covered the years 2005–2010.

The participating unit in the evaluation was defined as a Researcher Community (RC). To obtain a critical mass with university-level impact, the number of members was set to range from 20 to 120. The RCs were required to contain researchers in all stages of their research career, from doctoral students to principal investigators (PIs). All in all, 136 Researcher Communities participated in this voluntary evaluation, 5857 persons in total, of whom 1131 were principal investigators. PIs were allowed to participate in two communities in certain cases, and 72 of them used this opportunity and participated in two RCs.

This evaluation enabled researchers to define RCs from the “bottom up” and across disciplines. The aim of the evaluation was not to assess individual performance but a community with shared aims and researcher-training activities. The RCs were able to choose among five different categories that characterised the status and main aims of their research. The steering group considered the process of applying to participate in the evaluation to be important, which lead to the establishment of these categories. In addition, providing a service for the RCs to enable them to benchmark their research at the global level was a main goal of the evaluation.

The data for the evaluation consisted of the RCs’ answers to evaluation questions on supplied e-forms and a compilation extracted from the TUHAT – Research Information System (RIS) on 12 April 2011. The compilation covered scientific and other publications as well as certain areas of scientific activities. During the process, the RCs were asked to check the list of publications and other scientific activities and make corrections if needed. These TUHAT compilations are public and available on the evaluation project sites of each RC in the TUHAT-RIS.

In addition to the e-form and TUHAT compilation, University of Leiden (CWTS) carried out bibliometric analyses from the articles included in the Web of Science (WoS). This was done on University and RC levels. In cases where the publication forums of the RC were clearly not represented by the WoS data, the Library of the University of Helsinki conducted a separate analysis of the publications. This was done for 66 RCs representing the humanities and social sciences.

The evaluation office also carried out an enquiry targeted to the supervisors and PhD candidates about the organisation of doctoral studies at the University of Helsinki. This and other documents describing the University and the Finnish higher education system were provided to the panellists.

The panel feedback for each RC is unique and presented as an entity. The first collective evaluation reports available for the whole panel were prepared in July–August 2011. The reports were accessible to all panel members via the electronic evaluation platform in August. Scoring from 1 to 5 was used to complement written feedback in association with evaluation questions 1–4 (scientific focus and quality, doctoral training, societal impact, cooperation) and in addition to the category evaluating the fitness for participation in the evaluation. Panellists used the international level as a point of comparison in the evaluation. Scoring was not expected to go along with a preset deviation.

Each of the draft reports were discussed and dealt with by the panel in meetings in Helsinki (from 11 September to 13 September or from 18 September to 20 September 2011). In these meetings the panels also examined the deviations among the scores and finalised the draft reports together.

The current RC-specific report deals shortly with the background of the evaluation and the terms of participation. The main evaluation feedback is provided in the evaluation report, organised according to the evaluation questions. The original material provided by the RCs for the panellists has been attached to these documents.
On behalf of the evaluation steering group and office, I sincerely wish to thank you warmly for your participation in this evaluation. The effort you made in submitting the data to TUHAT-RIS is gratefully acknowledged by the University. We wish that you find this panel feedback useful in many ways. The bibliometric profiles may open a new view on your publication forums and provide a perspective for discussion on your choice of forums. We especially hope that this evaluation report will help you in setting the future goals of your research.

Johanna Björkroth  
Vice-Rector  
Chair of the Steering Group of the Evaluation

Steering Group of the evaluation  
Steering group, nominated by the Rector of the University, was responsible for the planning of the evaluation and its implementation having altogether 22 meetings between February 2010 and March 2012.

Chair  
Vice-Rector, professor Johanna Björkroth

Vice-Chair  
Professor Marja Airaksinen  
Chief Information Specialist, Dr Maria Forsman  
Professor Arto Mustajoki  
University Lecturer, Dr Kirsi Pyhältö  
Director of Strategic Planning and Development, Dr Ossi Tuomi  
Doctoral candidate, MSocSc Jussi Vauhkonen
Panel members

CHAIR
Professor Lorenz Poellinger
Cancer biology, cell and molecular biology
Karolinska Institute, Sweden

VICE-CHAIR
Professor Cornelia van Duijn
Genetic epidemiology, Alzheimer's disease and related disorders
Erasmus Medical Centre, the Netherlands

Professor Johanna Ivaska
Molecular cell biology, cell adhesion, cancer biology
University of Turku, VTT Technical Research Centre, Finland

Professor Olli Lassila
Immunology, medical microbiology
University of Turku, Finland

Professor Hans-Christian Pape
Neuroscience, neurophysiology
University of Münster, Germany

Professor Thomas Ruzicka
Dermatology, allergology
Ludwig-Maximilians-Universität (LMU) München, Germany

Professor Lars Terenius
Experimental alcohol and drug dependence research, mental disorders, preventive medicine
Karolinska Institute, Sweden

Professor Peter York
Physical pharmaceutics, pharmaceutical chemistry, pharmaceutical technology
University of Bradford, Great Britain

The panel, independently, evaluated all the submitted material and was responsible for the feedback of the RC-specific reports. The panel members were asked to confirm whether they had any conflict of interests with the RCs. If this was the case, the panel members disqualified themselves in discussion and report writing.

Added expertise to the evaluation was contributed by two evaluators outside the panels and by three members from the other panels.

External Experts
Professor Olli Carpén
Pathology, cancer cell metastasis
University of Turku
Finland

Professor Anders Linde
Oral biochemistry
Faculty of Odontology
Göteborg University
Sweden
Experts from the Other Panels
Professor Jan-Otto Carlsson, from the Panel of Natural Sciences
Professor Danny Huylebroek, from the Panel of Biological, Agricultural and Veterinary Sciences
Professor Holger Stark, from the Panel of Natural Sciences

EVALUATION OFFICE
Dr Seppo Saari, Doc., Senior Adviser in Evaluation, was responsible for the entire evaluation, its planning and implementation and acted as an Editor-in-chief of the reports.

Dr Eeva Sievi, Doc., Adviser, was responsible for the registration and evaluation material compilations for the panellists. She worked in the evaluation office from August 2010 to July 2011.

MSocSc Paula Ranne, Planning Officer, was responsible for organising the panel meetings and all the other practical issues like agreements and fees and editing a part the RC-specific reports. She worked in the evaluation office from March 2011 to January 2012.

Mr Antti Mollanen, Project Secretary, was responsible for editing the reports. He worked in the evaluation office from January 2012 to April 2012.

TUHAT OFFICE
Provision of the publication and other scientific activity data
Mrs Aija Kaitera, Project Manager of TUHAT-RIS served the project ex officio providing the evaluation project with the updated information from TUHAT-RIS. The TUHAT office assisted in mapping the publications with CWTS/University of Leiden.

MA Liisa Ekebom, Assisting Officer, served in TUHAT-RIS updating the publications for the evaluation. She also assisted the UH/Library analyses.

BA Liisa Jäppinen, Assisting Officer, served in TUHAT-RIS updating the publications for the evaluation.

HELSINKI UNIVERSITY LIBRARY
Provision of the publication analyses
Dr Maria Forsman, Chief Information Specialist in the Helsinki University Library, managed with her 10 colleagues the bibliometric analyses in humanities, social sciences and in other fields of sciences where CWTS analyses were not applicable.
Acronyms and abbreviations applied in the report

External competitive funding
AF – Academy of Finland
TEKES - Finnish Funding Agency for Technology and Innovation
EU - European Union
ERC - European Research Council
International and national foundations
FP7/6 etc. /Framework Programmes/Funding of European Commission

Evaluation marks
Outstanding (5)
Excellent (4)
Very Good (3)
Good (2)
Sufficient (1)

Abbreviations of Bibliometric Indicators
P - Number of publications
TCS – Total number of citations
MCS - Number of citations per publication, excluding self-citations
PNC - Percentage of uncited publications
MNCS - Field-normalized number of citations per publication
MNJS - Field-normalized average journal impact
THCP10 - Field-normalized proportion highly cited publications (top 10%)
INT_COV - Internal coverage, the average amount of references covered by the WoS
WoS – Thomson Reuters Web of Science Databases

Participation category
Category 1. The research of the participating community represents the international cutting edge in its field.
Category 2. The research of the participating community is of high quality, but the community in its present composition has yet to achieve strong international recognition or a clear break-through.
Category 3. The research of the participating community is distinct from mainstream research, and the special features of the research tradition in the field must be considered in the evaluation.
Category 4. The research of the participating community represents an innovative opening.
Category 5. The research of the participating community has a highly significant societal impact.

Research focus areas of the University of Helsinki
Focus area 1: The basic structure, materials and natural resources of the physical world
Focus area 2: The basic structure of life
Focus area 3: The changing environment – clean water
Focus area 4: The thinking and learning human being
Focus area 5: Welfare and safety
Focus area 6: Clinical research
Focus area 7: Precise reasoning
Focus area 8: Language and culture
Focus area 9: Social justice
Focus area 10: Globalisation and social change
1 Introduction to the Evaluation

1.1 RC-specific evaluation reports

The participants in the evaluation of research and doctoral training were Researcher Communities (hereafter referred to as the RC). The RC refers to the group of researchers who registered together in the evaluation of their research and doctoral training. Preconditions in forming RCs were stated in the Guidelines for the Participating Researcher Communities. The RCs defined themselves whether their compositions should be considered well-established or new.

It is essential to emphasise that the evaluation combines both meta-evaluation and traditional research assessment exercise and its focus is both on the research outcomes and procedures associated with research and doctoral training. The approach to the evaluation is enhancement-led where self-evaluation constituted the main information. The answers to the evaluation questions formed together with the information of publications and other scientific activities an entity that was to be reviewed as a whole.

The present evaluation recognizes and justifies the diversity of research practices and publication traditions. Traditional Research Assessment Exercises do not necessarily value high quality research with low volumes or research distinct from mainstream research. It is challenging to expose the diversity of research to fair comparison. To understand the essence of different research practices and to do justice to their diversity was one of the main challenges of the present evaluation method. Understanding the divergent starting points of the RCs demanded sensitivity from the evaluators.

1.2 Aims and objectives in the evaluation

The aims of the evaluation are as follows:

- to improve the level of research and doctoral training at the University of Helsinki and to raise their international profile in accordance with the University’s strategic policies. The improvement of doctoral training should be compared to the University’s policy.
- to enhance the research conducted at the University by taking into account the diversity, originality, multidisciplinary nature, success and field-specificity,
- to recognize the conditions and prerequisites under which excellent, original and high-impact research is carried out,
- to offer the academic community the opportunity to receive topical and versatile international peer feedback,
- to better recognize the University’s research potential.
- to exploit the University’s TUHAT research information system to enable transparency of publishing activities and in the production of reliable, comparable data.

1.3 Evaluation method

The evaluation can be considered as an enhancement-led evaluation. Instead of ranking, the main aim is to provide useful information for the enhancement of research and doctoral training of the participating RCs. The comparison should take into account each field of science and acknowledge their special character.

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1 The panellists did not read research reports or abstracts but instead, they evaluated answers to the evaluation questions, tables and compilations of publications, other scientific activities, bibliometrics or comparable analyses.

2 Policies on doctoral degrees and other postgraduate degrees at the University of Helsinki.
The comparison produced information about the present status and factors that have lead to success. Also challenges in the operations and outcomes were recognized.

The evaluation approach has been designed to recognize better the significance and specific nature of researcher communities and research areas in the multidisciplinary top-level university. Furthermore, one of the aims of the evaluation is to bring to light those evaluation aspects that differ from the prevalent ones. Thus the views of various fields of research can be described and research arising from various starting points understood better. The doctoral training is integrated into the evaluation as a natural component related to research. Operational processes of doctoral training are being examined in the evaluation.

Five stages of the evaluation method were:
1. Registration – Stage 1
2. Self-evaluation – Stage 2
3. TUHAT\(^3\) compilations on publications and other scientific activities\(^4\)
4. External evaluation
5. Public reporting

1.4 Implementation of the external evaluation

Five Evaluation Panels
Five evaluation panels consisted of independent, renowned and highly respected experts. The main domains of the panels are:
1. biological, agricultural and veterinary sciences
2. medicine, biomedicine and health sciences
3. natural sciences
4. humanities
5. social sciences

The University invited 10 renowned scientists to act as chairs or vice-chairs of the five panels based on the suggestions of faculties and independent institutes. Besides leading the work of the panel, an additional role of the chairs was to discuss with other panel chairs in order to adopt a broadly similar approach. The panel chairs and vice-chairs had a pre-meeting on 27 May 2011 in Amsterdam.

The panel compositions were nominated by the Rector of the University 27 April 2011. The participating RCs suggested the panel members. The total number of panel members was 50. The reason for a smaller number of panellists as compared to the previous evaluations was the character of the evaluation as a meta-evaluation. The panellists did not read research reports or abstracts but instead, they evaluated answers to the evaluation questions, tables and compilations of publications, other scientific activities, bibliometrics and comparable analyses.

The panel meetings were held in Helsinki:
- On 11–13 September 2011: (1) biological, agricultural and veterinary sciences, (2) medicine, biomedicine and health sciences and (3) natural sciences.
- On 18–20 September 2011: (4) humanities and (5) social sciences.

\(^3\) TUHAT (acronym) of Research Information System (RIS) of the University of Helsinki

\(^4\) Supervision of thesis, prizes and awards, editorial work and peer reviews, participation in committees, boards and networks and public appearances.
1.5 Evaluation material

The main material in the evaluation was the RCs' self-evaluations that were qualitative in character and allowed the RCs to choose what was important to mention or emphasise and what was left unmentioned.

