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Foreword

The Faculty of Medicine at Lund University has clearly identified as one of its goals the need to become one of Europe's leading Medical Faculties. The Committee, which I have chaired over the past year, set out to establish whether or not such an aspiration was achievable and, if so, what internal and external obstacles might exist that prevented the realisation of this objective. In an attempt to establish the feasibility of this goal, we have explored in detail the structure, management and culture that underpin the Faculty of Medicine, and have attempted to make recommendations that are, on the whole, realistic and achievable. We have drawn on a substantial experience of other successful research-based universities and medical schools, both in the USA and in the UK and have attempted to provide input that takes into account the changing nature of biomedical research driven by the advances in genomics, molecular and cell biology. We have also been careful to consider the crucial role that clinical science will play in any successful research endeavour in biomedicine in the coming years. Three members of the Committee have the advantage in this regard of being clinically qualified and active.

Our exploration of the Faculty of Medicine gave us much reason to be optimistic about the possibility of Lund achieving a leading research position amongst European medical schools. In particular, we found areas of existing excellence that rival those found in any institution in Europe or North America. Our confidence has been reinforced by the bibliometric analysis of the Faculty's output. We have used these highly successful research arenas to consider what prevents the wider acquisition of excellence across the Faculty that would be necessary to achieve a research leadership position. Our conclusions identify both internal and external factors that must change for this to occur. Many of the changes necessary were, happily, already widely recognised within the Faculty of Medicine and all the internal recommendations are easily within reach, given the will to succeed.

External reviews are always limited to some extent as it is unlikely that a group of visitors can adequately analyse the strengths and weaknesses of another institution without omission or fault. We believe our conclusions are sound, but perhaps the most important outcome of this review is not written in this document. One great advantage of external review is that it often challenges the staff of the institution to stand back from their everyday activity and reflect themselves on what is right and what could be better. These insights are often as valuable to the organisation as anything that an external committee can provide. The review may act therefore as a catalyst for internal reflection and change.

My efforts have been greatly facilitated by colleagues Gavin Screaton, Kay Davies, Peter Ratcliffe, Valerie Beral and Mats Benner and by the efforts of Anne Messeter and Per Belfrage who have supported our activities both in Oxford and Lund. The review could also not have achieved its goals without the considerable efforts of the Faculty leadership and the many staff who gave up their valuable time to inform us about their Institution. You have much to be proud of and I am confident that there are even greater things to follow.

John Bell

1. Executive summary

Professor John Bell, Regius Professor of Medicine at Oxford University, was asked to convene a committee to review the activities of the Faculty of Medicine at Lund University. The panel made a number of visits to Lund during 2002 and the early part of 2003 and based their report upon interviews with a wide range of senior and junior Faculty members as well as review of extensive documentation provided by the Faculty.

The panel was charged with examining the Faculty of Medicine as a whole and to make comments on the scientific standards, direction and opportunities as well as the organisational and staffing structure. The committee was not asked to review teaching, but was conscious that the Faculty has a major responsibility in this area and felt that the changes suggested in this report will not impinge upon this important activity.

1.1 Recommendations:

- The Faculty of Medicine continues its structural reorganisation moving core administrative fixtures (accounting, ordering and receiving, human resources, health and safety) to a Faculty based structure. Research activity should be managed through programme fields which bring together clinical and basic scientists around a single scientific theme. These programme fields should be responsible for management of the scientific program, procurement of external funding and identification of key personnel as well as providing strategic leadership. They should be led by a single identified scientist in concert with a management committee of senior scientists and clinicians and, if appropriate, with the input of an external advisory board. In concert with this switch to programme fields the Faculty should continue to modernise its departmental structure and the committee suggests changing to around 6 sections. These sections could be organised around clinical themes such as oncology or cardiovascular medicine but will contain both clinicians and non clinicians.

- The Faculty of Medicine should establish a Research Strategy Committee made up of senior Lund scientists and major international figures in biomedical science. This Committee should recommend to the Faculty research groups that apply for programme status and should identify leaders of programmes from both within the Faculty and from outside the Faculty. They should also identify new technologies and areas of research activity that the Faculty should engage, particularly where the Faculty has no current activity. These recommendations should be made to the Faculty and, where possible, implemented as a priority. The committee should urgently consider major technology investments that will be required to replace the Swegene resource when this expires.

- The Faculty of Medicine should maintain and recruit, if necessary, medical scientists with experience across the whole range of investigative methods. This recruitment should be internationally based. Often it is the lack of local expertise in a particular technical area that downgrades an otherwise well directed research programme.

- With regard to programme fields it is important to identify configurations that address manageable and tractable problems. It is equally important to avoid conglomerations that are simply put together to meet the political requirements of the new structure rather than reflecting scientific problems that have a chance of solution with the resources available.

- The Faculty of Medicine should reduce its tenured staff by 20%, by natural wastage or the introduction of an early retirement scheme. This will free up money to pump prime and support strategic initiatives and the programme fields. This reduction should not be at the expense of junior recruitment and it may be that further reductions will be needed to create headroom for these important Faculty appointments. As many of the Faculty are ageing, attention should be focused on succession planning. Future leaders should be identified and if necessary recruited from outside and it is suggested that the leadership of clinical sections or programme fields is passed on between the age of 55 and 60.

- Health science funding, from the Region Scania's authorities' own R&D funds, committed to University hospitals should be identified to support senior clinical research scientists in secure posts who would have responsibilities for maintaining a research presence on all the major clinical specialties. Their major role would be to lead clinical research activities. The contribution of these individuals to research and training should be recognised by appointment to adjunct professorships as opposed to faculty tenured professorships. In addition, the research activities of these individuals should be supported by central administration and they should be in a similar position to tenured faculty staff with regard to competition for strategic resources. The Faculty of Medicine should assess the relative contribution of its staff to clinical service to determine whether the split between University and hospital funding for University staff engaged in clinical activity is equitable.

- ALF funding should be made available to any scientist undertaking translational research. SEK50 million should be set aside annually from ALF funding to support strategic initiatives. Funding should be based on research excellence and not on the researchers' clinical background. ALF funding decisions should be rigorously peer reviewed externally and the success rate of applications, currently about 60%, should be reduced to around 30% to ensure quality.

- A post-doctoral programme, with funding from ALF or from savings achieved from reducing Faculty size, should be established. All investigators <50 years of age should be eligible to apply for such posts in their laboratories, and the posts should be fully funded for up to 4 years.

- The number of PhD positions should be reduced by 30-50%.

- The Faculty of Medicine should make immediate approaches to the Swedish Government in an attempt to have Government research funds increased to internationally competitive levels.

- The University should rapidly institute a new policy on Intellectual Property to better protect the University's interest and to improve technology transfer.

- The Faculty of Medicine should play a more active role in identifying commercial streams of income for research, both in terms of sponsorship of joint programmes and intellectual property. The Faculty should adopt a more active position in the negotiation on agreements and contracts rather than its current secretarial function.

2. Introduction

The Faculty of Medicine in Lund asked Professor John Bell, Regius Professor of Medicine in Oxford, to carry out a review of its activities. The basic remit was to examine the structure of the Faculty and its research activities and to advise on how the Faculty could best achieve the aims set out in its strategic plan. The Health Care sciences, Nursing, Physiotherapy etc. were not included in the task. They were left for a separate review. Professor Bell recruited four colleagues from Oxford and Mats Benner from Lund to assist in this review with expertise in different aspects of clinical practice and biomedical research. The six members of the review team and their interests were thus: Prof. John Bell, immunology, genetics, general medicine; Prof. Kay Davies, neurosciences and developmental biology; Prof. Valerie Beral, clinical epidemiology; Prof. Peter Ratcliffe, renal medicine and molecular physiology; Dr. Gavin Screaton, general medicine, molecular immunology, Dr. Mats Benner, senior lecturer and Director of the Research Policy Institute, Lund University. The team was supported by the project manager in Lund, Anne Messeter.

The review team made four site visits to Lund and also met on several occasions with a delegation from Lund in Oxford. The team was provided with a large range of documentation covering aspects of Faculty organisation, strategic planning, national and local funding opportunities and research activities. It was not the aim of this review to examine and comment on the scientific output of each scientist in the Faculty of Medicine. A more detailed examination of research performance, however, was achieved in three ways. Firstly, a bibliometric analysis was performed by Prof. Grant Lewison at the City University, London. Secondly, the review panel was provided with and reviewed a database of research projects and major publications from over 200 principal investigators in the Faculty. This database was complemented by a number of additional data supplied by Anne Messeter. Finally, early on in the process the panel was asked to perform a detailed review of 17 “programme fields of research”.

During the review the panel met with senior members of the Faculty, and meetings were arranged with: The Vice-Chancellor of the University and the University Director, Faculty management and administration, organisers of educational activities, the department heads, senior PI's in 10 different groups representing the different research areas in the Faculty, junior clinical and preclinical researchers and finally clinical and preclinical PhD students.

3. Modern Biomedical Science

The success of scientific disciplines often varies over time so that at a given point some will be successful and others less so. This is driven by a variety of factors: the underlying knowledge base from which new discoveries can be derived; new technologies; changing intellectual perceptions on what is currently of interest; social and economic pressures to act upon real or perceived objectives. Historically, disciplines such as particle physics benefited greatly from the expansion of understanding of this field in the first half of this century, electronics and computer science from the exciting innovations that occurred in the last half of the last century. The development of methodologies and technologies that allowed recombinant DNA research to occur in the years since 1975 and the significant technological achievement of acquiring the sequence for the human genome have provided a platform for biomedical science to be rapidly advanced and to be one of the most important and exciting areas of modern science in the first half of this century.

One of the areas where these innovations in biotechnology are likely to have their most profound effect is in understanding, diagnosing, treating or preventing human disease and it is therefore no surprise that much of the recent development in biomedical sciences is occurring in or around medical schools and hospitals, or within the pharmaceutical or biotechnology industry. The potential impact of these activities on human welfare and on economic growth is enormous, more than sufficient to have caught the attention of policy makers, health care funders, health care professionals, and those interested in the economic development of both the developed and the developing world. Although significant progress has been made, particularly at the more descriptive and technological end, the greatest opportunities lie with putting the pieces together to enhance scientific discovery and innovation in this arena. This is likely to occur over the next twenty-five to fifty years.

So called molecular medicine has already delivered many results in terms of disease understanding and therapy. Many advances have been made in single gene disorders which can be relatively easily identified. However, most human disease is determined in a multifactorial fashion which has required a change in the way we approach these problems. This change in focus in biomedical science, which attempts to explain biological and clinical phenomena in terms of molecular events and biological processes, utilises increasingly large sets of genomic and genetic data. These are being used in an attempt to explain complex processes and disease mechanisms in an integrative way. This has not occurred without a significant change in the manner in which biomedical science is undertaken. Historically, problems in this arena were largely solved by investigator led, relatively small laboratory teams executing hypothesis driven research projects based on well defined biological phenomena. Alternatively, in the clinical setting, much work was focused on trying to characterise disease phenotypes rather than understanding their underlying mechanisms. This has changed dramatically in the last few years with the availability of large sets of genetic, genomic and latterly proteomic and structural data. In many cases these data have been generated in a systematic fashion in both the public and private sectors and are available to investigators through various public and subscriptional bioinformatics interfaces.

This surfeit of opportunity and data has changed significantly the manner in which scientific discovery occurs. In some instances the normal hypothesis driven path has been reversed, starting with a systematic analysis of data in a non-hypothesis driven way to recreate hypotheses in areas of biology not previously recognised to exist. These can then be expanded and exemplified using more standard approaches. The availability and ease of creation of these systematic sets of information have created worries about the industrialisation of science, as it is often amenable to the large scale commercial approach. However, it has also provided huge opportunities for investigator-led scientists who can now optimally utilise this information to attack the problem which they are attempting to solve. It is therefore not possible to ignore the impact of these fundamental changes in the way biomedical sciences are being undertaken, and this structure is likely to define the future of the field for some time to come.

The new powerful technologies that have facilitated the advance of modern biomedical science have also changed fundamentally the way in which it is organised. Scientists successfully operating particular technology platforms can now make substantial contributions across a whole range of different disease areas. There is also much more opportunity to develop integrated biology programmes that utilise a range of different skills to tackle a particular problem. We see geneticists working closely with epidemiologists, physiologists utilising molecular biology and chemists interacting closely with protein scientists and other biologists. Disciplines such as structural biology are now yielding results at a sufficient pace that they become integral to coherent programmes of research on biological

pathways. All this leads to a reconsideration of how science might best be organised. In the past, scientific disciplines have fallen rather neatly within conventional departmental structures but, increasingly, these disciplines have ceased to have any credible meaning in the context of active scientific programmes. For example, anatomy has given way to cell and developmental biology. Similarly, the activities of most biochemistry departments may be similar to those of departments of medicine. The integration of both basic and translational research has been an essential part of a successful strategy to move from basic scientific understanding to new therapies quickly and efficiently. The old rationale for departmental structures, based predominantly on scientific skills, methodology or clinical area, now has less meaning. However, in some areas, particularly involving the more clinical specialities, such a structure is still useful in terms of service delivery, professional development and teaching.

This transition in biomedical science over the past fifteen years has also had profound implications for the funding and its national and international organisation. Funding streams have risen dramatically in countries that have achieved significant success in both genomic and investigator led biomedical research. Progress is now faster than ever before, but this has of course not come without cost, and the financial requirements for these exciting developments in biomedical science continue to grow. The expansion of federal funding in America for biomedical science has led to a doubling of the budget of the National Institutes of Health, the Wellcome Trust in the United Kingdom now spends more money than the Medical Research Council, and both of these funders have increased their real funding capabilities substantially over the past five years. In Canada, the budget of the Canadian Institutes for Health Research has also doubled over the past five years and is expected to double again over the next three years. In addition, the Government has funded a substantial infrastructure fund (CAD3.2 billion), a Genome Canada programme (CAD530 million) as well as 1000 new research professorships in biomedical and biological science across Canada. Interestingly, these three countries have also been the most successful in developing a strong and expanding biotechnology and pharmaceutical sector. The link is clear between a vibrant basic biomedical research programme in academia, funded by Government or charitable research organisations, and the establishment and success of a biotechnology research sector that generates growth in the knowledge-based economy.

The failure to commit adequate resources to fundamental biomedical science research activities and to the clinical infrastructure that allows translation to occur efficiently will inevitably lead to a weak economy in this important growth area. Countries such as Singapore have recognised the relationship between funding basic biomedical research and economic growth and have, through their Economic Development Board, established in recent years funding streams that considerably outstrip those available in many countries including Sweden. It will not be possible to maintain a credible presence in this highly competitive arena if the research activities are not adequately resourced.

A crucial component of a thriving biomedical research sector is the success with which it attracts and retains able young scientists. It is from this human resource that the creativity and success of any programme will eventually arise. Indications of the success of an academic structure to support biomedical research are its ability to recruit and retain bright, able students and scientists from elsewhere in the scientific world and its ability to provide career opportunities, infrastructure and recurrent support for the most able of its own students. Again, the most successful biomedical research communities are able to aggressively recruit from other environments and are also able to retain and support in a coherent structure the best and the brightest of their own students and trainees. If Lund University

has ambitions to become one of the leading research establishments in biomedicine in Europe, it must fulfil these criteria, otherwise its most valuable resource will be dissipated and its capacity to recruit outstanding individuals internationally will be profoundly limited.

A vibrant biomedical research programme well integrated with the health care system makes the later more likely to achieve the goal of providing better health care for its own people and also providing important contributions to health on a global level. Inevitably, with health care systems that are invariably hard-pressed financially, there is a tension between academic interests and those associated with providing clinical service within hospitals. Successful health care institutions have much to gain from close affiliation with academic research programmes, and, similarly, the importance of translational aspects of research has become increasingly apparent as the pace of fundamental discoveries increases. Careful management of this relationship is essential for the success of any biomedical research programme.

Finally, for both the University and State, it is important that, as well as harnessing the benefits of successful biomedical research for health care, the economic benefits are also realised. Many opportunities for commercial exploitation of biomedical research exist and the responsibility to harness this should not be left to individual researchers. Many universities in North America and Europe have now realised the potential of these activities. These institutions have developed very successful technology transfer arms generating capital for the universities and helping to reward and retain staff.

4. Lund University and the Faculty of Medicine

Lund University has eight faculties with three of them, Medicine, Science and Technology, spanning the scientific disciplines. The University has an annual budget of around SEK4.7 billion (about 500 million euros) of which about SEK2.9 billion (about 310 million euros) is allocated for research. As with most European universities, the research budget is skewed towards bio-technical activities. About two thirds of its research is within biomedicine, natural sciences and engineering.

Despite the breadth of the University, and the physical proximity of the medical, natural science and technical faculties, collaboration across faculty areas is relatively rare and has not been supported in any systematic fashion by the University. Hence, there is a potential for growing intellectual interaction between faculties, for instance between engineering, biology, biomedicine, physics, and chemistry, which should be encouraged to allow the University to compete, both technically and financially in large multidisciplinary research projects.

The Faculty of Medicine is one of the most research-intensive with approximately 80% of its activities geared towards research, totalling SEK1.1 billion (about 40 % of the University's total yearly turnover for research). The Faculty has pioneered a more active stance towards research planning. This has lead to a number of strategic initiatives such as reduction of the number of departments, the introduction of activity-based resource allocation, active recruitment policies, thematic (rather than departmental/disciplinary) orientation, and, recently, the emergence of programme fields as alternatives/complements to existing organisational structures.

Recent Faculty initiatives also include attempts to concentrate research activities to fewer sites, and to this end there have been large new developments. These include the Biomedical Centre (BMC) in Lund (housing about half

of the research activities of the Faculty of Medicine) and the planned Clinical Research Centre (CRC) in Malmö (with about a quarter of the Faculty research). These environments are also intended to be integrative, i.e. they should include both clinical and pre-clinical research groups, preferably in mixed and flexible configurations. One difficulty of this approach is that the new buildings have not been accompanied by major changes in funding streams i.e. funding is still highly fragmented.

5. Faculty Organisation: Structure

The Faculty of Medicine in Lund is now considering the optimal organisational structure for the future. In common with many other medical faculties internationally, it is important to choose between two different organisational models. The first is the classical departmentally based structure with a number of pre-clinical and clinical departments, each with its own department head and established staff. The departments in Lund are extremely heterogeneous *(Fig. 1)*, having been established for a range of purposes over many years. Some are extremely small, while others have already undergone significant consolidation.

Management of such a heterogeneous group of departments is complex, the Faculty leadership having to interact with very different departmental sizes. The relationship between the structure of clinical departments as they are currently defined, and the clinical subspecialties, is at present unclear. There are several departments that are clearly geographically defined, while groupings of medical subspecialties have been clustered together without any apparent scientific rationale.

The second organisational structure which is being considered is to put additional resources into "programme fields" or Centres. These would be groups of scientists with particular shared interests in scientific fields that could be organised together to facilitate their scientific agenda and to enhance the opportunities for these large collaborative groups to obtain substantial external funds and to better organise and coordinate technology platforms and training programmes for graduate students. This theme based research activity has in some medical centres entirely replaced departments. Three programme fields have been identified from seventeen submitted in a recent competition for modest support from the Faculty. These were programmes in Stem Cell Biology, Diabetes, and Blood and Defence. These programmes all have very significant scientific advantages associated with them. They bring together, under clear leadership, many of the best groups in the Faculty of Medicine focused in these areas of research. Secondly, they provide remarkable opportunities for the productive engagement of clinicians and basic scientists to develop translational programmes, moving basic science into a clinical setting. This is demonstrated clearly by the stem cell and diabetes programmes. Finally, these structures provide some significant flexibility in the Faculty that will allow it to change scientific directions when these fields are reviewed competitively at appropriate intervals.

It has been recognised that these Centres should not simply become departments with another name. Indeed, where possible, the major administrative responsibility associated with these activities should be managed centrally in the Faculty and the major administrative tasks associated with the Centre should be the allocation of new research resources along with the development of a shared strategic vision, the recruitment of a new senior and junior scientific staff and the management of core technical resources and training programmes for both graduate students and postdoctoral scientists.

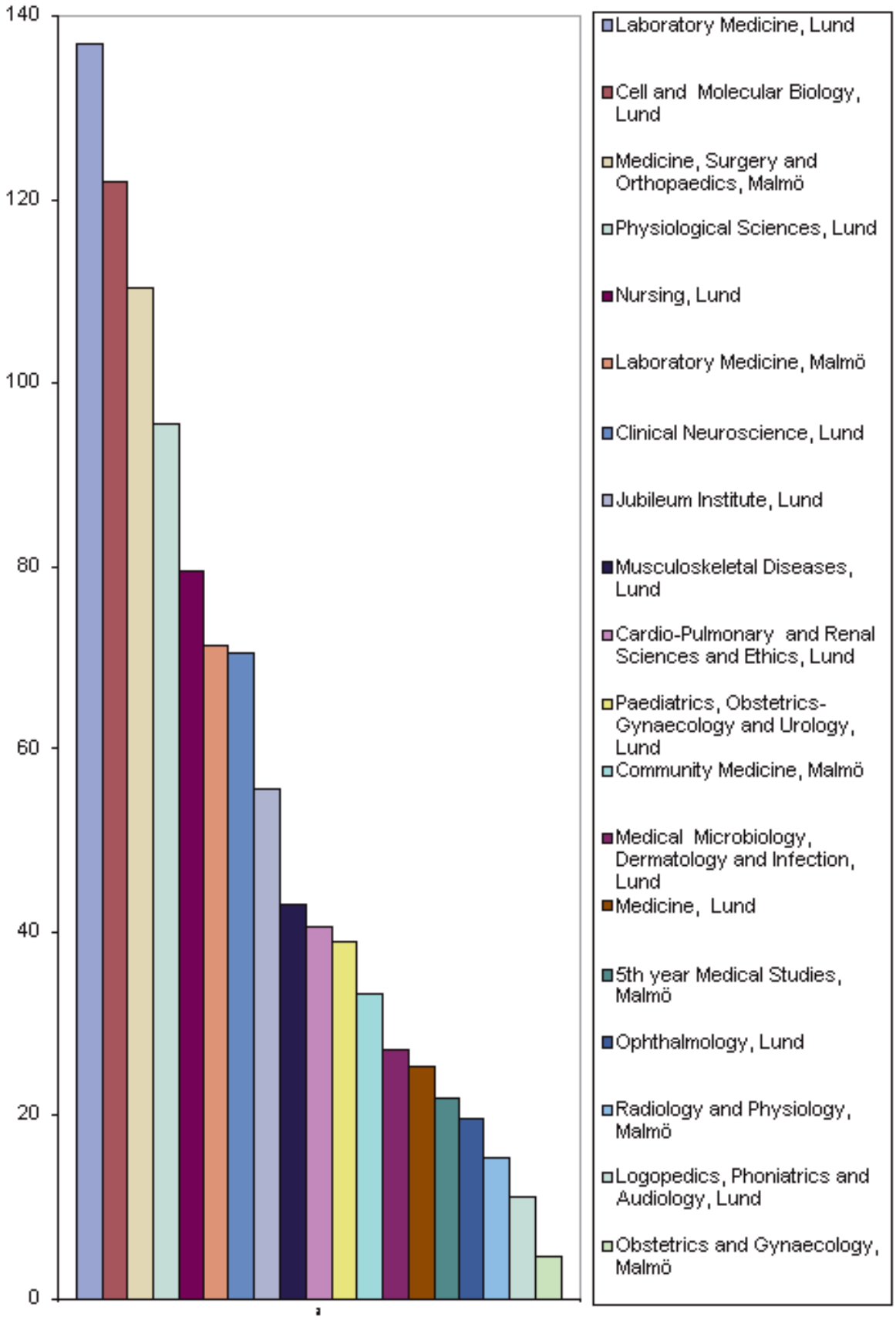

Figure 1. Departments, estimated income fiscal year 2003. Total income departments: SEK1,022m.

It is important that these Centres are seen to focus on manageable areas of science and do not attempt to encompass whole disciplines in an unfocused and diffuse fashion. The basic idea is to bring together a group of individuals with complementary expertise to tackle translational research projects. These may well cross the more traditional research groupings which are typically based around specific disease entities or organ systems. Ideally, they should focus on some area of research for which it will be practical to mount a substantial research programme and achieve considerable success over a five to ten year period. This would not, for example, include the whole area of cancer or cardiovascular disease, but would include some specific scientific area within these broad disciplines.

The Committee considered this organisational issue to be a major priority for the Faculty of Medicine to resolve in the near future as, although there had been some movement in organisation, this was not yet complete and the current position is clearly unstable and unsatisfactory. On one hand, it is clear that a move to Centres or programme fields will not provide a solution for the whole Faculty. Although many of the most successful scientists may fall into these Centres, other successful scientists may find no appropriate programme field to operate within. These individuals will need a structure to operate within, with appropriate management and mentorship to ensure that their careers develop appropriately.

A move away from the traditional departmental structure presents particular difficulties in the clinical arena. It was appreciated that here it is necessary to have an academic structure that, to some extent, mirrors the clinical structure within the health service. This helps to ensure that there is appropriate academic input to allow undergraduate and postgraduate training to be performed successfully and to ensure that access is available to patients for important clinical research activity. At present, academic heads of clinical departments are almost never clinical service directors within the health service. Clinical service directors have authority over delivering clinical activity within the individual subspecialties. In addition, there is an important role of retaining some clinical leadership as the professional development of clinicians training academically needs to be supported and managed by a senior individual in the appropriate subspecialty. For example, professional development of an academic surgeon will require a senior surgeon to facilitate appropriate academic professional contacts for such young trainees. It is unlikely that these mentorship and management issues could ever be easily replaced by a Faculty made up entirely of programme fields.

In talking to postdoctoral fellows and PhD students, the role of the existing departments in their management and mentorship was not always entirely apparent to either these trainees or to us. The Committee was similarly not persuaded that the retention of the *status quo* was an appropriately flexible and dynamic approach for developing modern biomedicine in this highly competitive era. The Committee also felt that, although programme fields were a highly effective way of developing areas of very special competitive advantage in the Faculty of Medicine, it was unlikely that Lund would be able to identify and sustain more than ten such programme fields and it may prove that only six such fields are sustainable. It is important that these programme fields are flexible and can be disbanded with new areas of expertise identified and developed over a ten-year period. It is important therefore that they do not gain the administrative trappings of departments, but still are sufficiently structured to be able to obtain and manage new resources directed at them for strategic reasons from the Faculty.

The Committee believes, therefore, that the Faculty of Medicine should move to a matrix structure that allows programme fields to operate and be developed within six to ten areas of biomedical science where Lund has

particular expertise and capabilities, and that these should be resourced with additional posts and research expenses identified and ring-fenced exclusively for the use of defined centres. The centres themselves should be chosen, preferably, by an external review body and should be reviewed competitively quinquennially. Resources in the form of ALF money for translational activities within these programme fields and posts should be given a high priority within the Faculty's Strategic Committee.

In addition to the programme fields, a limited number (up to 6) clinical sections should be established to replace the existing departments that operate to support teaching and professional development. These sections should be made up of both Faculty and health service funded staff. They should rely on central Faculty based administration for their support and would have an important role in creating a seamless interface between research and the clinical service. These sections should, in the clinical areas, have leadership which roughly parallels the clinical service structure within the health service. The exact structure of these sections should be the subject of careful consideration, but it is clear that the existing departmental structures are too heterogeneous to provide a useful model for how the sections could be developed in the future. The major role of these sections in the clinical arena should be to ensure that there is leadership to provide appropriate contact with clinical service activity, to provide a platform for clinical research, to provide a structure for the training and mentorship for undergraduate students and clinical fellows, and to provide representation for that particular service area to the Faculty, *(Fig. 2)*.

Clinical Sections Teaching and Post-grad		Programme fields					Non-aligned
		A	B	C	D	E	
	1						
	2						
	3						
	4						
	5						
	6						
	7						

Figure 2. Example of new organisation matrix.

The specific administrative responsibilities for human resources, health and safety and external grant management cannot be currently efficiently applied through large heterogeneous sets of departments. It is the Committee's recommendation that these functions be centralised within the Faculty to provide high quality administrative support for the increasingly complicated issues of human resources and contracts relating to research that can be provided best within large centralised administrative structures.