The present evaluation is exceptional at least in the Finnish context because it is based on both the evaluation documentation (self-evaluation questions, publications and other scientific activities) and the bibliometric reports. All documents were delivered to the panellists for examination.

Traditional bibliometrics can be reasonably done mainly in medicine, biosciences and natural sciences when using the Web of Science database, for example. Bibliometrics, provided by CWTS/The Centre for Science and Technology Studies, University of Leiden, cover only the publications that include WoS identification in the TUHAT-RIS.

Traditional bibliometrics are seldom relevant in humanities and social sciences because the international comparable databases do not store every type of high quality research publications, such as books and monographs and scientific journals in other languages than English. The Helsinki University Library has done analysis to the RCs, if their publications were not well represented in the Web of Science databases (RCs should have at least 50 publications and internal coverage of publications more than 40%) – it meant 58 RCs. The bibliometric material for the evaluation panels was available in June 2011. The RC-specific bibliometric reports are attached at the end of each report.

The panels were provided with the evaluation material and all other necessary background information, such as the basic information about the University of Helsinki and the Finnish higher education system.

Evaluation material
1. Registration documents of the RCs for the background information
2. Self evaluation material – answers to the evaluation questions
3. Publications and other scientific activities based on the TUHAT RIS:
   3.1. statistics of publications
   3.2. list of publications
   3.3. statistics of other scientific activities
   3.4. list of other scientific activities
4. Bibliometrics and comparable analyses:
   4.1. Analyses of publications based on the verification of TUHAT-RIS publications with the Web of Science publications (CWTS/University of Leiden)
   4.2. Publication statistics analysed by the Helsinki University Library - mainly for humanities and social sciences
5. University level survey on doctoral training (August 2011)
6. University level analysis on publications 2005–2010 (August 2011) provided by CWTS/University of Leiden

Background material

University of Helsinki
- Basic information about the University of the Helsinki
- The structure of doctoral training at the University of Helsinki
- Previous evaluations of research at the University of Helsinki – links to the reports: 1998 and 2005

The Finnish Universities/Research Institutes
- Finnish University system
- Evaluation of the Finnish National Innovation System
- The State and Quality of Scientific Research in Finland. Publication of the Academy of Finland 9/09.

The evaluation panels were provided also with other relevant material on request before the meetings in Helsinki.
1.6 Evaluation questions and material

The participating RCs answered the following evaluation questions which are presented according to the evaluation form. In addition, TUHAT RIS was used to provide the additional material as explained. For giving the feedback to the RCs, the panellists received the evaluation feedback form constructed in line with the evaluation questions:

1. Focus and quality of the RC’s research
   - Description of
     - the RC’s research focus.
     - the quality of the RC’s research (incl. key research questions and results)
     - the scientific significance of the RC’s research in the research field(s)
   - Identification of the ways to strengthen the focus and improve the quality of the RC’s research

The additional material: TUHAT compilation of the RC’s publications, analysis of the RC’s publications data (provided by University of Leiden and the Helsinki University Library)
A written feedback from the aspects of: scientific quality, scientific significance, societal impact, innovativeness
   - Strengths
   - Areas of development
   - Other remarks
   - Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

2. Practises and quality of doctoral training
   - Organising of the doctoral training in the RC. Description of the RC’s principles for:
     - recruitment and selection of doctoral candidates
     - supervision of doctoral candidates
     - collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes
     - good practises and quality assurance in doctoral training
   - Identification of the ways to strengthen the practises and quality of doctoral training, and the actions planned for their development.

The additional material: TUHAT compilation of the RC’s other scientific activities/supervision of doctoral dissertations
A written feedback from the aspects of: processes and good practices related to leadership and management
   - Strengths
   - Areas of development
   - Other remarks
   - Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

3. The societal impact of research and doctoral training
   - Description on how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).
   - Identification of the ways to strengthen the societal impact of the RC’s research and doctoral training.

The additional material: TUHAT compilation of the RC’s other scientific activities.
A written feedback from the aspects of: societal impact, national and international collaboration, innovativeness
   - Strengths
   - Areas of development
   - Other remarks
   - Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)
4. International and national (incl. intersectoral) research collaboration and researcher mobility

- Description of
  - the RC’s research collaborations and joint doctoral training activities
  - how the RC has promoted researcher mobility
- Identification of the RC’s strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.

A written feedback from the aspects of: scientific quality, national and international collaboration

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

5. Operational conditions

- Description of the operational conditions in the RC’s research environment (e.g. research infrastructure, balance between research and teaching duties).
- Identification of the RC’s strengths and challenges related to operational conditions, and the actions planned for their development.

A written feedback from the aspects of: processes and good practices related to leadership and management

- Strengths
- Areas of development
- Other remarks
- Recommendations

6. Leadership and management in the researcher community

- Description of
  - the execution and processes of leadership in the RC
  - how the management-related responsibilities and roles are distributed in the RC
  - how the leadership- and management-related processes support
    - high quality research
    - collaboration between principal investigators and other researchers in the RC
    - the RC’s research focus
    - strengthening of the RC’s know-how
- Identification of the RC’s strengths and challenges related to leadership and management, and the actions planned for developing the processes

7. External competitive funding of the RC

- The RCs were asked to provide information of such external competitive funding, where:
  - the funding decisions have been made during 1.1.2005-31.12.2010, and
  - the administrator of the funding is/has been the University of Helsinki
- On the e-form the RCs were asked to provide:
  1) The relevant funding source(s) from a given list (Academy of Finland/Research Council, TEKES/The Finnish Funding Agency for Technology and Innovation, EU, ERC, foundations, other national funding organisations, other international funding organisations), and
  2) The total sum of funding which the organisation in question had decided to allocate to the RCs members during 1.1.2005–31.12.2010.

Competitive funding reported in the text is also to be considered when evaluating this point.

A written feedback from the aspects of: scientific quality, scientific significance, societal impact, innovativeness, future significance

- Strengths
- Areas of development
- Other remarks
- Recommendations

8. The RC’s strategic action plan for 2011-2013

- RC’s description of their future perspectives in relation to research and doctoral training.

A written feedback from the aspects of: scientific quality, scientific significance, societal impact, processes and good practices related to leadership and management, national and international collaboration, innovativeness, future significance

- Strengths
- Areas of development
9. Evaluation of the category of the RC in the context of entity of the evaluation material (1-8)

The RC’s fitness to the chosen participation category
A written feedback evaluating the RC’s fitness to the chosen participation category

- Strengths
-Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

10. Short description of how the RC members contributed the compilation of the stage 2 material
Comments on the compilation of evaluation material

11. How the UH’s focus areas are presented in the RC’s research?
Comments if applicable

12. RC-specific main recommendations based on the previous questions 1–11

13. RC-specific conclusions

1.7 Evaluation criteria

The panellists were expected to give evaluative and analytical feedback to each evaluation question according to their aspects in order to describe and justify the quality of the submitted material. In addition, the evaluation feedback was asked to be pointed out the level of the performance according to the following classifications:

- outstanding (5)
- excellent (4)
- very good (3)
- good (2)
- sufficient (1)

Evaluation according to the criteria was to be made with thorough consideration of the entire evaluation material of the RC in question. Finally, in questions 1–4 and 9, the panellists were expected to classify their written feedback into one of the provided levels (the levels included respective descriptions, ‘criteria’). Some panels used decimals in marks. The descriptive level was interpreted according to the integers and not rounding up the decimals by the editors.

Description of criteria levels

Question 1 – FOCUS AND QUALITY OF THE RC’S RESEARCH

Classification: Criteria (level of procedures and results)

Outstanding quality of procedures and results (5)

Outstandingly strong research, also from international perspective. Attracts great international interest with a wide impact, including publications in leading journals and/or monographs published by leading international publishing houses. The research has world leading qualities. The research focus, key research questions scientific significance, societal impact and innovativeness are of outstanding quality.

In cases where the research is of a national character and, in the judgement of the evaluators, should remain so, the concepts of “international attention” or “international impact” etc. in the grading criteria above may be replaced by “international comparability”. 
Operations and procedures are of outstanding quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are in alignment with the documentation. The ambition to develop the community together is of outstanding quality.

Excellent quality of procedures and results (4)
Research of excellent quality. Typically published with great impact, also internationally. Without doubt, the research has a leading position in its field in Finland.

Operations and procedures are of excellent quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of excellent quality.

Very good quality of procedures and results (3)
The research is of such very good quality that it attracts wide national and international attention.

Operations and procedures are of very good quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of very good quality.

Good quality of procedures and results (2)
Good research attracting mainly national attention but possessing international potential, extraordinarily high relevance may motivate good research.

Operations and procedures are of good quality, shared occasionally in the community. The improvement of research and other efforts are occasionally documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of good quality.

Sufficient quality of procedures and results (1)
In some cases the research is insufficient and reports do not gain wide circulation or do not have national or international attention. Research activities should be revised.

Operations and procedures are of sufficient quality, shared occasionally in the community. The improvement of research and other efforts are occasionally documented and operations and practices are to some extent in alignment with the documentation. The ambition to develop the community together is of sufficient quality.

Question 2 – DOCTORAL TRAINING
Question 3 – SOCIETAL IMPACT
Question 4 – COLLABORATION

Classification: Criteria (level of procedures and results)

Outstanding quality of procedures and results (5)
Procedures are of outstanding quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are documented and operations and practices are in alignment with the documentation. The ambition to develop the community together is of outstanding quality. The procedures and results are regularly evaluated and the feedback has an effect on the planning.

Excellent quality of procedures and results (4)
Procedures are of excellent quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of excellent quality. The procedures and outcomes are evaluated and the feedback has an effect on the planning.

Very good quality of procedures and results (3)
Procedures are of very good quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and
management are documented and operations and practices are to large extent in alignment with the
documentation. The ambition to develop the community together is of very good quality.

**Good quality of procedures and results (2)**

Procedures are of good quality, shared occasionally in the community. The practices and quality of
doctoral training/societal impact/international and national collaboration/leadership and
management are documented and operations and practices are to large extent in alignment with the
documentation. The ambition to develop the community together is of good quality.

**Sufficient quality of procedures and results (1)**

Procedures are of sufficient quality, transparent and shared in the community. The practices and
quality of doctoral training/societal impact/international and national collaboration/leadership and
management are occasionally documented and operations and practices are to some extent in
alignment with the documentation. The ambition to develop the community together is of sufficient
quality.

**Question 9 – CATEGORY**

Participation category – fitness for the category chosen

The choice and justification for the chosen category below should be reflected in the RC's responses to the
evaluation questions 1–8.

1. The research of the participating community represents the international cutting edge in its field.
2. The research of the participating community is of high quality, but the community in its present
   composition has yet to achieve strong international recognition or a clear break-through.
3. The research of the participating community is distinct from mainstream research, and the special
   features of the research tradition in the field must be considered in the evaluation. The research is
   of high quality and has great significance and impact in its field. However, the generally used
   research evaluation methods do not necessarily shed sufficient light on the merits of the
   research.
4. The research of the participating community represents an innovative opening. A new opening can
   be an innovative combination of research fields, or it can be proven to have a special social,
   national or international demand or other significance. Even if the researcher community in its
   present composition has yet to obtain proof of international success, its members can produce
   convincing evidence of the high level of their previous research.
5. The research of the participating community has a highly significant societal impact. The
   participating researcher community is able to justify the high social significance of its research.
   The research may relate to national legislation, media visibility or participation in social debate,
   or other activities promoting social development and human welfare. In addition to having
   societal impact, the research must be of a high standard.

**An example of outstanding fitness for category choice (5)**

The RC's representation and argumentation for the chosen category were convincing. The RC recognized
its real capacity and apparent outcomes in a wider context to the research communities. The specific
character of the RC was well-recognized and well stated in the responses. The RC fitted optimally for the
category.

- Outstanding (5)
- Excellent (4)
- Very good (3)
- Good (2)
- Sufficient (1)

The above-mentioned definition of outstanding was only an example in order to assist the panellists in
the positioning of the classification. There was no exact definition for the category fitness.

5 The panels discussed the category fitness and made the final conclusions of the interpretation of it.
1.8 Timetable of the evaluation

The main timetable of the evaluation:

1. Registration November 2010
3. External peer review May–September 2011
4. Published reports March–April 2012
   - University level public report
   - RC specific reports

The entire evaluation was implemented during the university’s strategy period 2010–2012. The preliminary results were available for the planning of the following strategy period in late autumn 2011. The evaluation reports will be published in March/April 2012. More detailed time schedule is published in the University report.

1.9 Evaluation feedback – consensus of the entire panel

The panellists evaluated all the RC-specific material before the meetings in Helsinki and mailed the draft reports to the evaluation office. The latest interim versions were on-line available to all the panellists on the Wiki-sites. In September 2011, in Helsinki the panels discussed the material, revised the first draft reports and decided the final numeric evaluation. After the meetings in Helsinki, the panels continued working and finalised the reports before the end of November 2011. The final RC-specific reports are the consensus of the entire panel.

The evaluation reports were written by the panels independently. During the editing process, the evaluation office requested some clarifications from the panels when necessary. The tone and style in the reports were not harmonized in the editing process. All the reports follow the original texts written by the panels as far as it was possible.

The original evaluation material of the RCs, provided for the panellists is attached at the end of the report. It is essential to notice that the exported lists of publications and other scientific activities depend how the data was stored in the TUHAT-RIS by the RCs.
2 Evaluation feedback

2.1 Focus and quality of the RC’s research

- **Description of**
  - the RC’s research focus
  - the quality of the RC’s research (incl. key research questions and results)
  - the scientific significance of the RC’s research in the research field(s)
- **Identification of the ways to strengthen the focus and improve the quality of the RC’s research**

**ASPECTS:** Scientific quality, scientific significance, societal impact, innovativeness

The special focus of the MS Group is in Health Care Sciences, particularly Medicines Management Services, and it integrates the disciplines of Social Pharmacy, Clinical Pharmacy and Pharmacoeconomics. The focused areas of research relate to the causes and effects of medication errors in Finland and establishing preventative mechanisms and guidelines to avoid such errors. Such studies require expertise in the above disciplines, with experienced scientists in these fields hard to recruit, and funding (from non-commercial sources to ensure impartiality) which again is difficult to source.

The MS Group was formed relatively recently and operates under the Division of Social Pharmacy, Faculty of Pharmacy which was established in 2004. The RC is composed of 30 members with two professors and two acting professors.

The RC has prioritized its key research areas as pharmaceutical policy research, medication safety, measuring effectiveness in pharmacoeconomical research and critical appraisal of evidence in drug therapy (systematic reviews and meta-analysis). Scientific work is oriented towards influencing professional practices and pharmaceutical policy making. The RC currently has 16 doctoral candidates with 11 working outside the Faculty of Pharmacy.

A major challenge for the RC is the fact that key journals in the field have low impact factors and publications in national journals, and since the work has high interest and need in Finnish society and policy making, it is appropriate to publish in domestic journals. Other outputs include contributions to policy documents and reports, and professional guidelines. As a consequence, the bibliometric analyses reflect these issues when judged on an international basis. There are 56 publications recorded, all with either national or international collaboration but impact value figures are as expected disappointing although three papers in the psychiatry discipline score high MNCS values.

The ways to strengthen the activities are sound and progressive yet challenging, but the evidence indicates the group is determined and committed to raising the profile and standing of the RC and should be encouraged.

**Numeric evaluation:** 3 (Very good)

2.2 Practises and quality of doctoral training

- **Organising of the doctoral training in the RC. Description of the RC’s principles for:**
  - recruitment and selection of doctoral candidates
  - supervision of doctoral candidates
  - collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes
  - good practises and quality assurance in doctoral training
  - assuring of good career perspectives for the doctoral candidates/fresh doctorates
- **Identification of the RC’s strengths and challenges related to the practises and quality of doctoral training, and the actions planned for their development.**
• Additional material: TUHAT compilation of the RC's other scientific activities/supervision of doctoral dissertations

ASPECTS: Processes and good practices related to leadership and management

The RC follows the guidelines of the Faculty of Pharmacy and the Graduate School of Pharmaceutical Research for organising the doctoral training. Competitive recruitment is used for Faculty and Graduate School funded doctoral posts whilst others are recruited by professors for self-funded students. Doctoral research topics and study protocols and study plans (including plans for 60 ECTS credits) must fit the RC research areas and are designed in collaboration with supervisory teams who carefully monitor student progress and performance. A major challenge with this system is the coordinated supervision of external doctorate candidates, and it is recommended that the RC establishes guidelines to establish and ensure quality supervising for these candidates. One possible way to organize this would be to set up a thesis committee with regular meetings for all the enrolled students. An independent student network within the RC has been established to promote inter-team discussion, exchange of information, and to benefit from and share collective experience and learning. This represents a valuable and appropriate process for all members of the RC.

The MS Group benefits from an extensive national and international cooperating network with external experts in the disciplines active in the RC, who have supported the research activities in general over the period of assessment as well as for the doctoral training acting as co-supervisors and pre-examiners.

It is encouraging to note that the five PhD graduates during the assessment period found employment in their areas of study outside the University of Helsinki (UH), although with the limited access to experienced staff, mechanisms to access this alumni could be sought to help with this challenge.

The major challenges identified for doctoral training are reported as being linked to increasing the domestic and international networks, securing additional resource of senior level staff and funding for doctoral training, although the actions being implemented to resolve these issues are not well articulated.

Numeric evaluation: 3 (Very good)

2.3 The societal impact of research and doctoral training

• Description on how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).
• Identification of the ways to strengthen the societal impact of the RC's research and doctoral training.
• Additional material: TUHAT compilation of the RC's other scientific activities.

ASPECTS: Societal impact, national and international collaboration, innovativeness

The growing awareness of the importance of understanding the non-therapeutic impact of the use of medicines in society provides clear societal impact on the public, and thus highlights the stated aims of the MS Group both for Finland and on an international scale. Because of their specialised expertise, the RC staff are in high demand to serve on expert committees and working groups at home and abroad in the field of policy making in the delivery of services which provide safe, rational and cost effective medicines. Thus research findings from the RC have informed strategic planning decisions for the development of medication management services for the Finnish government and other agencies, a commendable achievement.

The societal impact of the RC's work, expertise and outputs, especially with its focus on Finland, is clear, and ways to strengthen this activity are described in detail. In their self-evaluation the RC emphasizes the need for European level data management and assessment of drug safety. However, it is not clear how the group aims to move into this direction in addition to their domestic efforts. However, the routes and mechanisms to be employed are not well described.

Numeric evaluation: 3 (Very good)
2.4 International and national (incl. intersectoral) research collaboration and researcher mobility

- Description of
  - the RC's research collaborations and joint doctoral training activities
  - how the RC has promoted researcher mobility
- Identification of the RC's strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.

**ASPECTS:** Scientific quality, national and international collaboration

The range of expertise available within the RC staff is providing opportunities for leadership nationally and to some extent internationally in the areas of growing and recognized importance – medication safety, pharmaceutical policy, pharmacoeconomics and clinical pharmacy. These disciplines form the core of the RC’s research programs.

The RC has been involved with leading professional organizations in these fields (e.g. FIP, Global Research Institute for Pharmaceutical Practice) and organizing conference programs with similar agencies, as well as interacting with other research groups in these fields in the EU, Australia and New Zealand. These are all indicators of the growing strength and impact of the MS Group and the RC aims to expand these activities. It is important to promote international mobility also at the doctoral student and post-doctoral level. Such plans have not been included in the evaluation material.

The RC thus has a foundation in place upon which to build additional collaborations for research and doctoral training. However, due to the current situation of limited funding, resource and available time of staff, careful selection of key targeted interactions which will lead to an enhanced reputation and standing is recommended. Funding to support these ambitions remains a challenge and the leaders of the RC should explore all possible routes, including those beyond traditional sources, to secure additional finance and support. At the moment funding sources like the EU and different network programs for example have not been utilized.

**Numeric evaluation:** 3 (Very good)

2.5 Operational conditions

- Description of the operational conditions in the RC's research environment (e.g. research infrastructure, balance between research and teaching duties).
- Identification of the RC's strengths and challenges related to operational conditions, and the actions planned for their development.

**ASPECTS:** Processes and good practices related to leadership and management

As a relatively new group and RC, leadership and management procedures have been created and developed over the assessment period. With a small staff and consequential heavy teaching loads in the Faculty of Pharmacy, time available for research and supporting the postdoctoral students has been restricted. Additionally, limitations in infrastructure impose other burden on the staff. Nevertheless, efforts have been made to manage this difficult situation with responsibility and commitment.

The actions proposed to deal with these challenges are consistent with previous arguments (see points 1 – 4) and focus on recruiting additional senior research staff funded through increased external income.

With the recognized and growing evidence of the values and societal impact of the work of the RC for the Faculty of Pharmacy, UH and the Finnish nation, the leaders may wish to consider preparing a comprehensive report articulating the specific and unique challenges faced by the RC and progress this document through appropriate channels of the UH in an attempt to secure additional resource. At the same time, all efforts should be made in securing additional external resource to support research and training budgets.
2.6 Leadership and management in the researcher community

- Description of
  - the execution and processes of leadership in the RC
  - how the management-related responsibilities and roles are distributed in the RC
  - how the leadership- and management-related processes support
    - high quality research
    - collaboration between principal investigators and other researchers in the RC
    - the RC’s research focus
    - strengthening of the RC’s know-how
- Identification of the RC’s strengths and challenges related to leadership and management, and the actions planned for developing the processes

ASPECTS: Processes and good practices related to leadership and management

For the MS Group, the establishment of leadership and management processes has taken much effort during the evaluation period, especially during the early years. All aspects of work and procedures have been reorganised with the goal to enable the formation of the research teams. Success has been demonstrated by the good progress made by these teams with internal structures in place to share research understanding and implications of policy and practice. Staff are highly motivated and committed.

Whilst teaching loads are heavy, it is carefully planned around research objectives, and by optimising time allocation, motivation of staff is raised.

The strength of the RC is seen as the close collaboration between all members of the research teams. The challenges which are detailed reflect well on the careful thought and analysis by the RC leaders, and are seen as prioritising the research projects and time allocations for teaching, and to invest more time and resource in sourcing external funding and long term strategic planning. The maintenance and development of the competencies of research staff via appropriate training and experience are also recognised as important for the strengthening and future success of the RC.

2.7 External competitive funding of the RC

- The RCs were asked to provide information of such external competitive funding, where:
  - the funding decisions have been made during 1.1.2005–31.12.2010, and
  - the administrator of the funding is/has been the University of Helsinki
- On the e-form the RCs were asked to provide:
  1) The relevant funding source(s) from a given list (Academy of Finland/Research Council, TEKES/The Finnish Funding Agency for Technology and Innovation, EU, ERC, foundations, other national funding organisations, other international funding organizations), and
  2) The total sum of funding which the organisation in question had decided to allocate to the RCs members during 1.1.2005–31.12.2010.

Competitive funding reported in the text is also to be considered when evaluating this point.

ASPECTS: Scientific quality, scientific significance, societal impact, innovativeness and future significance

External grants have been secured for funding a professorial post in pharmacoeconomics (although it is not clear whether this is for a fixed time period) and €1.8m from the Ministry of Education for curriculum development and training in hospital pharmacy.

Whilst these monies have helped to establish some foundations in research and training in the RC, additional resource is urgently required. As mentioned previously, the RC is recommended to engage in a major effort to search for other sources of external funding and prepare submissions.
2.8 The RC’s strategic action plan for 2011–2013

RC’s description of their future perspectives in relation to research and doctoral training.

ASPECTS: Scientific quality, scientific significance, societal impact, processes and good practices related to leadership and management, national and international collaboration, innovativeness, future significance

The RC correctly identifies that the way forward for the group is to build on current activities and successes, and create well funded and well resourced long term research projects in their targeted fields of study. This would deliver further understanding and provide trained experts in the field to meet growing national and international arenas. However, the initiatives to be undertaken and approaches to be undertaken to resolve these critical issues, especially the acquisition of funding, are not well presented or articulated.

2.9 Evaluation of the category of the RC in the context of entity of the evaluation material (1-8)

The RC’s fitness to the chosen participation category. Category 4. The research of the participating community represents an innovative opening.

The participation category selected by the RC is most appropriate – category 4. Whilst the research coupled to doctoral training has a special need in scientific, professional and societal sectors given the increasing awareness of medication errors and the need for studies in this area, it is thought that a more appropriate category, at this stage of development of the RC, would be participation category 2 ‘The research of the participating community is of high quality, but the community in its present composition has yet to achieve strong international recognition or a clear break-through’. It is not seen that the ‘innovative opening’ detailed in the evaluation documentation provides a sufficient dimension of innovative new thinking and activity to justify category 4 membership.

As highlighted in the comments above, the RC recognizes the need for additional resource as the major area for development, to provide opportunities for growing future success. However a clear description on how the RC plans to tackle this issue is not well described and articulated.

Numeric evaluation: 3 (Very good)

2.10 Short description of how the RC members contributed the compilation of the stage 2 material

The process employed was fair and appropriate for preparing this document.

2.11 How the UH’s focus areas are presented in the RC’s research

The selected UH’s focus area 5 – ‘Welfare and safety’ – is appropriate for the topics of research and doctoral training for this RC.

2.12 RC-specific main recommendations

The Panel noted the strengths of the RC’s activities, including the societal impact of their work, in the field of medicine management and safety. The challenges faced by these relatively new areas of study within existing science based faculty structures, and ability to publish in high impact journals is recognized. The
efforts being made by the RC to seek solutions by conventional and alternative routes to overcome these issues is welcomed. Similarly the creation of appropriate practices and systems for quality training of doctoral students requires new approaches and again it is encouraging to note some positive and successful outcomes in this area.

The Panel also recommend that attention is directed to address concerns raised by the RC on supervision of external doctoral candidates, perhaps via scheduled regular meetings of a thesis committee.

Limitations to resource and funding are clearly constraining the activities of the RC. Given the clear commitment and dedication of the RC members, and the important societal role and impact of their work, the RC may wish to consider preparing a measured and strongly argued document to present to the UH via appropriate channels to request additional recognition of the RC and seek additional support. A parallel activity in searching widely for additional sources of external funds should also take place.

The Panel considered the proposed assignment to research participation category 4 made by the RC, but following discussion, were of the opinion that a more appropriate categorization would be in participation category 2.

2.13 RC-specific conclusions

The Panel wishes to commend the RC for the progress they have made in initiating the research and teaching activities in the management and safety of medicines. The challenges faced by the RC, especially in resources, and in publishing in high impact journals, are recognized.