6. Strategic Research Development

Although the Committee was impressed by the considerable progress made in developing programme fields and Centres within the Faculty of Medicine despite relatively little structure on which to base these, it was also disappointed with some of the programme field applications that it reviewed and by the lack of strategic input into the development of such programme based research activities. Although it is formally possible that "bottom-up" research programmes might eventually emerge, there was no evidence that this was likely on the basis of our discussions with many groups during our visits. Indeed, the best examples of programmes funded in the programme field competition demonstrate evidence not of bottom-up, but of top-down leadership and vision which provided coherence and focus in the programmes that were successful. Although this top-down strategy did not come from the highest levels of the Faculty, invariably leadership from at least one significant senior figure in the Faculty led to the creation of a group which was both coherent and focused.

It seems unlikely to us that further programme fields will emerge without some strategic involvement from the Faculty, perhaps in an iterative way to try to help identify leadership (by recruitment if necessary) around areas where Lund already has a significant scientific position. The lack of this top-down strategic vision will also severely compromise the Faculty of Medicine in areas where it has no active research programmes. For example, there is no credible research programme focused on the major psychiatric diseases (manic depressive psychosis, schizophrenia, anxiety and depression). It seems inconceivable that a competitive biomedical research institute could proceed without an active and, preferably, thriving research programme in these areas which will be a major burden of human disease over the next twenty years. It will be crucial therefore that the Faculty has the mechanisms and capacity to take decisions about building up areas it views to be strategically important and this cannot easily be done with the current structure.

The Committee recommends that a new Research Strategy Committee be established within the Faculty of Medicine and that this Committee should incorporate significant external membership, the Dean, the heads of the research programmes and other senior scientists in the Faculty co-opted onto the Committee. This Committee should be responsible for selecting programme fields for development, strategic research issues for the Faculty, including the growth of new areas, and the identification of important technology platforms, and should be able to make recommendations to the Faculty about the allocation of posts and resources to support the best research activities in the Faculty. It should be noted that the creation of an efficient strategic management structure will not be sufficient on its own. It will also be necessary to free up resources within the Faculty to facilitate dynamic change, and also to devise strategies to ensure that unproductive research programmes do not persist in perpetuity.

7. Faculty Organisation: Personnel

The Faculty of Medicine is large, nearly 220 tenured staff including 140 full professors, and faces a significant challenge in reorganising its structure. The need for restructuring revolves around the requirement to obtain more resource for strategic purposes within the Faculty, to create more flexibility to meet the challenges associated with the rapid change in biomedical research opportunities, to ensure that the resource allocated for personnel at different grades is appropriate and that each individual funded by the Faculty contributes significantly to the goal of improving the research performance of the Faculty, and, finally, to bring the structure of the Faculty of Medicine in line with other major research oriented research institutions in Europe.

7.1 Faculty

The Committee identified the need to reduce the size of the permanent faculty in Lund to create opportunities to utilise the resource spent on faculty salaries for more strategic purposes. The number of full-time tenured faculty in Lund is considerably greater than one would expect to find at an equivalent University in the United Kingdom, and it was clear that a significant percentage of those employed in this capacity were not operating research programmes that were competitive in the international arena. Demographically, the Faculty of Medicine is clearly skewed towards the 55-65 age group *(Fig. 3)*. On the one hand this could be viewed as a problem as it may leave strategic holes in leadership and progression. On the other hand there is an opportunity to significantly alter the total number of faculty and their age distribution (*Fig. 4)*, and if required this could be further facilitated by providing opportunities through an early retirement programme. It is clear that, in the current difficult financial environment, all faculty appointments should be able to justify their existence through the acquisition of significant externally peer-reviewed research funding. At present, this is clearly not the case and the lack of "head room" for the Faculty of Medicine to develop new strategic initiatives and to more adequately fund their productive young scientists would suggest that more resource is being spent on faculty positions than can currently be justified.

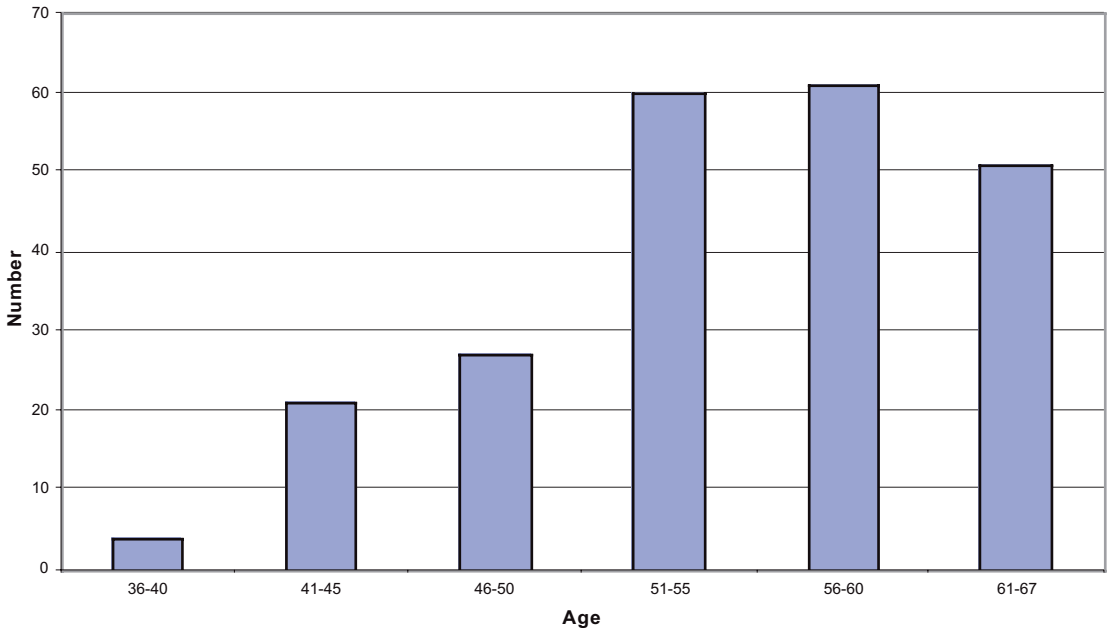

Figure 3. Age demographics for Faculty tenured staff, 2003.

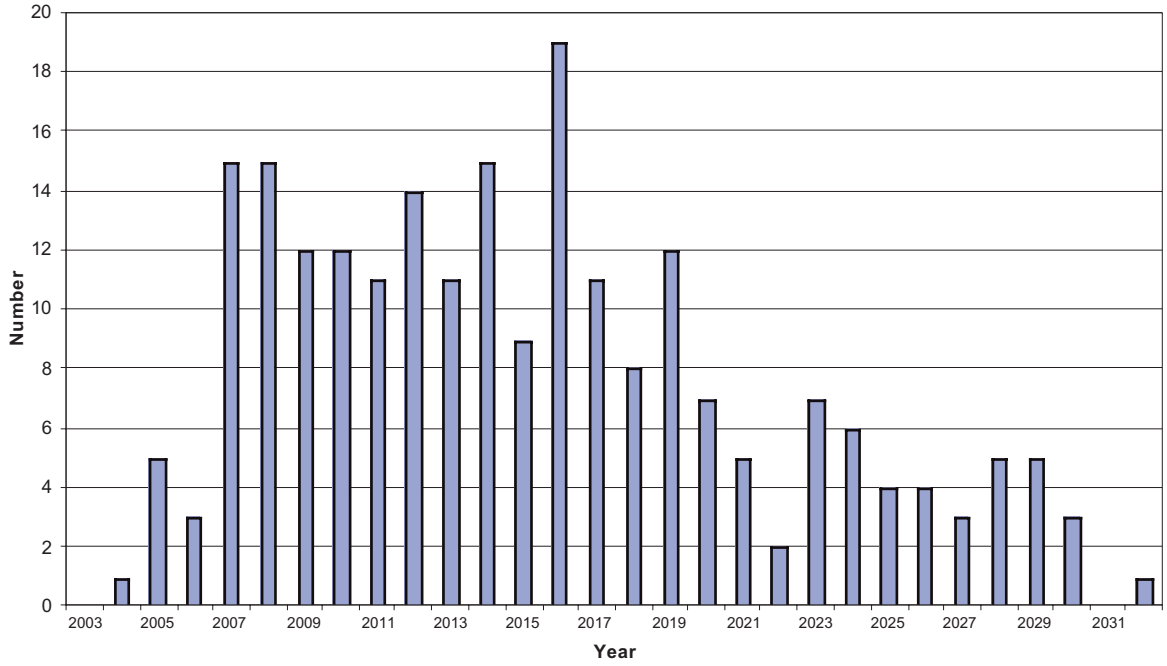

Figure 4. Number of retirements per year for the Faculty's tenured staff.

By releasing significant funds from this commitment, the Faculty of Medicine will immediately create both opportunities for younger scientists and strategic resources that could be used to strengthen research areas deemed to be of the highest quality or necessary for the development of the Faculty. The Committee therefore recommends that the permanent faculty academic staff in Lund be reduced by 20% and that this is achieved not simply by attrition, but by opportunities for senior staff to obtain early retirement benefits.

The careful management of junior and senior staff will require more attention in the future. We suggest that the Faculty of Medicine introduce an annual appraisal scheme that will provide support and direction to its staff.

7.2 Junior faculty

The Committee was impressed by the quality of junior non-tenured investigators attempting to develop their independent research programmes. It is this group that will provide the long-term success for Lund University and, hence, they require support in order to be internationally competitive. It was noticeable that these individuals were running relatively small groups, by international standards, and their research groups were made up predominantly of PhD students with relatively few postdoctoral scientists. This makes it difficult to properly assess the real quality of candidates from this group for tenured positions as the fuel required to run their programmes in the form of postdoctoral scientists is not available for them to truly demonstrate their real abilities. Making good decisions, therefore, about the productivity of this group must at the present time be difficult if not impossible.

The lack of serious national funding for research programmes and projects from the national funding agencies makes it very difficult for junior faculty to seriously develop at what should be the most creative and productive time in their careers. The Committee recommends, therefore, that some of the strategic funds made available from the change in faculty structure and the reallocation of ALF money (see below) is used to establish a competitive

postdoctoral programme that would be available to independent investigators in the Faculty of Medicine who are less than 50 years of age. This, as with all other research funding, should be allocated on the basis of international or national peer review.

7.3 PhD students

The Faculty of Medicine has on its books approximately 900 PhD students at the present time. The Committee met a number of these students and, although the Committee applauds the idea that everyone with an undergraduate degree should be entitled to register for a PhD programme and undertake graduate studies, it is clearly not invariably the most important and effective use of resources in the Faculty or for that matter nationally. Although the principles on which universal access to graduate study are based are laudable, we believe that a reduction in the number of graduate students would not damage the current research output of the Faculty of Medicine, nor would it damage the prospects of identifying and recruiting the best young scientists into the field of biomedical science in the future.

Many PhDs were clearly undertaken because they were seen to improve the opportunities for future employment and not all PhD students saw a research career as being an important product of their studies. Large numbers of graduate students, who are not focused on research careers, consume significant human and financial resources in the Faculty, and the Committee recommends that the number of such students is reduced by as much as 50% and that entry into a PhD programme is done on a competitive basis where a student's interest in biomedical research, as well as their aptitude and the quality of the laboratory they have been accepted within, are all considerations in the selection process. By refining the focus of this graduate student programme, significant resources will be saved, both in terms of student stipends and in terms of the time and energy spent by supervisors currently committing significant effort to training individuals who are unlikely to pursue significant research careers.

7.4 Restructuring conclusions

This Faculty restructuring should provide considerable opportunities for enhancing the research output of the Faculty as a whole. Graduate students will be selected on the basis of their aptitude and ambitions to pursue research careers, junior faculty will be more adequately supported to achieve high quality output at this, the most productive time in their careers, selection of successful junior faculty will be a more robust and effective process, and the vast majority of faculty who are employed will have successful, externally funded and internationally competitive research programmes. A further important output of this restructuring will be that it releases significant funds for strategic developments around particular research areas and individuals in the Faculty. The headroom provided by a smaller faculty will allow expansions and contractions to occur in areas of biomedical research and for serious international recruitment to occur to raise the overall profile of the Faculty of Medicine.

8. Research Assessment

It was not the purpose of this review to examine the research output of each senior researcher or group. In the future this may prove to be a valuable exercise, but due to the size of the Faculty of Medicine the committee recommends that it be broken up into smaller groupings, perhaps in the future based around the programme fields. These can then be reviewed by an international panel of experts in the respective fields.

8.1 Review of Faculty performance

In the UK universities are assessed every 4-5 years under the research assessment exercise. In this scheme, to achieve a top score, departments have to demonstrate that over 50% of their staff are of international standing. Our evaluation of the Faculty of Medicine at Lund University suggests that significantly fewer of the Faculty have achieved this level of recognition.

For this review we were provided with a database of research group projects from 219 principal investigators in the Faculty, (the health care sciences not included). Each group head summarised their research project and provided a list of key publications and collaborators. The committee felt that the database was a useful resource and encourages the Faculty of Medicine to keep this valuable resource running and up to date. The information in the research database was all compressed onto a single sheet for each individual so that it was difficult to gain a complete picture of each individual's performance. So, for comparison we ranked each of the research projects on a three point scale: internationally competitive, nationally competitive and sub-nationally competitive. Overall, 19 were in the bottom band, 124 in the middle and 76 were judged to have internationally competitive research projects. There were clearly a number of top class scientists represented in the Faculty and some very strong areas which have been acknowledged in the awards of programme fields and the award of a strategic centre by the Foundation for Strategic Research. It is worrying however that in some cases the best researchers remain relatively isolated running smaller projects rather than building larger more competitive networks.

8.2 Bibliometry

A bibliometric analysis was performed by Professor Grant Lewison at the School of Informatics, City University, London. This was primarily designed to compare the five Nordic medical faculties, Lund, Göteborg, Oslo, Copenhagen and Helsinki and was funded by a consortium from Lund, Oslo and Göteborg. In addition we also looked at the performance of Lund against two of Europe's top universities, Oxford and Cambridge. The detailed report will be published elsewhere, but a few selected figures are included here.

The analysis confirms our conclusions based on examination of the research database. Lund performs well in comparison to the Nordic countries but is clearly behind Helsinki which has seen an impressive improvement in recent years. When compared to Oxford and Cambridge it can be seen that Lund is some way behind and if anything the gap is widening. The gap is perhaps best exemplified by the comparison of papers in highly cited journals (*Table 3*). Clearly if the Faculty of Medicine is to achieve its aim of becoming one of the top universities in Europe there will have to be a significant change in trajectory from what over the last ten years has been a rather flat performance.