The Panel suggests that a comprehensive document, detailing reasoned arguments and strategies to resolve these issues, is put forward to the UH for consideration and review. A parallel effort should also be initiated to seek all possible routes, conventional and alternatives, to enable the recruitment of new senior staff and additional doctoral students.
3 Appendices

A. Original evaluation material
   a. Registration material – Stage 1
   b. Answers to evaluation questions – Stage 2
   c. List of publications
   d. List of other scientific activities

B. Bibliometric analyses
   a. Analysis provided by CWTS/University of Leiden
   b. Analysis provided by Helsinki University Library (66 RCs)
NAME OF THE RESEARCHER COMMUNITY:
Medication Safety Group (MS Group)

LEADER OF THE RESEARCHER COMMUNITY:
Prof. Marja Airaksinen, Division of Social Pharmacy, Faculty of Pharmacy

RC-SPECIFIC MATERIAL FOR THE PEER REVIEW:

- Material submitted by the RC at stages 1 and 2 of the evaluation
  - STAGE 1 material: RC’s registration form (incl. list of RC participants in an excel table)
  - STAGE 2 material: RC’s answers to evaluation questions
- TUHAT compilations of the RC members’ other scientific activities 1.1.2005-31.12.2010
  (analysis carried out by CWTS, Leiden University)

NB! Since Web of Science(WoS)-based bibliometrics does not provide representative results for most RCs representing humanities, social sciences and computer sciences, the publications of these RCs will be analyzed by the UH Library (results available by the end of June, 2011)
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

### 1 RESPONSIBLE PERSON

Name: Airaksinen, Marja  
E-mail:  
Phone: +358 50 3361203  
Affiliation: Division of Social Pharmacy, University of Helsinki  
Street address: Viikinkaari 9 C, 00014 University of Helsinki

### 2 DESCRIPTION OF THE PARTICIPATING RESEARCHER COMMUNITY (RC)

Name of the participating RC (max. 30 characters): Medication Safety Group  
Acronym for the participating RC (max. 10 characters): MS Group  
Description of the operational basis in 2005-2010 (eg. research collaboration, joint doctoral training activities) on which the RC was formed (MAX. 2200 characters with spaces): The Division of Social Pharmacy at the University of Helsinki, established in 2004, has started a series of studies to identify service delivery processes and medicines associated with medication errors in the Finnish health care system. The goal is to apply this knowledge to develop preventive mechanisms and guidelines to avoid errors. The work links to the Council of Europe’s initiatives on patient safety and safe medication practices. Currently, this is the Division's key research area. The goal is to assess how best to organize the service delivery and support services so that medicine use is safe, rational and cost-effective.

The project operates at different levels of service development and outcomes assessment. The researcher community (Medication Safety Group, MS Group) has already performed extensive research at the patient/medicine user level. As a consequence, service delivery needs and the gaps between current services and patient needs in the Finnish context are quite well understood. The evidence indicates that the fundamental challenge is to reduce fragmentation and develop integrated services based on collaborative practice between different health care professionals and units. This integration also requires the involvement of patients/medicines users in their own care.

The most urgent need is for drug information and patient education services, medication reviews, dose-dispensing and monitoring services that are organized to assure a continuum of care with optimum outcomes. Our studies and experiences with work-life cooperation have shown that development and implementation of these kinds of services will require new support activities, including organizational culture and structure, and strategic resources. The project is based on the scientific and practical experience of the researcher community and its intensive cooperation with international and national actors in coordinating medicines management services and technology. These relationships will facilitate application of the results. Altogether, the project involves 16 active Ph.D. students in different phases with their dissertation projects (+5 completed during 2005-2010).
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

3 SCIENTIFIC FIELDS OF THE RC

Main scientific field of the RC’s research: medicine, biomedicine and health sciences

RC’s scientific subfield 1: Health Care Sciences and Services
RC’s scientific subfield 2: Pharmacology and Pharmacy
RC’s scientific subfield 3: --Select--
RC’s scientific subfield 4: --Select--

Other, if not in the list: Subfield 3: Social Pharmacy, Clinical Pharmacy and Pharmacoeconomics

4 RC’S PARTICIPATION CATEGORY

Participation category: 4. Research of the participating community represents an innovative opening

Justification for the selected participation category (MAX. 2200 characters with spaces): The MS Group’s research represents an innovative opening that combines research fields which have a special social, national and international priority. Medications account for a high percentage of all events that can go wrong in health care. Consequently, adverse events due to medications have become a priority in health policy initiatives. Most of the evidence on medication errors and safe medication practices come from outside Europe, particularly from the US. There is an urgent need for creating evidence from European systems, including the Finnish system, and to give an overall perspective on medication safety both as a public health and as a health policy issue. Trends and interventions which are having a significant impact on improving medication safety, as well as strategies chosen in different countries, should be explored. In this respect, Pharmacy Practice, Clinical Pharmacy and Pharmacoeconomic research are needed to inform evidence-based policy.

The long-term research strategy of the MS Group is influenced by national pharmaceutical policy goals and continuing research interests of the staff, especially its strong involvement in the national joint projects to improve medication management and integrate pharmaceutical services into other health care services. Research interests reflect training under a basic and graduate curriculum based on a systems approach and economic evaluation of practices. The need for adding these areas to the Faculty of Pharmacy’s operations became evident from the external evaluation of the quality of education in 2001. Subsequent milestones include the establishment of a Chair in Social Pharmacy in 2003 and one in Pharmacoeconomics in 2005, both donated by the University Pharmacy. Social Pharmacy became one of the divisions of the Faculty of Pharmacy in 2004. The Division has been actively involved in redesigning the pharmacy curriculum under the Bologna process. Subsequent changes include the establishment of new scientific studies for Master’s and doctoral students in Social Pharmacy and Pharmacoeconomics, and, since 2010, in Hospital Pharmacy.

5 DESCRIPTION OF THE RC’S RESEARCH AND DOCTORAL TRAINING

Public description of the RC’s research and doctoral training (MAX. 2200 characters with spaces): Medicines play a key role in managing many major public health concerns. Even though drug therapies are evolving to be more effective and sophisticated, their actual impact on public health can vary and is dependent on the actual systems for medication use. Accumulating evidence of problems related to
managing medications in health care systems (such as errors, side-effects and medication interactions) suggest that little has actually been done to improve the process. Such improvements will require: new services, the adoption of technologies that prevent the occurrence of drug-related problems and medication errors, and developing methods to identify critical risk points in the medication use process. These have become leading issues internationally, and involve service delivery systems, technological innovation and adaptation of technology to new uses.

The goal of this Researcher Community (Medication Safety Group) is to develop and implement new medication management services to improve drug therapy outcomes. It is a multidisciplinary effort employing collaborative practices and patient empowerment. The project is based on the researcher community’s scientific and practical experience in coordinating medication management services and technology and its long and intensive cooperation with international and national actors. These relationships will facilitate application of the results.

The Medication Safety Group has several ongoing research projects concerned with developing medicines management services from different perspectives. The key is to assess how best to organize service delivery and support services so that medication use is safe, rational and cost-effective. Projects involve altogether 16 active Ph.D. students in different phases with their dissertation projects (+ 5 completed).

Significance of the RC’s research and doctoral training for the University of Helsinki (MAX. 2200 characters with spaces): The MS Group’s research and development areas cover the applicant organization’s (Division of Social Pharmacy) key strategic priorities and areas of excellence. The Group has made many contributions to strengthening medication management in Finland. It has been involved in producing new practical innovations in patient service delivery and support activities, as well as strategic thinking that influences pharmaceutical policy, workforce development and the technological infrastructure. The research areas covered by the MS Group also have international relevance. This work has added to scientific knowledge through publications in peer reviewed journals, contributions to working groups and congress programs, and personal contacts.

The MS Group’s results have been utilized by bodies involved in strategic planning and those responsible for coordinating the development of medication management services, databases and information technology in Finland. These include a wide range of organizations within health care and pharmaceutical administration, such as authorities, professional organizations and continuing education units. The work will also benefit companies involved in providing information technology for medication management in health care. Specifically, it will be of direct relevance to the University of Helsinki through the operations of the University Pharmacy and of the Palmenia Centre for Continuing Education.

The MS Group has a wide cooperation network nationally and internationally. This network consists of scientists, educators, continuing education coordinators, pharmacy practitioners, pedagogic and communication experts, journal editor and drug and health policy makers. This network of external experts has been crucial for starting the new discipline at the University of Helsinki and setting its strategic research and training goals.

The MS Group has been actively involved in organizing professional and scientific programs for national and international audiences. The Group has contributed to committees and working groups concerning medication safety and health technology assessment (e.g. at the Ministry of Social Affairs and Health).
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

Keywords: patient safety, medication safety, medication management, collaborative practice, pharmaceutical services, (medication-related) health technology assessment, effectiveness, cost-effectiveness, cost-utility, pharmaceutical policy

6 QUALITY OF RC’S RESEARCH AND DOCTORAL TRAINING

Justified estimate of the quality of the RC’s research and doctoral training at national and international level during 2005-2010 (MAX. 2200 characters with spaces): Doctoral training in Social Pharmacy started at the University of Helsinki in 2003. Thus, the current evaluation period 2005-2010 covers the very first years of the discipline and scientific work initiated at the early phase of the operations. There has been a lot of interest in having doctoral training in Social Pharmacy and Pharmacoeconomics which can be seen in the number of active Ph.D. students (currently 16, of whom 11 are working outside the faculty). In addition to work in progress, 5 Ph.D. candidates have completed during 2005-2010, which is quite a high number if taking into account the limited resources and the evolution phase of the discipline. Four of the current Ph.D. students are in the final phase of their work (expected to complete in 2011). The limited resources concern particularly senior level scientists specialized in the field that could act as supervisors, and lack of external funding.

The research funding has been mainly personal grants for Ph.D. students from non-profit sources. The researcher community’s principle has been to avoid commercial funding sources (e.g., drug companies) to avoid conflict of interest. This is important because the Group is cooperating with public sector stakeholders and those involved in pharmaceutical policy making. In the early phase of operations it has been necessary to allocate a lot of resources on development of competencies needed in scientific work (theory base and methodology). The Group has received 2 Fulbright grants for curriculum development in 2007 and 2010.

The Group has actively published in peer reviewed international journals that can be considered as main journals in the field with impact factors ranging between 1-3. The future goal is to publish in higher impact journals, such as BMJ (one paper currently under review). In addition to international fora, the Group actively publishes in national scientific and professional journals and contributes to policy documents and reports, and professional guidelines. More senior level scientists are needed in the team (e.g., via the adjunct professor system) and long-term research funding, particularly in Pharmacoeconomics and Hospital Pharmacy.

Comments on how the RC’s scientific productivity and doctoral training should be evaluated (MAX. 2200 characters with spaces): The scientific work of the MS Group is strongly oriented towards influencing professional practices and pharmaceutical policy making. This can be seen in the publication strategy of the Group and outcomes of its scientific work. These aspects should be taken into account in the evaluation. It is also important to remember that the international and national scientific society in the field is limited which influences impact factors of the key journals.

The Group’s Ph.D. candidates belong to the National Graduate School of Pharmaceutical Sciences. The graduate school is quite natural science oriented and does not provide as much support in theoretical and methodological studies for our students as for Ph.D. candidates from other disciplines involved. That is why the MS Group has organized an own Ph.D. student network which has regular research meetings (involves also supervisors).
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<th>Last name</th>
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<th>Title of research and teaching personnel</th>
<th>Affiliation</th>
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<tr>
<td>Airaksinen</td>
<td>Marja</td>
<td>IV: Professor</td>
<td>Faculty of Pharmacy, Division of Social Pharmacy</td>
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<td>Pohjanoksa-Mäntylä</td>
<td>Marika</td>
<td>II: University Instructor, III: University Lecturer</td>
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NAME OF THE RESEARCHER COMMUNITY: Medication Safety Group

RC-LEADER: M. Airaksinen

Category: 4
Name of the RC’s responsible person: Airaksinen, Marja

E-mail of the RC’s responsible person:

Name and acronym of the participating RC: Medication Safety Group, MS Group

The RC’s research represents the following key focus area of UH: 5. Hyvinvointi ja turvallisuus – Welfare and safety

Comments for selecting/not selecting the key focus area: Medication Safety Group (MS Group) represents an innovative opening that combines research fields which have a special social, national and international priority. Pharmacotherapy plays a key role in managing many long-term diseases, but also minor symptoms in self-medication. Medicines are used in various community and hospital settings. Their clinical, humanistic and economical value as a treatment method is highly influenced by appropriateness of use. Appropriateness of use covers professional practices, procedures, and systems, such as prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use.

There is growing evidence that medications account for a high percentage of all events that can go wrong in health care. Consequently, prevention of adverse drug events has become a priority in health policy initiatives. In this respect, Medication Safety, Clinical Pharmacy and Pharmacoeconomic research are needed to inform evidence-based policy and practice development.

Description of the RC’s research focus, the quality of the RC’s research (incl. key research questions and results) and the scientific significance of the RC’s research for the research field(s).

The RC’s research focus

The main scientific field of the RC is Medicine, Biomedicine and Health Sciences, with a special focus in Health Care Sciences and Services, particularly Medicines Management Services in different health care settings. The RC integrates disciplines of Social Pharmacy, Clinical Pharmacy and Pharmacoeconomics.

Social Pharmacy as a discipline evaluates non-pharmacological impact of medication use on society from the social science and economic perspective, raises discussion on problems related to the pharmaceutical sector, and promotes improvements in practice. Social pharmacy research also evaluates implemented changes to assess whether they led to desired outcomes in public health, and how the outcomes might be improved. Clinical Pharmacy is an area of health sciences which focuses on optimizing medication use and preventing medication errors and drug-related problems by developing medication management systems and services. It is based on multidisciplinary collaboration and patient involvement in their own care in any settings where pharmacotherapy is part of patient care. Pharmacoeconomics is a discipline that analyzes the costs of medicines as they are used in society, health care systems and individuals and compares these costs to the outcomes of pharmacotherapy.

The quality of the RC’s research (incl. key research questions and results)

The MS Group mainly operates under the Division of Social Pharmacy, Faculty of Pharmacy. The Division was established in 2004, a year after the first Professorship of the RC was established in 2003. The need for adding these areas to the Faculty of Pharmacy’s operations became evident from the international
evaluation of education in 2001. Subsequent milestones include the establishment of a Chair in Social Pharmacy in 2003 and one in Pharmacoeconomics in 2005, both donated by the University Pharmacy. Since then, the RC has started a series of studies to identify service delivery processes and medicines associated with medication errors and drug-related problems in the Finnish health care system (Figure 1). The goal is to apply this knowledge to develop preventive mechanisms to promote appropriate medication use and to avoid adverse drug events. The work links to the Council of Europe initiatives on patient safety and safe medication practices. This is because the RC contributed to the preparation of Council of Europe recommendations in 2003-2006. Currently, medication safety and related pharmacoeconomical research are the key research areas of the Division of Social Pharmacy. The goal is to assess how best to organize medication use and related service delivery and support systems so that medicine use is safe, rational and cost-effective.

The RC’s projects operate at different levels of service development and outcomes assessment (Figure 1). The RC has already performed extensive research at the patient/medicine user level. As a consequence, service delivery needs and the gaps between current services and patient needs in the Finnish context are quite well understood. The evidence indicates that the fundamental challenge is to reduce fragmentation and develop integrated services based on collaborative practices between different health care professionals and units. This integration requires involvement of patients/medicines users in their care.

The most urgent need is for drug information and patient education services, medication reviews, dose-dispensing and monitoring services that are organized to assure a continuum of care with optimum outcomes. Our studies and experiences of cooperation with people working in practice have shown that development and implementation of these kinds of services will require new support activities, including organizational culture and structure, and strategic resources. Currently, the research projects involve 3 principal investigators (Pis), 3 Adjunct Professors and several senior level scientists outside the Division. RC has 16 active Ph.D. students in different phases with their dissertation projects (+5 completed during 2005-2010).

The RC has prioritized the following as its key research areas (May 2010):

1) Research areas having a high societal need and impact
   - Pharmaceutical policy research (national and within European Union)
   - Medication safety (safety, effectiveness and cost-effectiveness of medication use processes; identification of high risk processes and medications; development and evaluation of mechanisms and services to prevent medication errors, such as medication reviews; drug information practices; development and evaluation of information technology for pharmaceutical services; patient involvement in their care; assuring and developing competencies needed in pharmaceutical practice and clinical pharmacy).

2) New openings
   - Measuring effectiveness in pharmacoeconomical research
   - Critical appraisal of evidence in drug therapy (systematic reviews and meta-analysis)

The scientific significance of the RC’s research for the research field(s).

The RC represents a unique, but important research area. The RC possesses scientific expertise that has great demand in different health care industries nationally and internationally, but is rarely available. This concerns both scientific evidence available and scientists capable applying research methodology
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 2 MATERIAL

needed in producing sound evidence. E.g., the Professor of Pharmacoeconomics in our RC is the only Professor in that field in Finland and in the Nordic countries. Also clinical and hospital pharmacy is underdeveloped area of practice in health care, because of lack of research and training. As a consequence, most of the evidence on medication errors, safe medication practices and effectiveness of pharmaceutical interventions come from outside Europe, particularly from the US. There is an urgent need for creating evidence from European systems, including the Finnish system, and to give an overall perspective on medication safety both as a public health and as a health policy issue. Trends and interventions which are having a significant impact on improving medication safety, as well as strategies chosen in different countries, should be explored. In this respect, research and doctoral training of the RC has high societal demand and impact which range from product and service providers (e.g., drug industry, hospitals and community pharmacies) to policy-makers.

The scientific work of the RC is strongly oriented towards influencing professional practices and pharmaceutical policy making. This can be seen in the publication strategy of the Group and outcomes of its scientific work. The Group has actively published in peer reviewed international journals that can be considered as key journals in the field with impact factors ranging between 1-5. The future goal is to publish in higher impact journals, such as the British Medical Journal (one paper currently under revision).

Part of the scientific work has a high interest and need in the Finnish society and policy making, which make it relevant to publish such work in domestic scientific journals. In addition to peer reviewed publications, the RC actively publishes in national professional journals and contributes to policy documents and reports, and professional guidelines. These aspects should be taken into account in the evaluation. It is also important to remember that the international and national scientific society in the field is limited which influences impact factors of the key journals and citation indexes that are possible to reach.

- **Ways to strengthen the focus and improve the quality of the RC’s research.**

The RC has applied several strategies to strengthen the focus and improve the quality of research (ongoing):

1) Curriculum development for undergraduate and doctoral training since the RC establishment in 2004. The entire redesign includes new scientific studies for Master’s and doctoral students, and since 2010, specialization training in Hospital Pharmacy, all with special emphasis on research methodologies and theories.

2) The recruitment policy for key positions in the RC. We have succeeded to recruit some outstanding, research-oriented scientists from abroad and Finland who have remarkably contributed to the RC. Successful recruitment concerns also Master’s and doctoral students.

3) Intentional recruitment of Adjunct Professors with special expertise needed in RC to complement very limited number of senior scientists in the RC.

4) Active participation in international and national scientific and professional networks and organizations has remarkably influenced research orientation and competencies of the RC (both senior and junior members).
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2 PRACTICES AND QUALITY OF DOCTORAL TRAINING (MAX. 8800 CHARACTERS WITH SPACES)

- How is doctoral training organised in the RC? Description of the RC’s principles for recruitment and selection of doctoral candidates, supervision of doctoral candidates, collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes, good practises and quality assurance in doctoral training, and assuring good career perspectives for the doctoral candidates/fresh doctorates.

How is doctoral training organised in the RC: General aspects

RC’s doctoral training started in 2003. Thus, the evaluation period 2005-2010 covers the very first years of the doctoral training, and the scientific work initiated at the early phase of operations. There has been a lot of interest in having doctoral training in RC’s disciplines: the current number of active Ph.D. students is 16, of whom 11 are working outside the faculty. In addition to work in progress, 5 Ph.D. candidates have completed during 2005-2010, which is quite a high number, if taking into account the limited resources and the evolving phase of the disciplines (e.g., the first permanent Chair in Pharmacoeconomics was appointed in December 2009; a more systematic research in hospital pharmacy was started in 2010 as a part of specialization training). Four of the current Ph.D. students are in the final phase (expected to complete in 2011). The limited resources concern particularly senior level scientists that could act as supervisors, and lack of external funding for doctoral training.

Describe the RC’s principles for:

Recruitment and selection of doctoral candidates.

The RC belongs to the Faculty of Pharmacy and follows its guidelines for organizing doctoral training. The Faculty has reformed doctoral training practices to meet the guidelines given by the University in 2006 as a part of the Bologna Process. The Faculty guidelines are integrated with those of the Graduate School in Pharmaceutical Research. The Graduate School selects doctoral students for funded positions through competitive recruitment (national procedure). Otherwise, The Faculty does not have an official recruitment policy for doctoral students: each professor/PI can independently make their recruitments. The RC has two doctoral student positions via the Faculty (governmental funding), and currently one through the Graduate School funding. These 3 doctoral students have been appointed through a competitive recruitment process. Others, with own funding have been recruited by the professors. These doctoral students come from working life. Some doctoral students have continued their Master’s thesis project to become a Ph.D. thesis. The criteria for recruitment is that the topic fits in the RC’s research areas and the applicant is capable of producing a study protocol and relevant theoretical study plan (60 ECTS credits) in collaboration with the professor and other supervisors. These documents need to be approved by the Vice Dean responsible for Scientific Affairs before the applicant is officially approved as a doctoral student (this policy has been effective since 2010, previously the Committee of Scientific Affairs approved the applications). The practice means that the applicants need to start close collaboration with the supervisors before applying for the training.

Supervision of doctoral candidates

All doctoral students have 1-2 senior level supervisors (professors/adjunct professors or PIs) and some junior RC members (e.g., recent Ph.D. graduates) involved in the supervision. Quite often the group also involves experts outside the RC. Supervision follows principles of constructive learning and shared decision-making. This means that the supervisors need to be well-committed to the Ph.D. project. Therefore, it is important to have regular meetings throughout the project. The frequency of meetings varies according to phase of the project and need to be individually designed. Particularly important are
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meetings in the beginning of the project to decide on the study protocol and theoretical studies that can support development of competencies needed in the research project. The supervisors’ task is to assure that the doctoral training includes a balanced mixture of substance and methodological studies and assures development of transferable skills needed in academic and scientific work. The supervisors’ responsibility is also to involve the doctoral student in the RC (local and international).

Most challenging is to organize supervision for doctoral students living outside the capital area. The ways we have tried to support their progress is intensive 1-2 day working sessions on data analysis and drafting manuscripts and their involvement in local university training.

Collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes

Since 2006, the RC’s doctoral students have belonged to the National Graduate School in Pharmaceutical Research (also in cases the training is not paid by the Graduate School). The graduate school is quite natural science oriented and does not provide as much support in theoretical and methodological studies for our students as for doctoral students from other pharmaceutical disciplines involved. That is why the MS Group has organized an own doctoral student network which has regular meetings (involves also supervisors). In the meetings, doctoral students present their study protocols, learn practical skills needed in research (e.g., preparing manuscripts for submission), and share current issues learnt in congresses and other scientific meetings.

The RC has a wide cooperation network nationally and internationally. This network consists of scientists, educators, continuing education coordinators, pharmacy practitioners, pedagogic and communication experts, journal editor and drug and health policy makers. This network of external experts has been crucial for starting the new discipline at the University and setting its strategic research and doctoral training goals. Some of these experts have been involved as supervisors or unofficial mentors in doctoral training. The RC has received 2 Fulbright grants for curriculum development in 2007 and 2010 (the latter will be used in spring 2011). These grants have facilitated development of competencies needed in scientific work (theory base and methodology) and long-term collaboration with senior scientists from highly ranked research units abroad, particularly in the USA, Australia and UK.

Good practices and quality assurance in doctoral training

The RC had a unique opportunity to benchmark best practices in doctoral training at the University of Helsinki through the involvement in the Doctoral Training Section of the Committee of Academic Affairs in 2007-2009. We have found it important that the doctoral students first become acquainted with theoretical and methodological basis of their research area, and know previous research literature. They should network with actors and researchers in their field, and with the RC members, including other doctoral students. We have found it useful to involve doctoral students in different kinds of operations of the RC, such as creation of medication safety glossary in cooperation with the Center for Pharmacotherapy Development in 2005-2006, and involvement in Ministry of Health’s Steering Group on Patient Safety in 2007-2009. It is also important to jointly prepare presentations for scientific congresses and introduce students to social networks there.

To assure the quality of doctoral training, the RC has tried to select the best available experts and scientists from Finland and abroad for supervisors and pre-examiners.

Assuring good career perspectives for the doctoral candidates/fresh doctorates.

The University hardly has any career opportunities for Ph.D. graduates as postdoctoral or tenure track positions. Of the 5 Ph.D. graduates 3 have successfully continued their scientific work after completing
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 2 MATERIAL

Ph.D. The reminder 2 is working in expert positions where they can apply their scientific knowledge. Career opportunities a

- RC’s strengths and challenges related to the practises and quality of doctoral training, and the actions planned for their development.

Strengths: 1) Regular meetings with supervisors throughout the Ph.D. project; 2) involvement of doctoral students in RC’s international and domestic scientific affairs; 3) regular doctoral student meetings; and 4) long-term collaboration with international experts involved in Ph.D. projects.

Issues needing most improvement include:

1) More intensive networking nationally and internationally so that it will lead to actual research projects
2) More resources for doctoral students to take courses abroad in units with high quality research
3) Improving long-term funding for doctoral training, particularly in Hospital Pharmacy and Pharmacoeconomics. So far, funding has been mainly based on personal grants for doctoral students from non-profit sources.
4) Improving availability of training and consultation in research methodology (e.g., in statistics)
5) More senior level scientists are needed in the RC (preferably via the governmental funding, or via the adjunct professorship system)

3 SOCIETAL IMPACT OF RESEARCH AND DOCTORAL TRAINING

- Description of how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).

As the main goal of the disciplines under the RC is to evaluate non-pharmacological impact of medicine use on the society from social science and economic perspective, this naturally puts high priority on interaction between the research and the society. Thus, a remarkable proportion of the time of the personnel is devoted to expert work in committees and working groups where decisions are being prepared or made concerning medicines in health care. The staff has been involved in national and international expert work in this respect. The key cooperative stakeholders nationally have been Ministry of Social Affairs and Health; National Institute for Health and Welfare; Finnish Medicines Agency; National Center for Pharmacotherapy Development; Social Insurance Institution; National Supervisory Authority for Welfare and Health; Pharmaceutical Pricing Board; professional organizations (Association of Finnish Pharmacies, Finnish Pharmacists’ Association, Finnish Health Economists’ Society); and continuing education centers at the University of Helsinki and Eastern Finland, and Pharmaceutical Learning Center.