8.2.1 *Numbers of papers from the five cities*

The file of papers consisted of 58609 records.

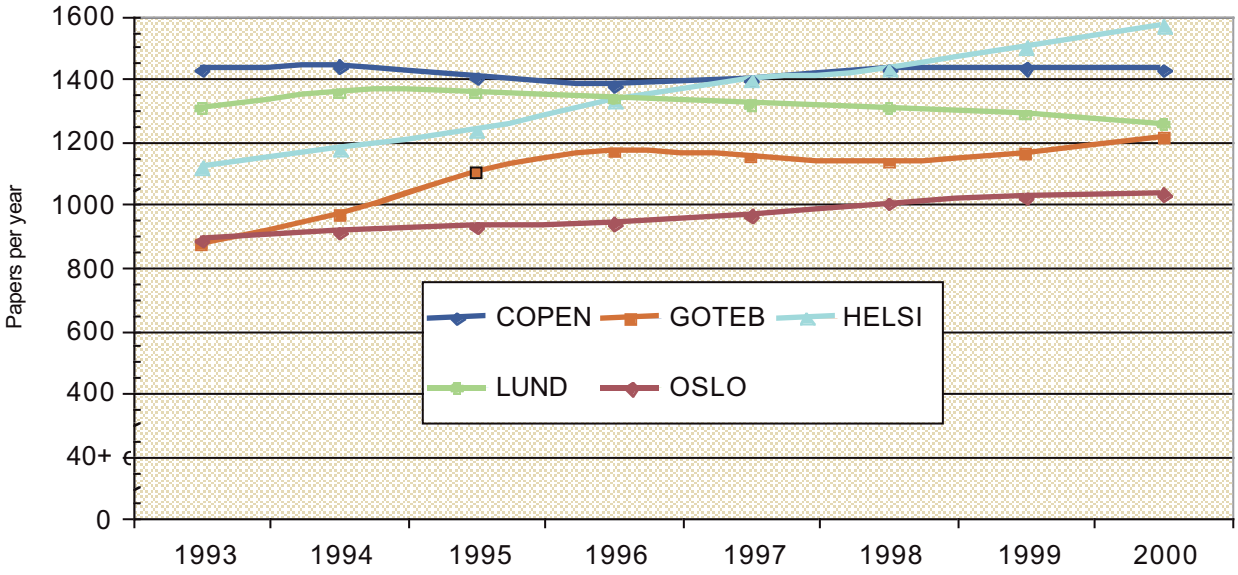

Figure 5. Output of biomedical papers from five Nordic cities (three-year running means), 1992-2001.

Copenhagen's output was the highest in 1993 but has remained almost static, while that of Helsinki has increased steadily and is now the highest. Lund's output - representing about 0.5 % of annual global output in biomedicine - has declined slightly from a peak in 1994.

8.2.2 *Potential impact category (PIC)*

Journals were classified by their citation impact factors, based on the mean citation count over five years, starting with the year of publication. Table 1 shows the four potential impact categories (PICs) used, with examples of journals at each level. Distribution of the papers from the Nordic 5 and each of the individual cities by PIC is shown in Figure 6. The mean value of PIC increased for all the cities. This is normal and is caused by a number of factors including increased collaboration between labs (with more authors per paper and more funding sources).

PIC	*Five-year citation score*	*Examples*
1	Below 6	*Support Care Cancer, Cancer Nurs*
2	From 6 to 11	*Eur J Cancer, Ann Oncol*
3	From 11 to 20	*BMJ, Cancer, Pain, Brit J Cancer*
4	20 and above	*J Clin Oncol, JAMA, Lancet, New Engl J Med, Nature*

Table 1. Four journal potential impact categories and examples of journals at each.

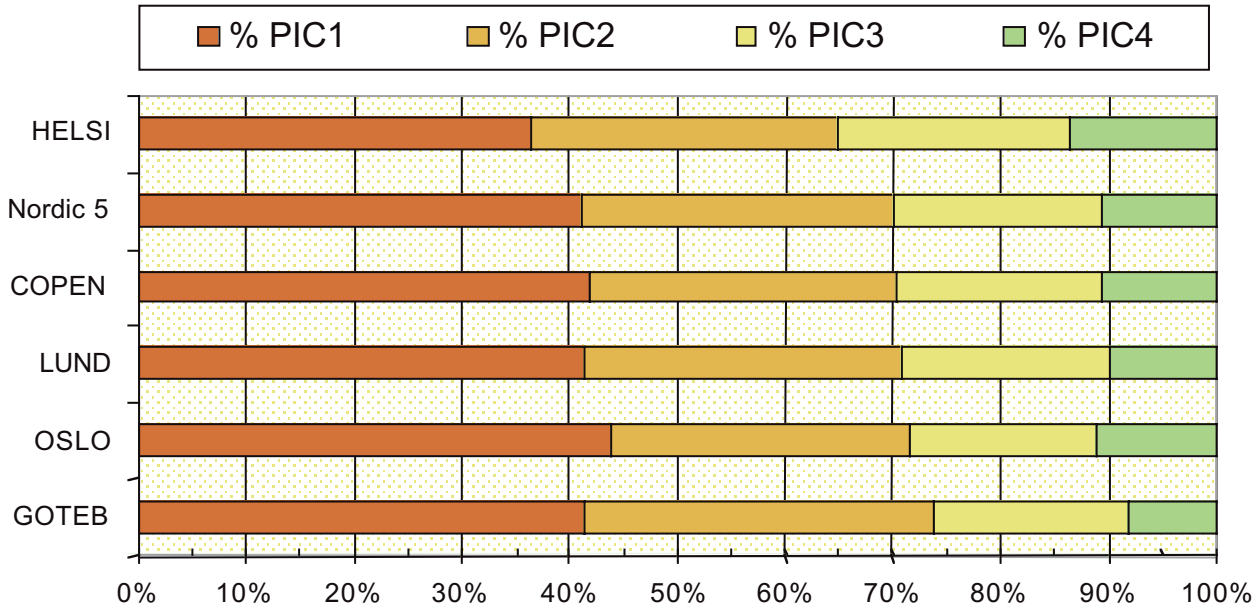

Figure 6. Distribution of biomedical research papers from five Nordic cities by journal potential impact category (PIC; 1 = low, 4 = high), 1992-2001

Helsinki is the leader in terms of papers in high-impact journals and it has increased its lead over the period, with the biggest increases in both numbers and percentages of PIC 4 papers. It should be noted that, in general, basic papers are published in higher impact journals than clinical ones.

8.2.3 *Papers in top-rated journals*

In an earlier study; (Report of the Evaluation Panel on the Research of the Göteborg University Faculty of Medicine, November 1996 Göteborg University, Office of the Faculty of Medicine), a simple weighting system was used for the papers, and they were categorised as A, B or C, depending on the journal in which they were published. Papers classed as A were ones in eight top-rated journals:

Cell, EMBO Journal, Journal of Clinical Investigation, Lancet, Nature, New England Journal of Medicine, Proc. Nat. Acad. Sciences of the USA, Science

and amounted to about 1% of the total set. This analysis has been repeated in the present study, but *Nature* has now spawned eight other journals, all very highly cited:

Nature Biotechnology, Nature Cell Biology, Nature Genetics, Nature Medicine, Nature Neuroscience, Nature Reviews Genetics, Nature Reviews Molecular Cell Biology, Nature Structural Biology

	Earlier		*Current*			
	86-91	*92-95*	*92-95*	*96-01*	*N, 92-01*	*Ratio*
COPEN	0.86	0.95	1.77	2.17	284	*1.86*
GOTEB	0.89	1.15	1.65	1.57	174	*1.44*
HELSI	1.28	1.36	2.44	2.87	365	*1.79*
LUND	0.88	0.69	1.37	1.81	211	*1.98*
OSLO	0.60	0.98	1.84	2.00	187	*1.88*

Table 2. Percentages of biomedical papers from five Nordic cities published in top-rated journals (1986-95: n = 8, fractional address count; 1992-2001: n = 16, integer address count), total number of such papers in 1992-2001 (N), and ratio of percentages for 1992-95 (ratio).

The difference in journal coverage has meant an increase from 1% to almost 2% in the fraction of papers classed as being in top-rated journals. It is clear that Helsinki is the leading city throughout the 16-year period. Lund has made the greatest improvement from the 1992-1995 value.

8.2.4 *Citations and highly-cited papers*

Citations were determined by ISI to each of the papers published from 1992 through 1998 in a five-year window, starting with the year of publication. The percentage distribution of numbers of papers in each citation category is shown in Figure 7.

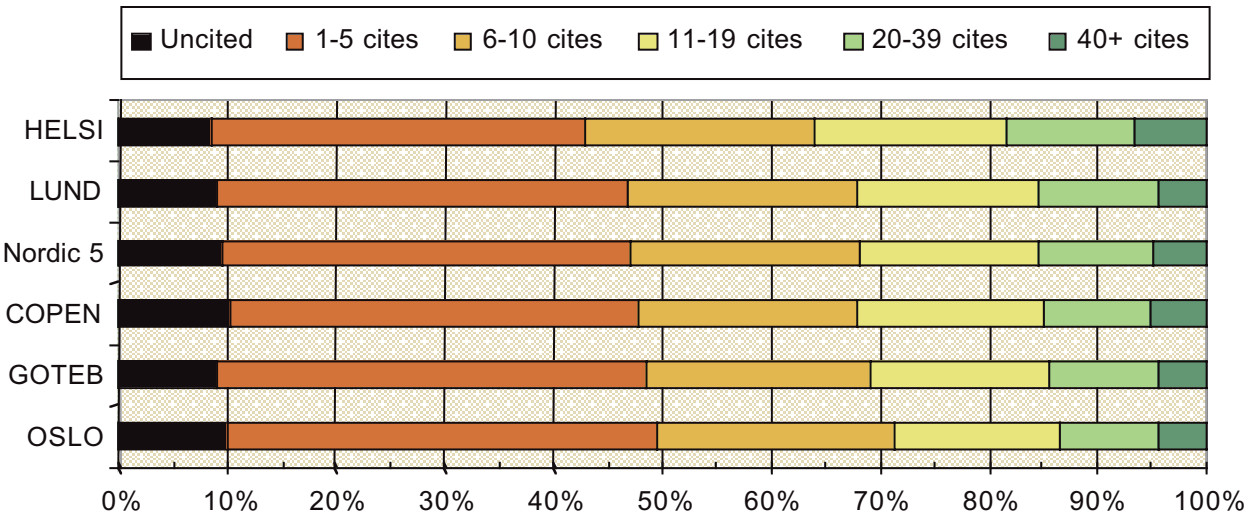

Figure 7. Distribution of biomedical papers, 1992-98, from five Nordic cities by citation category during a five-year citation window.

The ranking of the five cities is clear, even though the differences in distribution appear quite small: Helsinki papers have significantly higher numbers of citations than those of Lund, which in turn are better cited than those of Copenhagen, and so on down.

8.3 Comparison of Lund with Oxford and Cambridge Universities

8.3.1 *Output of papers*

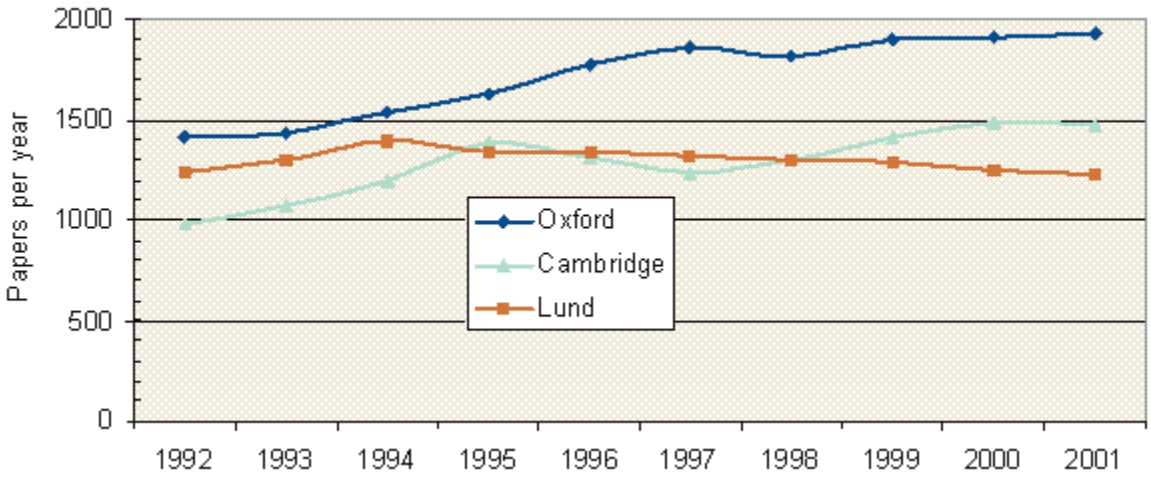

Figure 8. Output of biomedical papers (papers per year) from the faculties of medicine and associated hospitals in Lund, Oxford and Cambridge, 1992-2001.

Both Oxford and Cambridge have increased their output over the decade, but that of Lund has remained static or declined. This is despite the greater amount of institutional and international collaboration; if fractional counts were made, Lund's total would have declined further.

8.3.2 *Values of potential impact category*

All three medical schools have seen an increase in the PIC values of the journals in which they have published their papers.