Internationally the collaborators include Council of Europe; European Union; International Pharmaceutical Federation (FIP); International Society of Pharmacoeconomics and Outcomes Research (ISPOR); EuroPharm Forum; European Association of Hospital Pharmacists, The Health Technology Assessment International, The International Health Economics Association, The Nordic Health Economists’ Study Group.

The RC’s results have been utilized by bodies involved in strategic planning and those responsible for coordinating the development of medication management services, databases and information technology in Finland (most recently establishment of national pharmaceutical policy 2020 by the Ministry of Social Affairs and Health). These include a wide range of organizations within health care and pharmaceutical administration, such as authorities, professional organizations and continuing education.
units. The work will also benefit those involved in providing information technology for medication management in health care. Specifically, it will be of direct relevance to the University of Helsinki through the operations of the University Pharmacy and of the Palmenia Centre for Continuing Education.

The RC has made many initiatives and contributions to strengthening medication management in Finland. It has been involved in producing new practical innovations in patient service delivery and support activities, as well as strategic thinking that influences pharmaceutical policy, workforce development and the technological infrastructure (see Figures 1 and 2). The most important of these innovative services are collaborative comprehensive medication reviews, medication information services, and tools to improve safe medication practices, particularly quality of geriatric pharmacotherapy. The research areas covered by the RC also have international relevance. This work has added to scientific knowledge through publications in peer reviewed journals, contributions to working groups and congress programs, and personal contacts.

The RC has a high public visibility which relates to research topics having practical implications in patient care.

- **Ways to strengthen the societal impact of the RC’s research and doctoral training.**

  The prerequisite for strengthening the societal impact of the RC’s research and doctoral training is that there will be more resources:

  1) to increase methodological competencies in drug-related health technology assessment (HTA) both in the RC and in society. This requires resources for establishment of a curriculum, including training in outcomes assessment, critical appraisal of evidence (systematic reviews, meta analysis), modeling, register-based research and pharmacoepidemiology.

  2) to assure sustained funding for specialization training in hospital pharmacy and related research (funding assured by the University of Helsinki by 2012). Research in this area is currently the most growing one in the RC, involving numerous hospitals and other health care institutions. It has potential for large scale networking with high societal impact through improving medication safety.

  3) to increase research in pharmaceutical policy (national and within European Union).

  4) to increase awareness of existing evidence produced by the RC.

- **Description of the RC’s research collaborations and joint doctoral training activities and how the RC has promoted researcher mobility.**

  Our RC has had unique opportunities for collaboration and benchmarking scientific practices of best units in our research area in different parts of the world. Pharmacy practice research used to be the main research area of the RC in the beginning of the evaluation period. Since then, the research has moved its focus on medication safety, pharmaceutical policy, pharmacoconomics, and most recently, on clinical pharmacy. The best research units have expertise in all these areas and integrate it in their research projects. In this respect, the development has been towards the right direction. Our RC has better understanding of pharmaceutical policy decision-making process and current topics under work than most of the collaborating and competing units. This reflects to selection of research topics, and thus, timeliness of research. These links to current policy making has opened new opportunities to be involved in decision making and bring our expertise e.g., to various working groups.
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Most crucial for scientific work and collaboration of the RC has been longstanding active involvement in the International Pharmaceutical Federation (FIP), which is a key professional organization covering all pharmaceutical sectors. It has provided an excellent platform for networking with key researchers in our field and collaborating with them.

An important forum for research collaboration and benchmarking has been the GRIPP research network (Global Research Institute for Pharmacy Practice). The network was established and coordinated by the University of Sydney, Australia (established in 2005, our RC was one of the founding members). Other units that belong to the GRIPP are University of Copenhagen, University of Geneva/Lausanne, University of Lisbon, and University of Granada. The cooperation has been productive, particularly with the University of Sydney (e.g., student and researcher exchange and visits, recruitment of a Senior Lecturer in 2006). Other collaborating universities include University of Bath, UK; Katholieke University of Leuven, Belgium; University of Groningen, The Netherlands; London School of Pharmacy, UK; University of Uppsala, Sweden; University of Malta; University of Tartu, Estonia; Monash University, Australia; and University of Otago, New Zealand.

The RC has been regularly involved in organizing professional and scientific programs for national and international audiences (e.g., FIP Congress; International Social Pharmacy Workshop; European Conference in Health Economics; Nordic Social Pharmacy and Health Services Research Conference; Helsinki Drug Research Congress; Annual Meeting of Health Economics).

Other benchmarking have been done through personal contacts, visits, student exchange, external evaluation of competencies of academic staff, opponent and jury memberships for Ph.D. candidates in several universities with advanced practices in disciplines covered by the unit. One special contributor to mention is Prof. Alan Lyles from the University of Baltimore, USA. He has been involved in the RC since 2005, first by assisting in starting training and research in Pharmacoeconomics, then by providing his expertise to various research projects, mainly related to doctoral training (Adjunct Professor since 2007).

- RC’s strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.

The RC has excellent possibilities for national and international collaboration in research and doctoral training. The biggest challenge is to allocate time and resources for longstanding collaboration that will lead to actual projects, and thus, measurable productivity. Part of that is identification of the most important collaborators and concentrating working with them. Starting research projects requires usually site visits and personal meetings (at least 1-2 week’s visits to the collaborating unit or a visitor/visitors from there).

As most of our important collaborators are geographically located far away from Helsinki (e.g., in the USA, Australia and Europe), it would be useful to develop new ways of communicating and collaborating with them. Information technology and distance education technology may provide fascinating opportunities in this respect. The RC has received funding for this purpose from the Fulbright Center in 2010 (project will be started in spring 2011, involving first colleagues from Univ. of Baltimore and Sydney and Johns Hopkins Hospital).
5 OPERATIONAL CONDITIONS (MAX. 4400 CHARACTERS WITH SPACES)

- **Description of the operational conditions in the RC’s research environment (e.g. research infrastructure, balance between research and teaching duties).**

  As the RC consists mainly of doctoral students they do not yet have much experience in conducting research and applying different kinds of methodologies. There is lack of senior researchers to mentor Ph.D. students and other junior level researchers. The small number of staff puts also limits to development of paradigm, coordination and delegation of the workload so that there would be more time for long-term planning of the research strategy and applying external funding. So far, external funding has been marginal. Part of the challenge that comes from limited resources is a heavy teaching workload to all academic staff, including doctoral students. Also, there is lack of availability of resources for postdoctoral training for recent Ph.D. graduates. In the long run, this jeopardizes availability of highly merited scientists in the academia who have specialized in research areas represented in the RC. This threat also concerns other institutions which need this kind of expertise (e.g., authorities, drug industry, health care organizations, professional organizations).

  The infrastructure of the Faculty of Pharmacy and the Viikki Campus does not provide optimum environment for research areas represented in the RC. This applies to multidisciplinary expertise needed in research methodology, statistics and statistical software, but also to environment where most of the research is conducted (different kinds of practice settings in health care). The research also requires expertise in clinical pharmacy and pharmacology, medicine and nursing sciences, health care management and policy, health economics, public health and epidemiology. As these disciplines are not strongly represented in undergraduate training it reflects to theoretical and methodological competencies of doctoral students.

  The most concrete deficiencies in the current infrastructure are that 1) the Faculty (and Viikki Campus) is missing statistician which reflects to competency of basic and doctoral students in statistics, and thus, quality of research, 2) the RC does not have administrative and technical support staff to assist in paper work related to teaching and research. Now this work needs to be mostly done by the academic staff of the division, including the senior staff.

- **RC’s strengths and challenges related to operational conditions, and the actions planned for their development.**

  To increase availability of senior scientists in the RC, there should be opportunities for recent Ph.D. graduates to have postdoctoral training. It should be possible to make at least part of the training abroad in collaborative units with best practices.

  There should be mechanisms at the faculty level to balance teaching workload of the units. Part of the solution is to assure availability of administrative staff to assist in administrative work related to teaching and research.

  Challenges related to the research environment can be partly compensated by extending collaboration with working life organizations (e.g., hospitals), professional organizations, authorities and research units within and outside the university. In this respect, we have started to involve scientists with clinical, medical and health economical expertise through adjunct professorships in our RC.
6 LEADERSHIP AND MANAGEMENT IN THE RESEARCHER COMMUNITY (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the execution and processes of leadership in the RC, how the management-related responsibilities and roles are distributed in the RC and how the leadership- and management-related processes support high quality research, collaboration between principal investigators and other researchers in the RC, the RC’s research focus and strengthening of the RC’s know-how.

Even though the RC was established quite recently in 2004, just before the current evaluation period, it has been productive in terms of peer-reviewed scientific papers in high or good impact factor journals, key domestic medical and pharmaceutical journals and in terms of other contributions based on its research. This has been possible by integrating research, teaching and activities towards society to become one entity, which optimizes use of very limited resources. This principle is in line with the strategic goal of the University for research-based teaching and societal impact. During the first years of operations, the RC has allocated resources for enhancing training in research methodology both at undergraduate and graduate levels which can be seen in quality of research. The wide national and international collaborative network has been used to compensate lack of senior level staff. The network also makes it possible to focus research to meet policy-making needs, and it provides continuous opportunities to reflect relevance and timeliness of the RC operations.

Leadership is “organizing a group of people to achieve a common goal”. This has taken a lot of efforts during the evaluation period, particularly during the first years of operations. There has been need to organize and reorganize work and processes related to all aspects of academic work. The goal has been to support formation of research teams according to the key research areas of the RC. Each team has both senior and junior members and collaborators outside the RC. Each team also has its special expertise in theories and methodologies. The goal is to integrate new research projects in these teams. This concerns also doctoral, Master’s and Bachelor’s projects, and projects related to specialization training in hospital pharmacy.

The RC is led according to principles of social constructivism and learning organization which mean shared decision-making and open disclosure of information with low hierarchy. Regular staff meetings have been important for organizing routines, processes and short term action plans. The RC has not yet established a long term strategic plan, because formation of the RC has been still going on (the goal is to get it done by the end of this year).

During the last two years, the RC has made good progress in defining key research areas and finding shared understanding of theoretical and methodological foundation, as well as policy and practice implications of RC’s research (compare Figures 1 and 2). The RC members are highly motivated, goal-oriented and committed to their work. They are innovative and supportive to new ideas and projects.

Because of limited resources, all RC members participate in faculty administration. Everyone needs to take care of their responsibilities quite independently. Teaching duties are planned so that everyone can apply his/her special expertise. Teaching is also planned to serve research purposes which facilitates undergraduate students’ involvement in research activities of the RC. This kind of integration optimizes RC members’ time allocation and increases motivation to teach. Doctoral students are involved in supervising Master’s thesis projects. All those projects are integrated in doctoral thesis projects.
RC-SPECIFIC STAGE 2 MATERIAL

- RC’s strengths and challenges related to leadership and management, and the actions planned for developing the processes.

The strength of the RC is close collaboration between PIs and other members of the research team which facilitates scientific dialogue and mentoring process between senior and junior researchers. Most challenging is to:

1) Prioritize workload to allocate time for research. Prioritizing also concerns selection of research projects where the RC will contribute.

2) Allocate more time for strategic long-term planning and applying external research funding. This particularly concerns PIs.

3) Assure wellbeing and competencies of RC members, also continuity of contracts to facilitate long-term commitment to research. Part of this is keeping up with the innovative working society that we have succeeded to create (this means having an awareness of unity on the part of all its members; having interpersonal relationships and chances to contribute; learn from and work with others; and having the ability to act together toward a common goal). We have had external coaching during 2010-2011 for reaching these goals and improving practices and competencies in the RC.

7 EXTERNAL COMPETITIVE FUNDING OF THE RC

- Listing of the RCs external competitive funding, where:
  - the funding decisions have been made during 1.1.2005-31.12.2010, and
  - the administrator of the funding is/has been the University of Helsinki

- Academy of Finland (AF) - total amount of funding (in euros) AF has decided to allocate to the RC members during 1.1.2005-31.12.2010:

- Finnish Funding Agency for Technology and Innovation (TEKES) - total amount of funding (in euros) TEKES has decided to allocate to the RC members during 1.1.2005-31.12.2010:

- European Union (EU) - total amount of funding (in euros) EU has decided to allocate to the RC members during 1.1.2005-31.12.2010:

- European Research Council (ERC) - total amount of funding (in euros) ERC has decided to allocate to the RC members during 1.1.2005-31.12.2010:

- International and national foundations - names of international and national foundations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
  - names of the foundations:
  - total amount of funding (in euros) from the above-mentioned foundations:

- Other international funding - names of other international funding organizations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
  - names of the funding organizations:
  - total amount of funding (in euros) from the above-mentioned funding organizations:
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 2 MATERIAL

- Other national funding (incl. EVO funding and Ministry of Education and Culture funded doctoral programme positions) - names of other national funding organizations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
  - names of the funding organizations: University Pharmacy, donation for Professorship in Pharmacoeconomics in 2005
  - Ministry of Education, Curriculum development in hospital pharmacy training in 2009
  - total amount of funding (in euros) from the above-mentioned funding organizations: 1600000

8 RC’S STRATEGIC ACTION PLAN FOR 2011–2013 (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the RC’s future perspectives in respect to research and doctoral training.
  - Crucial for the future success and development of the RC is external funding that could facilitate long-term research in selected key areas. It is also important to strengthen integration between key research areas in medication safety, hospital pharmacy, and pharmacoeconomical research to assure optimum use of limited resources. These disciplines benefit of collaboration, still, each of them have its own specialities which should be respected in the RC’s operations.