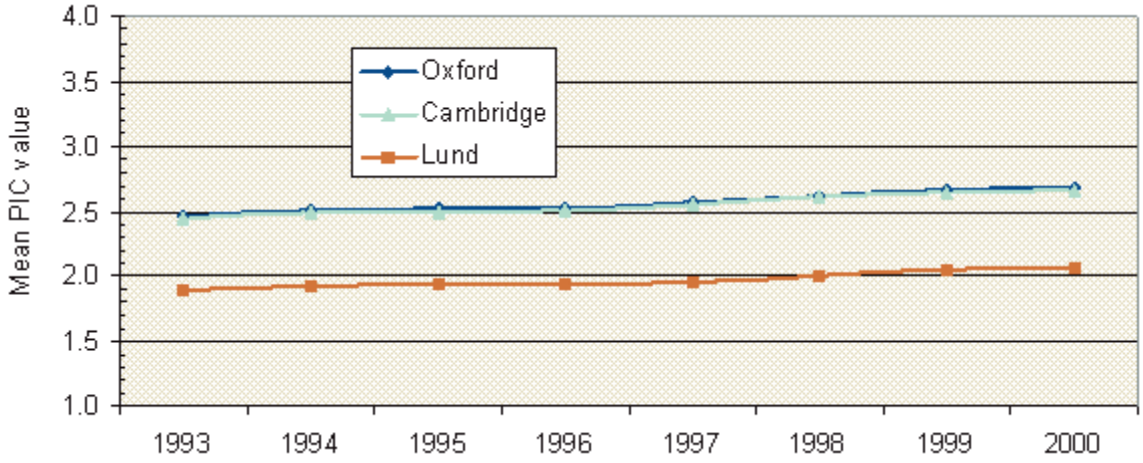

Figure 9. "Mean" value of potential impact category (PIC) for biomedical papers from Lund, Oxford and Cambridge, 1992-2001 (three-year moving averages).

Oxford and Cambridge have almost identical mean values of PIC, with Lund about 0.6 units lower throughout the decade. Table 3 shows the numbers and percentages of papers from the three schools in PIC4 journals in the two quinquennia.

School	*N, 92-96*	*%, 92-96*	*N, 97-01*	*%, 97-01*
Lund	527	*8.1*	734	*11.3*
Oxford	1576	*20.4*	2507	*32.4*
Cambridge	1220	*20.5*	1832	*30.8*

Table 3. Papers from Lund, Oxford and Cambridge medical schools in highly-cited journals (five-year citation score >= 20), 1992-96 and 1997-2001.

8.3.3 *Effect of research level*

It might be argued that Lund's lower percentages of papers in highly-cited journals, seen above, might be because it is doing more clinical work, which is known to be published, for the most part, in journals of lower citation scores and so lower PIC values. Figure 10 shows the results of an analysis, where the papers have been grouped into six RL category ranges (*Table 4).* The curves represent "mean" PIC values for the papers in each range of journals.

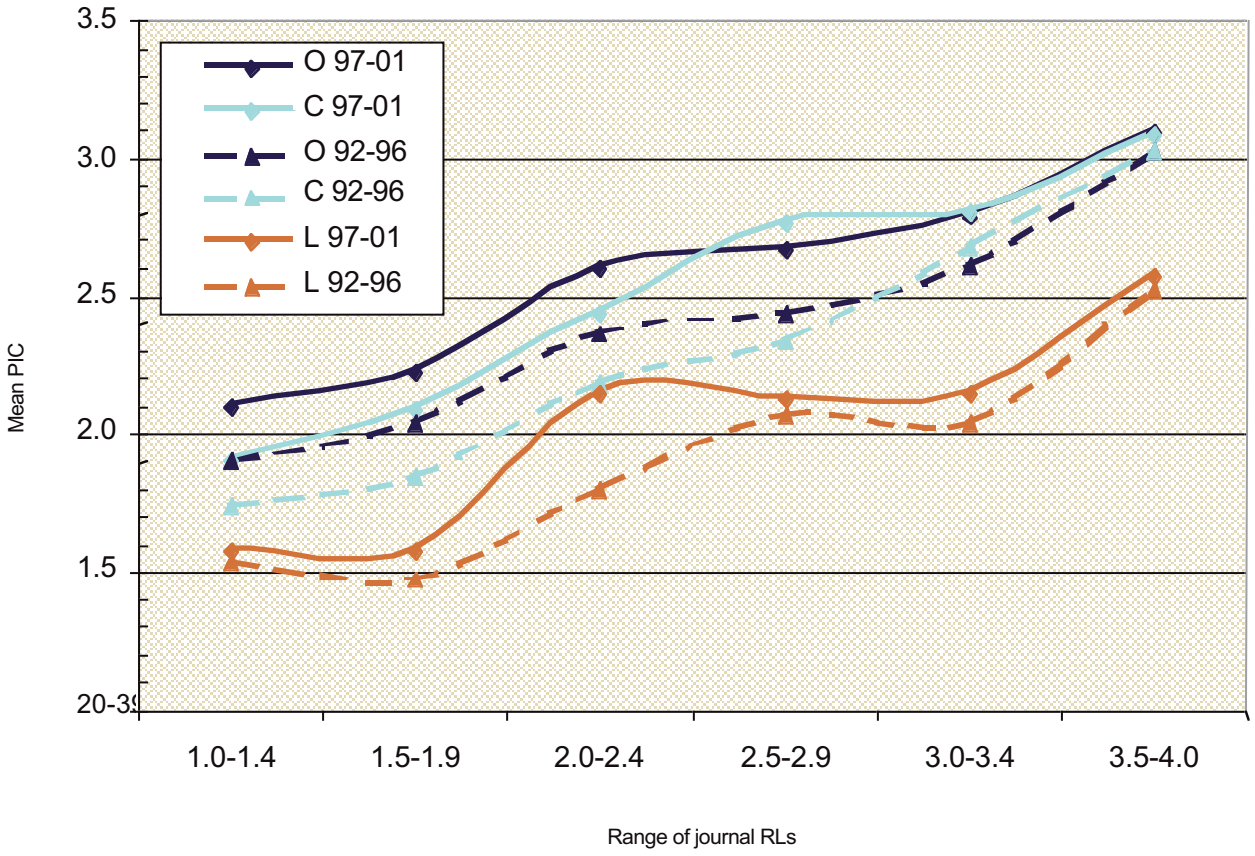

Figure 10. Variation of "mean" PIC with journal RL range for biomedical papers from Lund, Oxford and Cambridge medical schools in 1992-96 and 1997-2001.

Range	**N j**	***Journals***
1.0 to 1.4	648	*Ann Thorac Surgy, Lancet, Cancer, Brit Med J*
1.5 to 1.9	281	*Transplant Procs, J Urol, Amer J Med Genet*
2.0 to 2.4	245	*Circulation, Brit J Cancer, J Clin Microbiol, Anesthesiology*
2.5 to 2.9	256	*Ann N Y Acad Sci, Kidney Int, Vaccine, Hypertension*
3.0 to 3.4	389	*Blood, Neurosci Lett, Cancer Res, Investig Ophthalmol Visual Sci*
3.5 to 4.0	705	*J Biol Chem, Proc Nat Acad Sci USA, FEBS Lett, Brain Res*

Table 4. Examples of biomedical journals at different research levels (calculated), and numbers of SCI journals attributed to each level.

This shows that papers in basic journals (RL from 3.5 to 4.0) are published in the highest impact journals in all three medical schools. Oxford's clinical work is superior in potential impact to that of Cambridge, but the latter does basic work that has similar PIC values. Both are superior on this criterion to Lund. However Lund does seem to be improving markedly in the middle range of research levels, RL from 2.0 to 2.4, and is beginning to approach Cambridge here.

9. Financial Resources for Research in the Faculty of Medicine

9.1 Funding of medical research in Sweden

Over the last decade, changes in resource allocation and an inevitable rise in activity and research costs have led Lund University to rely more and more heavily on outside funding. In 1980, external funding accounted for about 20% of the total. In 2000, the figure was 50%, and rising.

External funding of medical research in Sweden is marked by its organisational fragmentation and, in addition, resources are often allocated in the form of smaller grants rather than programme support. There is a marked lack of coordination among funders even with mutually overlapping goals. There is no dominant or hegemonic funder of biomedical research, but rather a plethora of different support schemes, each relatively small. The small size of the median grant and the concentration to project support, has fostered a "small group syndrome", where many small groups work within similar areas of specialization, lacking incentives to collaborate.

The funding for the Faculty of Medicine and the main uses of it, are illustrated in Figures 11, 12 and 13. Lund does well in national competition for funding, especially within the Swedish Research Council (where Lund is second after the Karolinska Institute), but also in the Swedish Cancer Society, both project-based. Lund and the Karolinska Institute stand out as being all-round medical faculties in their funding profiles, while Göteborg and Uppsala are more uneven: strong in some areas (e.g. Göteborg in cardiovascular research, Uppsala in genomics and cancer), weak in others (e.g. Göteborg in cancer and Uppsala in cardiovascular research). Over the last few years, Lund has strengthened its position in the national competition for project-based funding, and is now in the position as the second largest medical faculty.

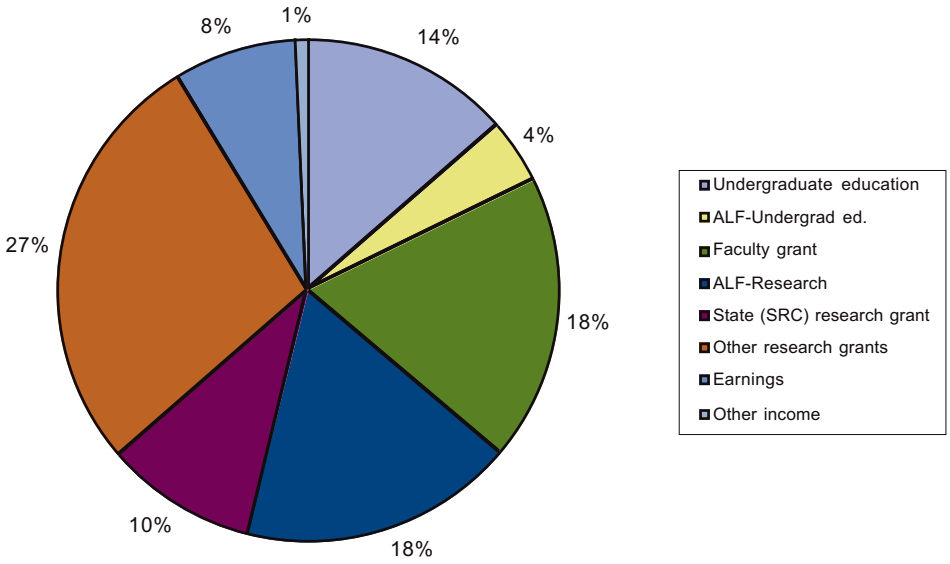

Figure 11. Declared income for the Faculty of Medicine 2002. (Total SEK1,445m (approx EUR156m; SRC = Swedish Research Council).

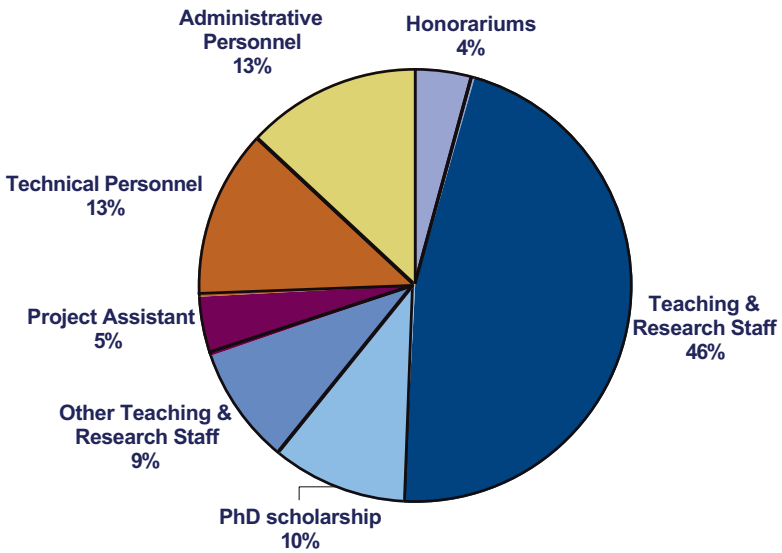

Figure 12. The declared personnel costs for the Faculty 2001 were approximately SEK550 million (personnel costs financed with ALF monies not included).

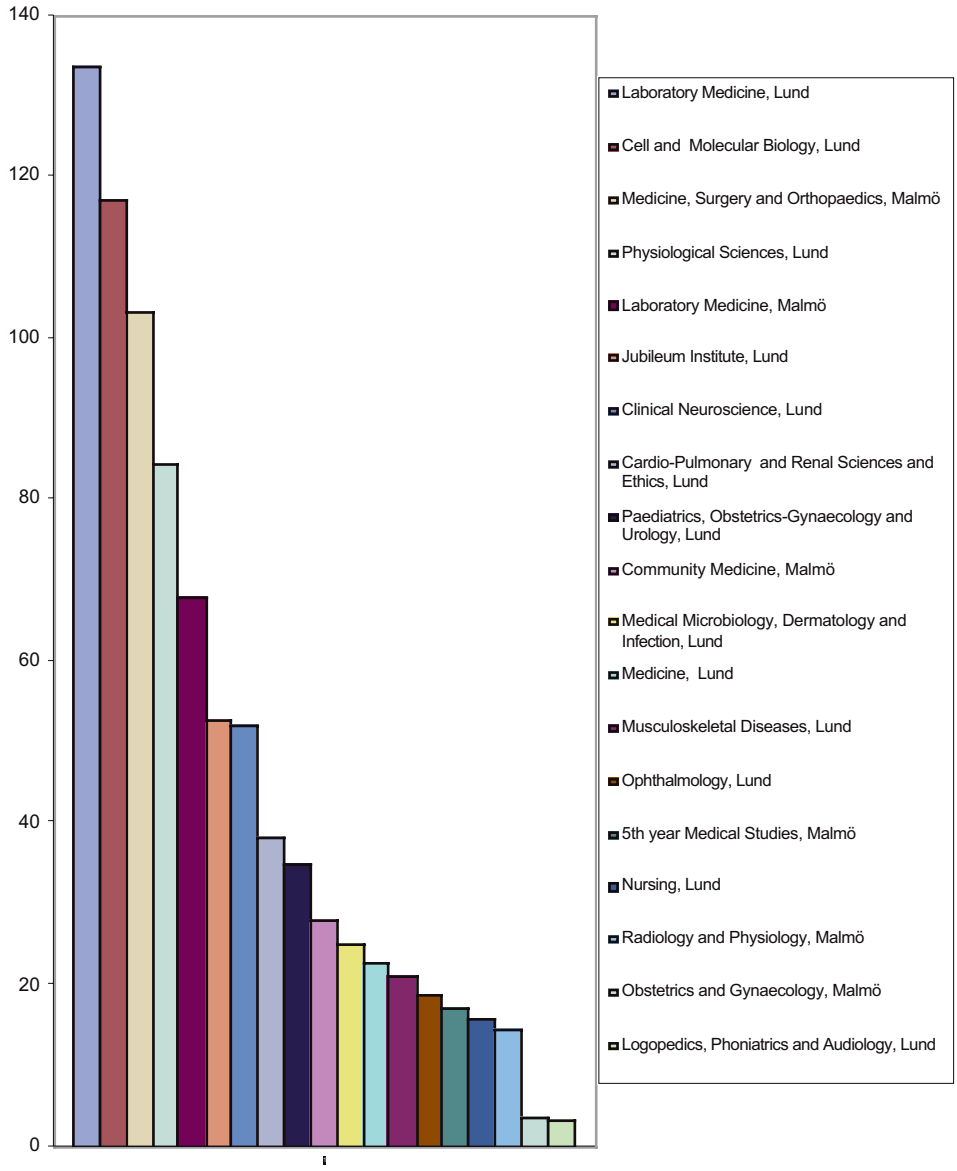

Figure 13. Income for research and postgraduate training by department, estimated for year 2003.

Lund's competitive strength lies in attracting project support, most likely a reflection of the high quality of the many smaller groups within the Faculty, not least those headed by junior researchers (which are prioritised by the Swedish Research Council and the Cancer Society).

The capacity for generating programme support is on a more average national level in Lund (exemplified by the relatively meagre outcome in the competition for strategic centres at the Foundation for Strategic Research). This could probably be alleviated by a more dedicated implementation of programme fields as the main organisational form for research. This is becoming a pressing issue now that the SSF is abolishing its network-based support (which tended to be evenly distributed throughout the country).

Funding from industry is very limited in Lund, even by Swedish standards. While the possibilities of securing long-term research support from companies might be overestimated by some, there seems to be a potential for improving industrial collaboration in Lund. Notwithstanding the problems of organisation described above, there is

still on a per-capita basis, a relative deficiency of funding for biomedical research in Sweden when compared to other European or North American countries. Funding for biomedical research has stagnated during the last decade, according to estimates made by the Swedish Research Council. This can be contrasted with the situation in several other small European countries, such as Denmark, Finland, the Netherlands and Switzerland, which have established large-scale public programmes for the life sciences. The Faculty of Medicine should, therefore, be active in national policy debates, pointing at the need to reorganize public support (in the form of more coherent support packages), but also stressing the need to increase funding of biomedical research.

9.2 Funding comparisons: The Canadian example

A comparison with Canada clearly illustrates the deficiencies in scientific funding in Sweden. Although Canada is approximately three times as large in terms of population, both countries share a social-democratic heritage, publicly funded health and educational systems and a need to develop a knowledge based economy. The Canadian Government in the past 5 years has dramatically changed its approach to science funding and now has substantially increased its support for grants, centres infrastructure and support of personnel. This has already had an impact on inward investment. Comparison with Sweden indicates that the gap that exists is widening and there is an urgent need for Government in Sweden to rethink its position if it is going to be able to deliver improved health care in the 21st century and benefit from a knowledge based economy in biomedical science.

Canadian support for the Canadian Institute for Health Research (CIHR) has doubled in 3 years, while Genome Canada and the National Centres of Excellence also fund partly in the biomedical area. The Canadian Foundation for Innovation (CFI) has committed £1.2 billion over 4 years for capital infrastructure whilst the Canadian Research Chairs Program will award 1000 professorships over 5 years.

Government Research: Sweden vs Canada

Sweden (9 million inhabitants)		**Canada (32 million inhabitants)**
£27.62m	Research Council	£315.22m
	Genome Canada	£35m
	Centre Excellence	£21.9m
£9.22m	SSF	
	CFI	£1.4 billion
	Clinical Research Chairs	1000 new Chairs

Table 5. Government funding for biomedical research in Sweden and Canada (excluding direct faculty support).

9.3 Specific funding streams

9.3.1 *ALF funds*ALF funding originates from Government as compensation to county councils for costs arising from research and education. In the case of the Region Scania the prioritisation of this funding is made by Lund

University. The ALF agreement is negotiated between Government and the County Councils. This agreement was last negotiated in 1988 and is currently being renegotiated.

Physicians employed by the Region and teachers employed by the University may apply for ALF funds for clinical research projects. The funds are distributed by the Faculty through a special committee which ranks the projects in order of priority. This committee is composed of nine members from the Faculty of Medicine in Lund and three members from other medical faculties in Sweden. All members are senior clinical researchers. External review can be sought, but it appears that much of the review process occurs "in house". For the year 2003, 157 out of 230 applications were given priority, 98% of them for a period of three years.

ALF funds of SEK315 million account for 25% of the total Faculty budget (2001). About 20% of these funds are allocated for undergraduate training and the balance for research where it is spent as indicated below. The majority is spent on research projects so ALF thus represents the largest single source of research income for the Faculty and it is imperative that it is deployed in a strategically sound manner.

Research projects	SEK192.5m
Research slots for young researchers	28.1m
Combined specialist and postgraduate training	4.4m
	SEK225.0m

9.3.2 *The Swedish Research Council (SRC) and its Scientific Council for Medicine*

The Scientific Council for Medicine had a budget of SEK360 million in 2002.[1] Its funding is project-based to a large extent, although it is also involved in some co-funded strategic initiatives: stem cells, gene therapy etc. Its decision-making structure is generally internal (Swedish members of standing priority committees, seldom using external reviewers). The Council also does some post award evaluation, but not in a systematic and recurrent fashion. Its largest fields are the nervous system, microbiology, and cell and molecular biology. The median grant is about SEK250,000, while the maximum is around SEK1.2 million and a few extra grants to "excellent environments" are also made (SEK650,000 annually).

The national position of Lund is second to the Karolinska Institute (KI). The total amount and share of resources received at the four largest medical faculties from the SRC (and its predecessor, the Medical Research Council) is shown below (in running prices).

	KI	**Lund**	**Göteborg**	**Uppsala**
1998	114 (34.3%)	60.3 (18.1%)	60.3 (18.1%)	48.9 (14.7%)
2000	121 (37.8%)	62. 1 (19.4%)	51.6 (16.1%)	46.7 (14.6%)
2003	148.3 (41.2%)	72 (20.0%)	57.2 (15.9%)	42.1 (11.7%)

Table 6. The total amount in MSEK and share of resources (%) received at the four largest medical faculties from the SRC.

[1] The data presented below are based on annual and activity reports from the funding organisations, as well as data from the NU database of the National Agency for Higher Education.

It is noteworthy that the share of funding going to Lund (and to KI) is rising, while resources to both Göteborg and Uppsala (as well as the smaller faculties at Linköping and Umeå) are stagnating.

The particular strengths of Lund (priority committees where the Faculty of Medicine is the largest or next largest receiver of grants) are: cell and molecular biology, coagulation and thrombosis, diabetes, digestive system and kidney research, microbiology, immunology and infectious diseases, neurobiology and musculoskeletal research. Lund is weaker in areas such as endocrinology, psychiatric diseases, genetics, and developmental biology.

The Karolinska Institute is the largest or next largest receiver of grants in almost all areas; the dominance is particularly strong in biochemical structure and metabolism, microbiology, immunology and infectious diseases, and nervous system. Göteborg has its comparative strengths in digestive system and kidney, endocrinology, and heart and vascular diseases. Uppsala is strongest in genetics and biochemical structure and metabolism.

9.3.3 *The Swedish Cancer Society*

The Cancer Society had a budget of SEK290 million in 2001. Its organisation is based on peer review (done in Swedish priority committees). Support is project based plus a few strategic initiatives, such as support to gene therapy. Individual and group grants are the most common form of research support. A median grant is SEK530,000, while a top grant is SEK1.5 million. The Society supports not only cancer research in the strict sense, but also more general, basic biomedical research.

The Cancer Society's resource allocation (as total sums and share), in million SEK (running prices) is shown below:

	KI	**Lund**	**Göteborg**	**Uppsala**
1998	107.7 (43%)	33.6 (13.5%)	21.1 (8.5%)	44.7 (18%)
2000	106.8 (40%)	40.6 (15%)	24.7 (9%)	47.4 (17.5%)
2001	119.9 (40%)	45.2 (15%)	26.8 (9%)	46.6 (16%)

Table 7. The Cancer Society's resource allocation.

Lund is third in the competition for Cancer Society funds, after the Karolinska Institute and Uppsala. It is noteworthy that Lund has strengthened its position in the last few years, while Uppsala is stagnating. Among the areas where Lund has a more prominent position in the competition for funding are: metastasis and blood-vessel regeneration, genetics and molecular genetics, diagnostics and treatment, surgery and radiotherapy, and epidemiology.

9.3.4 *The Foundation for Strategic Research (SSF)*

The foundation supports biomedical research with about SEK120 million (2001). The share of resources that goes to each medical faculty is difficult to calculate, since the support is organized in the form of relatively autonomous national networks, which allocate their resources according to different principles. Each network therefore functions as a quasi research council. An estimate based on the activity reports from the networks shows that the resource

allocation to the medical faculties is similar to that of the SRC, although the relative share of the Karolinska Institute is lower (KI 35%, Lund 20%, Uppsala and Göteborg around 17%).

Lund's share is the largest in the networks for neuroscience, infection, and inflammation (hosted by Lund). Inflammation is the only network where Lund is largest in absolute terms. Lund is weaker in drug development and in genomics. The Karolinska Institute is well represented in almost all networks, with the exception of drug development, which is dominated by Uppsala and Göteborg. Uppsala is also strong in the genomics and structural biology networks, while Göteborg dominates the cardiovascular network.

Perhaps a more accurate picture of the role of the SSF in the future is given by the recent initiative of the foundation, where the SSF is allocating more of its resources to biomedical research in the form of strategic centres (with annual budgets of SEK10-20 million annually). Lund hosts one of six funded centres, while the Karolinska Institute has three centres and Uppsala one (while one is located outside the medical schools, at the Swedish University of Agricultural Sciences). It is noteworthy that Lund had four centres short-listed in the second evaluation round (out of a total of 17 short-listed) but that only one of them was funded (the Karolinska Institute had three out of 17, all of them funded). The strategic centres initiative from the SSF will most likely be a major challenge to the medical faculties, since their success will depend on their capacity for developing integrated and relatively large research constellations with coherent organisational structures.

9.3.5 *Smaller agencies*

Among other important funding agencies, with a more limited mandate, are the Heart and Lung Foundation (a budget of SEK90 million in 2001). Here, the position of Lund is again second in the country. The only available data is on new grants, where the Karolinska Institute got SEK10 million in new grants in 2003, with Lund as second with SEK3.8 million. Göteborg and Uppsala both received new grants of about SEK1 million.

Other funders include The Vårdal Foundation for Health Care Sciences and Allergy Research (with a budget of about SEK60 million in 2001). For new grants, the share of Lund in 2001 was 16% (SEK3 million), the Karolinska Institute 37% (SEK7 million), Göteborg 21% (SEK4 million) and Uppsala 17% (SEK3.2 million). In 2002, the Vårdal Foundation, in national competition, allocated a total of SEK65 million to the Universities of Göteborg and Lund for a joint institute, the Vårdal Institute.

Other agencies include the Swedish Council for Working Life and Social Research (FAS) (with a budget of about SEK25 million in 2001) and the Swedish Agency for Innovation Systems (VINNOVA) (supporting medical research with about SEK10 million in 2001). While some of these are relatively large, they have narrower mandates, mainly supporting research within clearly defined boundaries (medical technology, epidemiology, etc.).

9.3.6 *Commercial partnerships*

The contribution of industry to Swedish universities is still rather modest. The share of corporate funding of the total R&D expenditure is around 5%, while the figure for the medical faculties is about 10%. The Karolinska Institute – which has pursued the most aggressive strategy to increase support from the pharmaceutical industry - reports corporate support in 2002 of SEK343 million, a doubling from 1999 (when the figure was SEK177 million). Uppsala also reports large shares, while the share of corporate R&D funding is quite small in Lund.

The Faculty of Medicine as a whole has no overarching commercial partners. However, many of its researchers are engaged in commercial projects, and the Faculty as an organisation participates in a process with the ultimate aim of lending assistance to researchers who want to have their ideas tested for possible commercialisation.

In a few cases, the Faculty of Medicine has made agreements with external parties concerning the financing of professorships in certain fields of science. Such agreements are sometimes prompted by the interest of the pharmaceutical industry in certain diseases, but more often they result from a demand from the regional health authorities for near-patient research in certain clinical specialities. These agreements are of limited scope in comparison with the total turnover of the Faculty.

Other forms of cooperation with the pharmaceutical industry than agreements on professorships do exist. A large number of researchers are commissioned by industrial companies to do research in certain problem areas and to grant the financing company certain rights in the results. The role of the Faculty in such cases is only to guarantee that the University as an organisation embraces the activities in question. The Faculty Management rarely enters into negotiations of agreements and contracts of this kind but only comes into the picture when the papers are to be signed.

The Committee recommends that, in the face of limited resources, the Faculty of Medicine should play a more active role in identifying commercial streams of income for research, both in terms of sponsorship of joint programmes and intellectual property (below). The Faculty of Medicine should also play a more active role in the negotiation of agreements and contracts rather than its current secretarial function.

	KI	Lund	Göteborg	Uppsala
1997	6.5	8.0	11.0	2.0
1999	9.5	2.0	10.0	5.0
2001	12.5	5.0	8.8	12.1

Table 8. Share % of industrial support of total R&D grants at each medical faculty.

9.3.7 *Swegene*

Swegene is a consortium acting within the field of "functional genomics", established by the Chalmers University of Technology, Göteborg University and Lund University/the Lund Institute of Technology. The consortium is funded for the years 2000 – 2005 mainly with a SEK300 million (=EUR33 million) grant from the Knut and Alice Wallenberg Foundation and with SEK165 million (=EUR18 million) additional financial support from the participating universities/institutes.

Swegene has created common technology platforms and research centres *(Fig. 14)* providing academic researchers with the top-end technology base. Since Swegene and the universities are funding the purchase of equipment and employing technical staff, the costs for the user of the facility are highly subsidized. The overall goal for this endeavour is to provide a technology base necessary to enable international front-line functional genomic research in Sweden.