  The RC has created a good potential for large-scale research programs that could be funded by external funding. To realize this potential, the RC should develop a long-term strategic research plan, including a thorough inventory of possible funding sources. The long-term research strategy of the RC should be influenced by national pharmaceutical policy goals and continuing research interests of the staff, especially its strong involvement in the national joint projects to improve medication management and integrate pharmaceutical services into other health care services. Research interests should reflect training under a basic and graduate curriculum based on a systems approach and economic evaluation of drug therapies and practices.

  Future success of the RC is highly dependent on human resources. The RC needs more senior scientists that have competencies in various research methodologies, statistics, clinical practice and health management sciences. There is also need for having more opportunities for doctoral training through the Graduate School in Pharmaceutical Research. Both Pharmacoeconomics and Hospital Pharmacy are currently lacking such opportunities, although there is a growing need for specialized scientists in these fields. Part of creating human resources is providing opportunities for recent Ph.D. graduates to continue their research in academia and have postdoctoral training abroad in highly ranked research units. Intensive international collaboration is essential because the national RC is small and still in an early phase of development.

  There is a growing need for evidence and expertise produced by the RC within all sectors in pharmaceutical field, but also in health care in a broader perspective. More and more of the research collaboration have been directed outside traditional pharmaceutical sector. The research projects initiated in key research areas have evolved to the point that they could be potential for external funding. Also the collaborators in these projects belong to the national top in their fields (e.g., in health technology assessment, medication safety and pharmaceutical policy). Likewise, the projects involve highly esteemed international experts.

  There has been a lot of interest to start Ph.D. studies in disciplines under social pharmacy. This means a big potential of competent experts who could bring their expertise and practical experience to the discipline and produce new knowledge on the role and function of medicines in health care. As the unit is physically closely located to headquarters of many national stakeholders in health care and pharmaceutical sector it makes cooperation feasible. In addition to start joint research projects with
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 2 MATERIAL

international colleagues, there are also opportunities to recruit international experts to the staff, e.g., as scholars or postdoctoral scientists, and thus, diversify the knowledgebase of the division.

Threats: Failure in applying external funding; failure in getting new vacancies through the university to have more staff; failure in cooperation and coordination of research so that it would lead to concrete research projects that can be completed and reported in scientific literature. Failure in establishing umbrella headline and long-term strategy for the research. Failure in recruiting competent staff.

Each RC member has participated in entering data in the TUHAT database. This project has been regularly discussed in staff meetings and it has been under progress since spring 2010.

The RC defined its key research areas in spring 2010. It was quite easy to agree on them as the key research areas have been discussed in research planning meetings and the RC has followed certain research lines since its establishment (+ the new research lines that were easy to identify). The RC created a 5-year report on its operations in 2009 which was useful for sharing understanding of RC’s scientific work and its theoretical basis. The RC has continued its work on action reports: each research team is currently processing its own report which assists each team to clarify its research questions, objectives, theory base, methodology and key findings, including policy and practice implications of the research.

Research issues have been discussed in staff meetings and in the coaching process to develop academic leadership of the RC (a pilot project of the Rector’s Office to develop a procedure.
Developing Medicines Management Services & Technology in Finnish Health Care:
A Systems Approach Integrating Efficiency, Safety and Effectiveness

Figure 1. Theoretical framework of the MS Group’s research as a medicines management system modified from Kaplan & Norton (2000)¹. The figure also shows the points of the system covered by seven Ph.D. research projects included in the application (Projects 1-7).

Outcomes Variation from Efficacy to Effectiveness of Pharmacotherapy (OVERxTx®): A Post-Marketing Systems Perspective

A diagnostic search for gaps, discontinuities, conflicts and/or redundancies.

Figure 2. Benefits of the MS Group’s research at different levels of the medicines management system (constructed by Dr. Lyles, 2008)
### 1 Analysis of publications

- **A1 Refereed journal article**
  
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- **A2 Review in scientific journal**
  
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- **A3 Contribution to book/other compilations (refereed)**
  
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- **A4 Article in conference publication (refereed)**
  
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- **B1 Unrefereed journal article**
  
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- **B2 Contribution to book/other compilations (non-refereed)**
  
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- **C1 Published scientific monograph**
  
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- **C2 Edited book, compilation, conference proceeding or special issue of journal**
  
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- **D1 Article in professional journal**
  
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- **D2 Article in professional hand or guide book or in a professional data system, or text book material**
  
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- **D4 Published development or research report**
  
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- **D5 Text book or professional handbook or guidebook or dictionary**
  
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- **E1 Popular article, newspaper article**
  
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- **E2 Popular monograph**
  
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2 Listing of publications

A1 Refereed journal article

2005


2006


2009


CelikKayalar, E, Airaksinen, M, Astala, L 2009, "Lääketyytyväisyyden tarkistaminen liikkomatalloilla" (Quality of Care Monitoring in Domiciliary Pharmacies), TABU : lääkkipäivityspaikkojen auditointi Satukan puolesta, vol 2, no. 2, pp. 2-7.


INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

MS Group/Airaksinen M


2010


Bell, JS, Strandberg, TE, Teramura-Gironblad, M, Laurila, JV, Tilvis, RS, Pitkälä, K 2010, 'LESS IS MORE Use of Proton Pump Inhibitors and Mortality Among Institutionalized Older People', Archives of Internal Medicine, vol 170, pp. 1604-1605.


INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

MS Group/Airaksinen M


Kurko, T, Linden, K, Pietila, K, Sandstrom, P, Airaksinen, M 2010, 'Community pharmacists’ involvement in smoking cessation: familiarity and implementation of the National smoking cessation guideline in Finland', BMC Public Health, vol 10, no. 444.


A2 Review in scientific journal

2007


2008


A3 Contribution to book/other compilations (refereed)

2005


2007


A2 Review in scientific journal

2009


2008


A4 Article in conference publication (refereed)

2005


2008
Tuominen, U, Hirvonen, J, Blom, M, Sintonen, H 2008, ‘Is longer waiting time associated with health outcomes and costs of medication in hip and knee replacement patients?’, in Is longer waiting time associated with health outcomes and costs of medication in hip and knee replacement patients?

B1 Unrefereed journal article

2005


2007

MS Group/Airaksinen M


2009

Airaksinen, M, Bult, K, Sevon-Vilkman, N, Tuomainen, L 2009, ‘How pharmacists update their professional skills and knowledge in Finland: development since the 1980s’, Dosis, vol 25, no. 2, pp. 78-84.


B2 Contribution to book/other compilations (non-refereed)

2005


2006


C1 Published scientific monograph

2007


2008


C2 Edited book, compilation, conference proceeding or special issue of journal

2005


2006


D1 Article in professional journal

2005


2007

INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

**M5 Group/Airaksinen M**

**2008**


**2009**

**2010**


**D2 Article in professional hand or guide book or in a professional data system, or text book material**

**2010**

**D4 Published development or research report**

**2007**

**2008**

**2010**
EunetPas WP4 2010, GOOD MEDICATION SAFETY PRACTICES IN EUROPE: Transferability of good practices.

**D5 Text book or professional handbook or guidebook or dictionary**

**2005**

Wuliji, T, Airaksinen, M 2005, Counseling, concordance and communication: innovative education for pharmacists, IPFS.

**2007**

**E1 Popular article, newspaper article**

**2005**

**2006**
MS Group/Airaksinen M


2008

E2 Popular monograph

2009
## Analysis of activities 2005-2010

<table>
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<td>Supervisor or co-supervisor of doctoral thesis</td>
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</tr>
<tr>
<td>Prizes and awards</td>
<td>7</td>
</tr>
<tr>
<td>Editor of research journal</td>
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<tr>
<td>Peer review of manuscripts</td>
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<td>Editor of series</td>
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<td>Membership or other role in review committee</td>
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<td>Membership or other role in research network</td>
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<td>Membership or other role in national/international committee, council, board</td>
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<td>Membership or other role in public Finnish or international organization</td>
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<td>Membership or other role of body in private company/organisation</td>
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<td>Other tasks of an expert in private sector</td>
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<td>Participation in interview for written media</td>
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<td>Participation in radio programme</td>
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<td>Participation in TV programme</td>
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2 Listing of activities 2005-2010

Supervisor or co-supervisor of doctoral thesis

Marja Sisko Anneli Airaksinen,
Supervised Academic Dissertation, completed in 2004, Marja Sisko Anneli Airaksinen, 2004
Main supervisor, 10 doctoral dissertations in progress, Division of Social Pharmacy, University of Helsinki, Finland, Marja Sisko Anneli Airaksinen, 2005 → 2010
Main supervisor, 2 doctoral dissertations completed in 2005, 2006, Department of Social Pharmacy, University of Kuopio, Finland, Marja Sisko Anneli Airaksinen, 2005 → 2006, Finland
Main supervisor, 3 doctoral dissertations completed in 2006, 2008 and 2010, Division of Social Pharmacy, University of Helsinki, Finland, Marja Sisko Anneli Airaksinen, 2005 → 2010, Finland
Supervised Academic Dissertation, completed in 2005, Marja Sisko Anneli Airaksinen, 2005
Supervised Academic Dissertation, completed in 2005, Marja Sisko Anneli Airaksinen, 2005
Supervised Academic Dissertation, completed in 2005, Marja Sisko Anneli Airaksinen, 2005
Supervised Academic Dissertation, completed in 2005, Marja Sisko Anneli Airaksinen, 2005
Supervised Academic Dissertation, completed in 2005, Marja Sisko Anneli Airaksinen, 2005
Supervised Academic Dissertation, completed in 2010, Marja Sisko Anneli Airaksinen, 2010

Marja Blom,
Supervisor of Doctoral Dissertation (Ph.D), Johanna Hirvonen, Marja Blom, 03.2003 → 12.2007, Finland
Supervisor of Doctoral Dissertation (Ph.D), Outi Simonen, Marja Blom, 2005 → ..., Finland
Supervisor of Doctoral Dissertation (Ph.D), Ulla Tuominen, Marja Blom, 2005 → ..., Finland
Supervisor, Member of a Supervising Group Doctoral Dissertation (Ph.D), Inger Mäenpää, Marja Blom, 2006 → ...
Supervisor, Member of a Supervising Group, Doctoral Dissertation (Ph.D), Maarit Virta-Helenius, Marja Blom, 2007 → ..., Finland
Supervisor of Doctoral Dissertation (Ph.D), Kalle Aaltonen, Marja Blom, 2010 → ..., Finland

Simon Bell,
Supervisor/Co-supervisor of PhD Student, Simon Bell, 2007 → 2010
Supervision/Co-supervision of PhD student, Simon Bell, 2008 → 2010, Estonia

Raisa Laaksonen,
Development and evaluation of a competency framework for pharmacy undergraduate students to support their learning in professional practice, Raisa Laaksonen, 01.2008 → ..., United Kingdom
Prevention of and learning from medication errors in healthcare, Raisa Laaksonen, 01.2008 → ..., Finland
Prescribing in cardiovascular disease and role of the hospital pharmacist in the therapeutic management of the disease in Khartoum hospitals, Raisa Laaksonen, 09.2010 → ..., United Kingdom

Prizes and awards

Marja Sisko Anneli Airaksinen,
Award on the contribution to professional affairs. The Finnish Pharmacists’ Association, 2004, Marja Sisko Anneli Airaksinen, 2004

Marja Blom,
Science Award of Helsinki University Hospital, Jorvi Hospital 2006, Marja Blom, 2006, Finland
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF OTHER SCIENTIFIC ACTIVITIES 2005-2010

MS Group/Airaksinen M

Marika Pohjanoksa-Mäntylä ,
Raisa Laaksonen ,
Adjunct professorship, Raisa Laaksonen, 30.09.2010 → ..., Finland
Honorary lectureship, Raisa Laaksonen, 01.10.2010 → 30.09.2013, United Kingdom
Terhi Kurko ,
Innopeli- prize of the faculty of Pharmacy, Terhi Kurko, 27.10.2010

Editor of research journal
Marja Sisko Anneli Airaksinen ,
Member, advisory board, Research in Social and Administrative Pharmacy (April 2007 - present), Marja Sisko Anneli Airaksinen, 04.2007 → ...
Member, editorial board, Pharmacy Practice (March 2007- present), Marja Sisko Anneli Airaksinen, 03.2007 → ...

Peer review of manuscripts
Marja Sisko Anneli Airaksinen ,
Peer reviewer in Dosis (Finnish Pharmaceutical Journal), Marja Sisko Anneli Airaksinen, 1998 → ...
Peer reviewer in Pharmacy World and Science, Marja Sisko Anneli Airaksinen, 2004 → ...
Peer reviewer in Research in Social and Administrative Pharmacy, Marja Sisko Anneli Airaksinen, 2008 → ...
Peer reviewer in British Medical Journal, Marja Sisko Anneli Airaksinen, 2009 → ...
Peer reviewer in International Journal of Technology Assessment in Health Care, in 2010, Marja Sisko Anneli Airaksinen, 2010 → ...
Marja Blom ,
Reviewer, Marja Blom, 2005 → 2010, Finland
Reviewer, Marja Blom, 2007 → ...
Reviewer, Marja Blom, 2008 → ...
Reviewer, Marja Blom, 2010 → ...
Reviewer, Marja Blom, 2010 → ..., Finland
Marika Pohjanoksa-Mäntylä ,
Research in Social and Administrative Pharmacy, Marika Pohjanoksa-Mäntylä, 2007 → ...
Dosis, Marika Pohjanoksa-Mäntylä, 2009 → ...
Pharmacy World &; Science: International Journal of Clinical Pharmacy and Pharmaceutical Care, Marika Pohjanoksa-Mäntylä, 2010 → ...
Simon Bell ,
British Journal of Clinical Pharmacology, Simon Bell, 2006 → ...
Clinical Therapeutics, Simon Bell, 2006 → ...
Drugs and Aging, Simon Bell, 2006 → ...
European Journal of Clinical Pharmacology, Simon Bell, 2006 → ...
Journal of Clinical Pharmacology, Simon Bell, 2006 → ...
Psychiatric Services, Simon Bell, 2006 → ...
Quality and Safety in Health Care, Simon Bell, 2006 → ...
Schizophrenia Research, Simon Bell, 2006 → ...
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF OTHER SCIENTIFIC ACTIVITIES 2005-2010

MS Group/Airaksinen M

Raisa Laaksonen,
Pharmacy Education, Raisa Laaksonen, 2006 → 2008, United Kingdom
International Journal of Pharmacy Practice, Raisa Laaksonen, 2008 → …, United Kingdom
American Journal of Pharmaceutical Education, Raisa Laaksonen, 2009 → …, United States
Pharmacy Education Journal, Raisa Laaksonen, 2010 → …
Pharmacy World & Science, Raisa Laaksonen, 2010 → …

Editor of series
Marja Sisko Anneli Airaksinen,

Membership or other role in review committee
Marja Sisko Anneli Airaksinen,
External reviewer, 3 promotions to senior positions (tenure track), 2004, 2005, 2010 University of Sydney, Australia., Marja Sisko Anneli Airaksinen, 2004 → 2010, Australia
External reviewer, scientific report, National Insurance Institution 2005., Marja Sisko Anneli Airaksinen, 2005, Finland

Membership or other role in research network
Marja Sisko Anneli Airaksinen,
Member in International Pharmaceutical Federation 2000 – present, Marja Sisko Anneli Airaksinen, 2000 → …

Membership or other role in national/international committee, council, board
Marja Sisko Anneli Airaksinen,
Chair; Working group for Guidelines for Good Patient Counseling Practice, a joint project with Pharmacy Information Section, International Pharmaceutical Federation (FIP) and International Pharmacy Student Federation (IPSF), 2002-2008., Marja Sisko Anneli Airaksinen, 2002 → 2008
Chair, Working Group on Internship Training, Faculty of Pharmacy, University of Helsinki, Marja Sisko Anneli Airaksinen, 2004 → …, Finland
Member, Coordination group of TIPPA Project, 2004-present., Marja Sisko Anneli Airaksinen, 2004 → …
Member, Council on Academic Affairs, Faculty of Pharmacy, University of Helsinki, Marja Sisko Anneli Airaksinen, 01.01.2004 → 31.12.2009, Finland
Member, Faculty Senate, Faculty of Pharmacy, University of Helsinki, Marja Sisko Anneli Airaksinen, 01.01.2004 → 31.12.2009, Finland
Member, National Advisory Board, Professional Development studies in pharmacy practice, University of Helsinki and University of Kuopio, Finland, 2004-present., Marja Sisko Anneli Airaksinen, 2004 → …
Board member, Drug Discovery and Technology Center (DDTC), Faculty of Pharmacy, University of Helsinki, Marja Sisko Anneli Airaksinen, 01.01.2005 → 31.12.2005, Finland
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF OTHER SCIENTIFIC ACTIVITIES 2005-2010

**MS Group/Airaksinen M**


Board member, Graduate School in Pharmaceutical Research, Marja Sisko Anneli Airaksinen, 2008 → 2009, Finland

Chair, Working Group on Hospital Pharmacy Specialization Training, Marja Sisko Anneli Airaksinen, 2009 → ..., Finland

Board member, Association of Patient Safety, (2010-present), Marja Sisko Anneli Airaksinen, 2010 → ...

Chair, Council of Public Affairs, Faculty of Pharmacy, University of Helsinki, Marja Sisko Anneli Airaksinen, 2010 → ..., Finland

**Marja Blom**

Member, The Nordic Health Economists' Study Group, Marja Blom, 1995 → 2011

Member of executive committee, The Finnish Health Economist's Society, Marja Blom, 2001 → 2007, Finland

Member of executive committee, The Finnish Society of Social Medicine, Marja Blom, 2001 → 2007, Finland

Member, The International Health Economics Association, iHEA, Marja Blom, 2001 → 2011, Canada

Member, The Health Technology Assessment International, HTAi, Marja Blom, 2007 → 2011

Vice President, The Finnish Health Economist's Society, Marja Blom, 2007 → 2010, Finland

Member in the organising committee of Helsinki Drug Research 2008, Marja Blom, 01.2008 → 06.2008, Finland

Member, International Society for Pharmacoeconomics and Outcomes Research, ISPOR, Marja Blom, 2008 → 2011, United States

Member in the local organising committee on the 8th European Conference on Health Economics 2010, Marja Blom, 2009 → 2010

Member in the scientific programme committee of the 8th European Conference on Health Economics 2010, Marja Blom, 2009 → 2010

Member of Judges for Poster and Podium Sessions in the ISPOR 12th Annual European Congress, Paris 2009, Marja Blom, 25.10.2009 → 27.10.2009, United States

Scientific reviewer in the International Research Review Committee of ISPOR 2nd Latin America Conference., Marja Blom, 2009, United States

Scientific reviewer in the International Research Review Committee of ISPOR in the 12th European Congress, Paris 2009, Marja Blom, 2009, United States

Scientific reviewer, the International Research Review Committee of ISPOR 14th Annual International Meeting, Marja Blom, 2009, United States

Scientific reviewer in the International Research Review Committee in the 8th Conference on Health Economics 2010, Marja Blom, 2010, Canada

**Marika Pohjanoksa-Mäntylä**

Pharmaceutical committee, Marika Pohjanoksa-Mäntylä, 2006 → 2009, Finland

The board of the Pharmaceutical Learning Centre, Marika Pohjanoksa-Mäntylä, 2008, Finland

The board of the Pharmaceutical Learning Centre, Marika Pohjanoksa-Mäntylä, 2009 → ..., Finland

Pharmaceutical committee, Marika Pohjanoksa-Mäntylä, 2010 → 2013, Finland

**Simon Bell**

Pharmacy Practice, Simon Bell, 2006 → ...

Research in Social and Administrative Pharmacy, Simon Bell, 2007 → ...

Pharmacy World and Science (Now International Journal of Clinical Pharmacy), Simon Bell, 2009 → ...

**Raisa Laaksonen**

Academic Pharmacy Group, Raisa Laaksonen, 2007 → ..., United Kingdom

The European Pharmaceutical Students’ Association (EPSA) Board of Trustees, Raisa Laaksonen, 2007 → ..., Belgium

The European Pharmaceutical Students’ Association (EPSA) Steering Committee on Mapping the Competencies of the European Pharmacist, Raisa Laaksonen, 2007 → 2009, Belgium

Pharmacy Days Symposium Organising Committee, Raisa Laaksonen, 01.2010 → 11.2011, Finland

The European Association of Hospital Pharmacists (EAHP) Working Group, Raisa Laaksonen, 2010 → ..., Belgium
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF OTHER SCIENTIFIC ACTIVITIES 2005-2010

MS Group/Airaksinen M

Katja Pitkä,
Opetusapteekkharjoittelun kehittämistyöryhmä, Katja Pitkä, 2009 → ..., Finland
Sairaala-apteekkharjoittelun kehittämistyöryhmä, Katja Pitkä, 2010 → ..., Finland

Terhi Kurko,
Suomen Apteekkariliiton savuttomuustyöryhmän jäsen, Terhi Kurko, 2005 → ...

Saija Leikola,
TIPPA-coordination group, Saija Leikola, 2010 → ..., Finland
The board of the Pharmaceutical Learning Centre, Saija Leikola, 2010 → 2011, Finland

Membership or other role in public Finnish or international organization

Marja Sisko Anneli Airaksinen,
Member of the Committee for Science, University of Helsinki, Marja Sisko Anneli Airaksinen, 01.01.2004 – 31.12.2006
Member of the Committee of Academic Publishing, University of Helsinki, Marja Sisko Anneli Airaksinen, 2004 – 2006, Finland
Chair, Committee for Development of Doctoral Studies in University of Helsinki, Marja Sisko Anneli Airaksinen, 2007 → 2009, Finland
Member of Committee of Academic Affairs in University of Helsinki, Marja Sisko Anneli Airaksinen, 2007 → 2009, Finland
Project Group on Academic Affairs, University Reform in University of Helsinki, Marja Sisko Anneli Airaksinen, 2008 → 2009, Finland
Member in the project of Ministry of Social Affairs and Health, Marja Sisko Anneli Airaksinen, 2009 → ...
Member, Working Group on Academic Leadership in University of Helsinki, Marja Sisko Anneli Airaksinen, 01.01.2009 → 31.12.2009
University of Helsinki. Coordination committee for specialization trainings in industrial, hospital and community pharmacy sectors. Member (2009- ), Marja Sisko Anneli Airaksinen, 2009 → ...
University of Helsinki. Steering group for specialization training in hospital pharmacy. Chair (2009- ), Marja Sisko Anneli Airaksinen, 2009 → ...
Member, Working Group on Pharmaceutical Policy 2020, Ministry of Social Affairs and Health (2010-present), Marja Sisko Anneli Airaksinen, 2010 → ...
Representative of FIP at the WHO Working Group on Patient Safety Curriculum Guide, a multidisciplinary version (2010 - present), Marja Sisko Anneli Airaksinen, 2010 → ...
Vice Chair in Steering Committee for International Evaluation of Research in University of Helsinki, Marja Sisko Anneli Airaksinen, 2010 → ..., Finland
Vice member, Board of Palmenia Centre for Continuing Education, Marja Sisko Anneli Airaksinen, 2010 → ..., Finland

Marja Blom,
Eduskunnan sosiaali- ja terveysvaliokunta, kuulemistilaisus 2.3.2010, Marja Blom, 02.03.2010, Finland
Member of Expert Group of Pharmaceutical Pricing Board, Ministry of Social Affairs and Health, 2010-2013, Marja Blom, 01.01.2010 → 31.12.2012, Finland

Carita Linden-Lahti,
Farmsasian eriottumiskoulutusten yhteisöyöverkosto, Carita Linden-Lahti, 01.2009 → 08.2010, Finland
Farmsasian teekunnan valintalautakunta, Carita Linden-Lahti, 01.2010 → 08.2010, Finland

Membership or other role of body in private company/organisation

Marja Sisko Anneli Airaksinen,
MS Group/Airaksinen M

Member of the Board of the Helsinki University Pharmacy, Marja Sisko Anneli Airaksinen, 2007 → ..., Finland

**Other tasks of an expert in private sector**

Carita Linden-Lahti,
Förmisan Oppimiskeskusen hallituksen varajäsen, Carita Linden-Lahti, 05.2009 → 05.2010, Finland
Förmisan Päivien ohjelmatyöryhmä 2009, Carita Linden-Lahti, 01.2009 → 05.2009, Finland
Osastofarmasian erityispätevyyden suunnittelu työryhmä, Carita Linden-Lahti, 01.2009 → 08.2010, Finland
Farmaseuttišinen valiokunta, Carita Linden-Lahti, 01.2010 → 08.2010, Finland

**Participation in interview for written media**

Marika Pohjanoksa-Mäntylä,
Interview in a journal, Marika Pohjanoksa-Mäntylä, 20.09.2010, Finland
Carita Linden-Lahti,
Haastattelu Aamulehteen, Carita Linden-Lahti, 01.11.2010 → ..., Finland
Saija Leikola,
Interview at a magazine, Saija Leikola, 28.12.2009 → ..., Finland

**Participation in radio programme**

Marja Sisko Anneli Airaksinen,
Asiantuntijahaastattelu Yleisradion, Marja Sisko Anneli Airaksinen, 06.10.2010
Carita Linden-Lahti,
Haastattelu säästäfarmasiasta, Carita Linden-Lahti, 03.2010 → ..., France

**Participation in TV programme**

Marja Sisko Anneli Airaksinen,
Research Group: Airaksinen M

**Basic statistics**

- Number of publications (P) 56
- Number of citations (TCS) 175
- Number of citations per publication (MCS) 3.30
- Percentage of uncited publications 34%
- Field-normalized number of citations per publication (MNCS) .90
- Field-normalized average journal impact (MNJS) .82
- Field-normalized proportion highly cited publications (top 10%) .67
- Internal coverage .65

**Trend analyses**

![Chart showing trend analyses](chart.png)

**MNCS**

**THCP10**

**MNJS**

**Collaboration**

![Collaboration chart](chart.png)

Performance (MNCS) by collaboration type
INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING
AT THE UNIVERSITY OF HELSINKI
by CWTS, Leiden University, the Netherlands

Research profile

Threshold: \( P > 2 \)