Most of the Resource Centres are expected to be up and running by summer, 2003. In Lund there are the Proteomics Resource Centre, providing 2D-gel and mass spectroscopy techniques, the two Microarray Resource Centres, providing different microarray techniques, the Cryo Electron Microscopy Centre, which is part of nCHREM (the National Centre for High Resolution Electron Microscopy), the Centre for Genomic Ecology providing sequencing of so called non-model organisms, the Centre for Profiling Polygenic Diseases, offering SNP analyses, microsatellite genotyping and DNA sequencing, the Transgenic Core Facility and the Centre for Bioinformatics.

The Wallenberg Foundation support for the Swegene programme is scheduled to last for a 5-year period, which means until the end of 2004. Discussions are under way about the level of and conditions for the future involvement of the universities for the continuation of the most successful resource centres. It may be necessary to cover part of their running costs by an increase in the presently highly subsidized fees for the users. In addition, funding from the Government, the research councils, EU, or additional funding for Resource Centres proven to be outstanding from the Wallenberg Foundation, may be attainable.

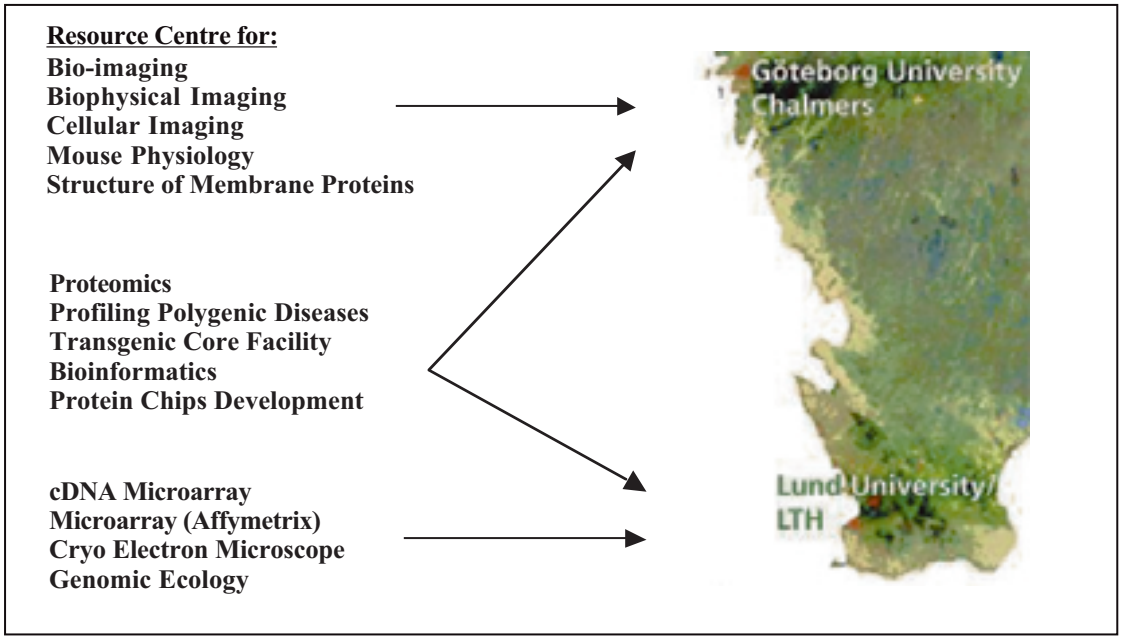

Figure 14. Chart of Swegene resource centres.

9.4 Intellectual property

The Faculty of Medicine does not at present have a coherent policy for the management of intellectual property. An institution with such a thriving biomedical research base must be losing opportunities for intellectual property protection and exploitation and will also be failing to capitalise on this as an important source of additional revenue for the Faculty. Historically, the Faculty of Medicine has generated a range of novel and important biomedical advances that have led to significant revenue generation for others, including the use of ultrasound as a medical technology, the development of new contrast dyes for radiological studies, the identification of novel genes involved in common disease pathogenesis, and the development of new technologies such as that necessary for haemodialysis.

Lund is also at the heart of a large set of commercial developments in the biopharmaceutical area, being one of the academic pillars of Medicon Valley. This corridor of biotechnology and pharmaceutical companies is one of Europe's most outstanding examples of commercial development in this arena. Despite this, Lund's capacity to optimise its intellectual property position and to ensure that the Faculty of Medicine achieves significant income streams over time is unclear. Most other major biomedical research centres have utilised this mechanism to generate significant revenue streams. In North America, this income has been generated predominantly by royalty income from licensure of intellectual property. The Cohen/Boyer patent for DNA ligation was a source of substantial revenues to Stanford University over the life of the patent, and other notable examples include the nicotine patch (UCSF) and leptin (Rockefeller University). An alternative approach to generating income for an academic institution is to take an equity position in start-up companies emerging from its academic laboratories.

This has the possibility of generating significant income from small start-up companies before their products emerge in the market place and is the methodology that has been used in some European centres, including Oxford, with considerable effect.

Within the University or closely attached to the University, there are quite a few organisations or companies which have been charged with the tasks of facilitating contacts and supporting commercialisation. In recent years, particularly, several broker organisations of this kind have been formed in order to guide the researcher on the path from idea to commercial product. Lund University, however, has no collective agreement with its staff which guarantees the University or department a share of the revenue from patents and licences. Swedish law gives the teacher or researcher exclusive right to the findings she/he may make in her/his work for a university. A university can not force anyone to give up that right in connection with an appointment. The teacher or researcher, on the other hand, often renounces her/his right to the commercialisation of ideas to companies which sponsor research, but very rarely to universities.

An important requirement for Lund University if it is to optimise its intellectual capital is to establish a sound and coherent approach to ownership of IP generated in its laboratories. Clarity must be obtained about the potential ownership claims made by Government, hospitals and funding bodies. In addition, the University should claim right of ownership of all intellectual property generated by academics funded by the University or working in its laboratories. This principle must, however, be backed up by an efficient office responsible for protecting the relevant IP and then encouraging its exploitation. Such activities are often cumbersome if handled within conventional University organisations, and one approach to this is to establish a company to which the ownership of IP is devolved and which is wholly owned by the University. This allows the exploitation of IP to occur with commercial efficiency and with a more efficient decision-making structure and yet the benefits overall can flow effectively back to the University. It also provides the opportunity of potentially negotiating block pre-selling of different types of IPR for significant up-front sums.

An efficiently developed intellectual property protection facility should also be empowered to help with the most appropriate exploitation of this IP. This should include licensure agreements as well as start-up companies. This organisation should also be responsible for continuously seeking out opportunities for IP within the Faculty of Medicine as these may not immediately be obvious to investigators. When new companies are spun out of the University, this can also be greatly facilitated by such entities. The expectation should be that such a structure should return a substantial profit to the University over a 5-10-year period.

9.5 Identifying and optimising research resources in the future

Biomedical research is changing rapidly and increasingly favours the use of expensive technology platforms and the consolidation of relatively large groups of scientists in coherent and collaborative programmes. At the present time, the Faculty of Medicine has very little resource to use to support new programme fields that it wishes to develop, or to recruit major international figures to help provide the leadership or momentum in particular areas of focus, or to provide the necessary technology support to ensure the Faculty remains fully internationally competitive. Strategic initiatives will require the recruitment of both senior leadership and young scientists and cannot be done without significant resource implications. It is also unlikely to be successful if these recruitments are spaced over several years. Similarly, without the significant input through Swegene to technology platforms, Lund, along with most other biomedical research institutions in Sweden, would have no opportunity to compete in the areas of science associated with genetics, genetic epidemiology, genomics or high throughput phenotyping. The lack of these resources is seriously disabling to the competitiveness of Swedish science generally and to Lund University specifically.

There are only a limited number of mechanisms to acquire the necessary resource to allow the Faculty of Medicine to achieve a competitive edge. They include:

1. An increase in funding from national or international research bodies; it should remain a priority in the Faculty of Medicine with influence at a national level to attempt to obtain significantly more money for biomedical research. In per capita international terms, Sweden falls well behind most of the Western developed world and this is having a serious eroding effect on the quality and quantity of Swedish scientific output.

2. By reducing the overall number of tenured faculty and/or reducing the number of graduate students, it should be possible to significantly release resource currently committed to positions and have this available to enhance the scientific competitiveness of the programme.

3. Increased scrutiny of the ALF allocations. Although the manner in which ALF resources are currently allocated is a considerable improvement over previous methodology, there are still opportunities to ensure that ALF resources are more effectively used to support translational biomedical research that is patient focused. There are several methods that could ensure that ALF money is more effectively used than at present and these significantly enhance the resource available for research activities in the Faculty of Medicine.

4. Reconciliation of support for clinical activity. The health care system in Sweden is under considerable pressure. This pressure has led to the requirement for significant increases in work load for hospital doctors and has reduced the available time for both research and teaching. Clinical academic staff are under particular pressure to provide increasing amounts of clinical service work as are trainees funded through the University system or through ALF. The Faculty of Medicine has not yet assessed the relative contribution of clinical academics funded by the University to clinical service activities and balance that against the contribution by hospital funded staff to teaching activities. Such a review should be instituted.

Our judgement is that it is likely that, in Sweden as in most other hard-pressed health care systems, the university-funded staff are subsidising clinical service activities. This subsidy could be relatively easily rectified if health service funding could be applied to support the salaries, particularly of service oriented clinical academic staff. In at least some cases, the clinical academic leadership could be as easily provided by an individual with professorial title who is funded through health service mechanisms and who performed major duties in the Hospital clinical setting as well as provided leadership for the University in terms of undergraduate and postgraduate education. This readjustment in funding streams should have little impact on the clinical academic leaders, as they could still have full university affiliation and could be entrusted with academic leadership in their clinical specialty. As their salaries would no longer be provided by the Faculty of Medicine it would free up further resources for strategic initiatives in the Faculty. The reallocation of resources could also help reduce the impact of a reduction in faculty (see above) and would also have the benefit of knitting the two organisations represented by the Hospital and the University more closely together, with individuals having loyalties across the boundaries that would normally separate these two entities.

5. Intellectual property. The Faculty of Medicine has failed in the past to benefit from intellectual property generated by its academic staff. The failure to capitalise on these opportunities has meant that the Faculty lacks a significant endowment which is unlikely to arise from any other source. A clarification of the ownership of intellectual property and the University's role and responsibility in ensuring that it is exploited efficiently for both the benefit of both the inventor and the institution would help generate significant new resource for the Faculty of Medicine.

10. Concluding Remarks

There is tremendous potential for the further expansion of the research activity at the Faculty of Medicine, Lund University. The Faculty of Medicine has outstanding capital infrastructure for modern biomedical research and the human resource already present within the University is strong. Organisationally, the Faculty has already begun to move to a more modern management structure and sustained effective leadership at the top of the Faculty is clearly focused on many of the key issues necessary for continuing the Faculty's transformation into one of Europe's leading research universities.

Our review has uncovered a range of strengths and weaknesses that need to be considered as the Faculty of Medicine progresses. The bibliometric analysis clearly identified Lund as being highly competitive in a Scandinavian context, but not yet in the first division of European research universities. One might have predicted this outcome based on the research grant income received by the University. Having these defined metrics establishes the University's position internationally and will help to monitor its progress in the future. Although our review was not specifically directed at analysing the scientific strengths and weaknesses of the Faculty of Medicine, we had the opportunity to review the scientific projects of the faculty research groups in the research database and to review the applications for programme fields seen by the Faculty in 2002. Our conclusions concur roughly with the bibliometric analysis and that is that Lund has a strong, but not yet outstanding programme in biomedical research.

Our major conclusions were directed at identifying changes that could be made that would alter the competitiveness of the Faculty of Medicine internationally. Broadly, the most important changes relate to faculty structure and management. These recommendations can be readily implemented if the Faculty of Medicine chooses to do so, over a relatively short time frame, and should make the Faculty substantially more competitive with relatively little disruption. These recommendations include the further evaluation of a programme-based organisation without losing the identity of clinical departments. In addition, we recommend stronger strategic leadership in the Faculty. The structure of the Faculty of Medicine is not appropriate for its ambitions and we have suggested changes in faculty structure and in student and post-doctoral numbers.

More difficult, but equally important, is the requirement to increase the flow of grant income to the University. There is an abject failure of the Swedish Government to recognise the importance of basic biomedical research funding, both to facilitate the implementation of high quality health care across the country and also to ensure that Sweden can remain competitive with a knowledge based economy partly founded in biomedical science. Without a serious commitment by Government to ensure that the potential available in institutions like Lund is properly unlocked and utilised, there is little prospect in our view that any Swedish University can compete at the top-end of international biomedical research. The success of other countries such as Canada should encourage Swedish scientists to continue to press for change in this funding stream.

An important final point to remember is that the opportunities associated with biomedical science are only just beginning. The unravelling of the human genome and the tremendous advance in our ability to dissect and tackle, from a mechanistic perspective, the major causes of morbidity and mortality in human populations will make this arena one of the most exciting across all fields of science over the next thirty years. A carefully managed approach to further developing Lund's research base has every prospect of having a major impact on health care over that time-frame.

11. Index of documents submitted to the Committee

The material, with some exceptions, is available on:
www.medfak.lu.se/dyn/forskning/utv[auml]rdering_av_forskningen_vid_medicinska_fakulteten/information_material

Strategic Plans

Strategic Plan for the Faculty of Medicine, Lund University, for the period 2001-2005
Strategic Plan for the period 2002-2006 for Lund University

Research

Preliminary Presentation of the Results of Application Round K2003 from the Scientific Council for Medicine within the Swedish Research Council
Research at Lund University, total survey and summary
Research projects at the Faculty of Medicine – Research database

Organisation and Environment

Brief description of Lund University and the Faculty of Medicine

Facts about Lund University

Organisation Chart of the Faculty of Medicine

Management Organisation and Strategic Decisions

Department structure - positions

Faculty academic staff - database with information about programme fields, key areas of research, date for recruitment and retirements, subject for position, department etc.

The National Biobanking Programme

Swegene

Commercial Partnerships with the Faculty of Medicine

Commercial Attractiveness of Biomedical R&D in Medicon Valley

Interfaculty Research Cooperation, Recruitment and Equal Opportunity

Key Areas of Research

Recruitments and promotions from 1997

Coming retirements 2003-2012

Career, Professional Development and Leadership

Research career position programme for recruitment purposes

Staff structure and formal qualification requirements

Leadership in the creative academy (LeKA)

Undergraduate Education and Continuing Professional Development

Strategy 2000 for Undergraduate Programmes in the Health Sciences at the Faculty of Medicine

Post Graduate Training

Postgraduate Training at the Faculty of Medicine

Postgraduate Training: Current trends

Statistics of Preclinical and Clinical Ph.D. students

Medics in research education

Scientific Output

List of subfields in the bibliometric study

University League 1992 - Feb. 2002

Report of the Evaluation Panel on the Research of the Göteborg University Faculty of Medicine, November 1996

Göteborg University, Office of the Faculty of Medicine

Evaluation of Cancer Research at Karolinska Institute, Final report 2000

Clinical Research and Relations to the Health Services

Research in health care

University Clinical Partnership

What happened to clinical research

ALF Issues

ALF funds

Brief information on the use of ALF funds in research projects

ALF funds – a summary

Financing Research

Economy

Composition of research

Grading and classification of funding agencies

New budgeting principles for the appropriation for research and postgraduate training 2002-05-28

New budgeting principles for the appropriation for research and postgraduate training: A list of questions 2002-05-28

New budgeting principles for the appropriation for research and postgraduate training: Memorandum 2002-09-18

Budgeting principles for Undergraduate Education

Notes on research policy and organisation in Sweden

Research income

Total income

Allocation of funds for research and postgraduate training in budget 2003

Budget 2003 allocation of funds

Text in budget 2003

E-mail debate on activity based budgeting; Björn Jonson's letter and Dean's answer, and contributions from Rikard Holmdahl and Hindrik Mulder

EU funded projects FP5

Estimated income for research and postgraduate training fiscal year 2003

Declared income 2002

Information and Communication

Library and information services

Evaluation of the Applications for Programme Fields

Announcement

Applications

The Faculty Research database

Faculty academic staff - database with information about programme fields, key areas of research, date for recruitment and retirements, subject for position, departmental belonging, etc.

12. Schedule of meetings and people interviewed by the committee

2002-04-04 at 13.30-18.30 - (Departure in the morning of the April 5, 2002). Initial meeting in Lund and Malmö with the Dean and Faculty management for discussion about the task. Participants: Regius Professor of Medicine John Bell, Professor Lars Hagmar, Professor Ingalill Rahm Hallberg, Professor Stefan Lindgren, Professor Jan Nilsson, Professor Peter Nilsson-Ehle, Dr. Gavin Screaton and Administrative Director Sten Wennerström.
For agenda see Appendix 1.

2002-05-22 at 09.00-15.30 - Planning meeting in Oxford. Panel members present: Regius Professor of Medicine John Bell, Professor Valerie Beral, Professor Kay Davies, Professor Peter Ratcliffe and Dr. Gavin Screaton.
For agenda see Appendix 2.

2002-07-01 Site visit in Lund at 09.00-17.45 - (Arrival on the evening of the July 30, 2002). Panel members present: Regius Professor of Medicine John Bell, Dr. Mats Benner, Professor Valerie Beral, Professor Kay Davies, Professor Peter Ratcliffe and Dr. Gavin Screaton.
For agenda see Appendix 3.

2002-09-17 at 09.00-15.30 - Meeting in Oxford regarding the evaluation of the applications for programme fields. Panel members present: Regius Professor of Medicine John Bell, Professor Valerie Beral, Professor Kay Davies, Professor Peter Ratcliffe and Dr. Gavin Screaton.
For agenda see Appendix 4.

2002-11-25 at 11.00-15.00 - Meeting in London at London City University regarding the scientific output analysis. Panel member present: Dr. Gavin Screaton. Other participants: Professor Per Gröttum, Professor Grant Lewison and Docent Stefan Thorpenberg.

2003-01-09 at 09.00-15.30 - Planning meeting in Oxford regarding the site visits and interviews in January and February 2003. Panel members present: Regius Professor of Medicine John Bell and Dr. Gavin Screaton.
For agenda see Appendix 5.

2003-01-22 at 14.00-19.00 and **2003-01-23** at 08.00-17.15 - Site visit in Lund. Interviews with representatives for the key areas of research and junior researchers. Panel members present: Regius Professor of Medicine John Bell, Dr. Mats Benner (partly), Professor Kay Davies and Dr. Gavin Screaton.
For agenda see Appendix 6.

2003-02-11 at 08.30-17.30 - (Arrival in the evening of the Feb. 10, 2003). Site visit in Lund. Interviews with representatives for the key areas of research and Ph.D students. Panel members present: Regius Professor of Medicine John Bell, Dr. Mats Benner (partly), Professor Valerie Beral, Professor Peter Ratcliffe and Dr. Gavin Screaton.
For agenda see Appendix 7.

Anne Messeter has been present as secretary at all meetings, except at the meeting on Feb. 11, 2003 where Hugh Connell and Hülya Leeb-Lundberg were secretaries. Professor Per Belfrage has attended most meetings but has not participated in the interviews or discussions with interview participants.

The following people have been interviewed:

Carl-David Agardh
Eva Ageberg
Christer Alling
Karl-Erik Andersson
Morgan Andersson
Tommy Andersson
Maria Berggren Söderlund
Lars Björck
Åke Borg
Susanna Cardell
Ingemar Carlstedt
Angela Cenci-Nilsson
Björn Dahlbäck
Joakim Dillner
Anna-Karin Dykes
Mikael Ekelund
Martin Englund
Birgitta Essén
Boel Flodgren
Arne Forsgren
Alexander Giwercman
Leif Groop
Urban Gullberg
Olga Göransson
Dick Heinegård
Per Hellstrand
Heiko Herwald
Cecilia Holm
Lars Holmberg
Rikard Holmdahl
Peter Honeth
Anna Hultgårdh
Sten Eirik Jacobsen
Stefan Jovinge
Farhad Khan
Göran Landberg
Mona Landin-Olsson
Christer Larsson
Min Liang
Veronica Lindström
Olle Lindvall
Göran Lundborg
Claes-Göran Löfdahl
Måns Magnusson
Karel Marsal
Hindrik Mulder
Mef Nilbert
Jan Nilsson
Lars Nilsson
Åke Nilsson
Peter Nilsson-Ehle
Karl Obrant
Bertil Olsson
Håkan Olsson
Martin L Olsson
Ingalill Rahm Hallberg
Erik Renström
Bengt Rippe
Lennart Råstam
Margareta Rorsman
Christina Samuelsson
Anita Sjölander
Sven-Erik Strand
Catharina Svanborg
Henrik Thorlacius
Danielle van Westen
Sten Wennerström

13 Appendices (1-7)

2002-04-02

FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

Agenda for John Bell and Gavin Screaton
Meeting in Lund and Malmö, April 4, 2002

12.45 Arrival at Copenhagen Airport with flight BA814. Picked up for car transportation to BMC, Sölvegatan 19 in Lund. Look for driver announcing John Bell at meting point, immediately after customs.

13.30 Professor Per Belfrage will meet visitors at the BMC reception and take them on a tour of the Faculty of Medicine facilities in Lund (by car and walking)

14.45 Discussions at Per Belfrage's office. Coffee and tea.

15.00 Transport to Malmö. Check in at Mäster Johan Hotel, Mäster Johans gata 13 in Malmö

15.20 Quick tour of Faculty of Medicine facilities in Malmö

16.00 Meeting with the Dean Professor Jan Nilsson, Administrative Director Sten Wennerström and Project Manager Anne Messeter.

18.30 Dinner at restaurant Atmosfär, with Jan Nilsson, Vice Dean of clinical research Lars Hagmar, Faculty Deputy Dean Ingalill Rahm Hallberg, Vice Dean for undergraduate education Stefan Lindgren, Vice Dean for research and graduate education Peter Nilsson-Ehle, Sten Wennerström, Per Belfrage and Anne Messeter.

April 5, 2002

Around10.00 Car from Mäster Johan Hotel.
Address Novo Allé 6A 1.027)
Time for pickup is to be decided later.

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FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

EVALUATION OF THE FACULTY OF MEDICINE, LUND UNIVERSITY

Agenda for meeting in Oxford, May 22, 2002, the Old Practice Room, Magdalen College, 09.00-15.30

Participants: John Bell, Valerie Beral, Kay Davies, Peter Ratcliffe, Gavin Screaton, Per Belfrage and Anne Messeter

1. Brief presentation of the Faculty of Medicine and Lund University
2. Structure of positions
3. Faculty research database
4. Bibliometric study
5. Budgetary issues
6. ALF
7. Evaluation of the application for programme fields
8. Site visit(s)
9. Other matters

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FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

EVALUATION OF THE FACULTY OF MEDICINE, LUND UNIVERSITY

Agenda for meeting in Lund Monday July 1, 2002

All meetings, except the meeting with the Vice-Chancellor and the University Director, are held at the Old Bishop's Palace, Biskopsgatan 1, in Lund.

09.00–10.00 Arrival at the Old Bishop's Palace.
Meeting with Per Belfrage, Mats Benner and Anne Messeter.
Research structure at Lund University. Mats Benner.
Medical funding structure. Mats Benner.

10.00-11.00 ALF. Åke Nilsson and Margareta Rorsman.

11.00-11.10 Walk to the University main building.

11.10-11.40 Meeting with Vice-Chancellor Boel Flodgren and University Director Peter Honeth at the Vice-Chancellor's office.

11.40-11.45 Walk to the Old Bishop's Palace.

11.45-13.00 Lunch with Faculty Management; Jan Nilsson, Peter Nilsson-Ehle, Ingalill Rahm Hallberg, Sten Wennerström and head physician of the University hospital in Malmö Carl-David Agardh.

13.00-13.45 Infrastructure at the Faculty of Medicine. Presentation of the Biomedical Centre (BMC) and the planned Clinical Research Centre in Malmö (CRC). Per Belfrage and Carl-David Agardh.

13.45-14.45 Post graduate training, academic positions and recruitment of academic staff. Peter Nilsson-Ehle.

14.45-16.15 Discussions with Faculty management. Coffee and tea.

16.15-17.45 Evaluation of programme fields, summing up and planning for further action. Discussions with Per Belfrage, Mats Benner and Anne Messeter.

17.45 Transport to Kastrup airport.

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FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

EVALUATION OF THE FACULTY OF MEDICINE, LUND UNIVERSITY

Agenda for meeting in Oxford, September 17, 2002, the Old Practice Room, Magdalen College, Oxford

Participants: John Bell, Valerie Beral, Kay Davies, Peter Ratcliffe, Gavin Screaton, Per Belfrage and Anne Messeter

1. Evaluation of the applications for programme fields
2. The key areas of research
3. New PIs in the research database
4. Scientific output
5. Information material
6. Evaluation of the primary health care research (or family medicine)?
7. Date for site visit? (12- 13th of November)
8. Information about animal facilities
9. Other matters

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FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

EVALUATION OF THE FACULTY OF MEDICINE, LUND UNIVERSITY

Agenda for meeting in Oxford, January 9, 2003

Participants: John Bell, Gavin Screaton, Per Belfrage and Anne Messeter

09.00 Preliminary discussions

Anne Messeter and Gavin Screaton
Per Belfrage arrives at 11.00 (approx)
John Bell arrives at 11.15 (approx)

11.15 Meeting for planning of the site visits in Lund

1. Site visits
Planning of
- Interviews with PIs
- Discussions with Head of departments
- Discussions with young researchers
- Discussions with Ph.D. students
- Ínformation material to panel members
- Information material to participants

Travel arrangements

2. Scientific output analysis

3. Information material

4. Final report
- Preparations
- Date for presentation in Lund

5. Sub Panel for evaluation of the primary health care research (or family medicine)?

6. Other matters

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FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

PROGRAMME FOR SITE VISITS JANUARY 22 – 23, 2003

All meetings are held at The Old Bishop's Palace, Biskopsgatan 1, in Lund. Dinner and lunches are also at the Old Bishop's Palace

Wednesday January 22, 2003
Panel members present: Regius Professor of Medicine John Bell, Docent Mats Benner, Professor Kay Davies and MRC Senior Fellow Gavin Screaton

Arrival Kastrup Airport 1205, Lund approx 13.15

13.15 Check in at Grand Hotel

13.45 Transport to the Old Bishop's Palace

14.00-14.15 Short planning meeting with Per Belfrage and Anne Messeter

14.15-15.45 **Neuroscience (including psychiatry) and geriatrics and sensory organs**
Olle Lindvall, Göran Lundborg, Måns Magnusson and Ingalill Rahm Hallberg

15.45-16.15 Short break, coffee, tea and sandwiches

16.15-17.45 **Cancer**
Åke Borg, Urban Gullberg, Göran Landberg, Mef Nilbert and Håkan Olsson

17.45-18.00 Short break

1800-1900 **Discussions with Head of Departments**
Participants: Christer Alling, Tommy Andersson, Ingemar Carlstedt, Anna-Karin Dykes, Olle Lindvall, Karl Obrant, Bengt Rippe, Lennart Råstam and Sven-Erik Strand

19.15 **Dinner**

Postal address P.O. Box 117, SE-221 00 Lund *Visiting address* St Algatan 4, Lund *Telephone* Int. +46 46 222 72 16, +46 46-222 00 00 *Telefax* Int. +46 46-222 45 40 *E-mail* anne.messeter@kanslim.lu.se *Internet* http://www.medfak.lu.se

Thursday January 23 , 2003
Panel members present: Professor Regius John Bell, Docent Mats Benner, Professor Kay Davies and MRC Senior Fellow Gavin Screaton.

07.50 Transport to the Old Bishop's Palace

08.00-08.30 Planning meeting with Per Belfrage and Anne Messeter

08.30-10.00 **Musculoskeletal system including inflammation and connective tissue biology (and dermatology)**
Dick Heinegård, Rikard Holmdahl, Karl Obrant, and Anita Sjölander

10.00-10.15 Coffee and tea

10.15-11.15 **Infection and microbiology**
Lars Björck, Joakim Dillner, Arne Forsgren and Catharina Svanborg

11.15-11.30 Short break

11.30-12.15 **Pulmonary medicine and allergy**
Morgan Andersson and Claes-Göran Löfdahl

12.15-13.00 Lunch with Per Belfrage and Anne Messeter

13.00-14.00 **Diabetes, endocrinology and metabolism**
Leif Groop, Cecilia Holm and Mona Landin-Olsson

14.00-14.15 Short break

14.15-15.15 **Discussions with junior clinical researchers**
Birgitta Essén, Stefan Jovinge, Martin L Olsson and Henrik Thorlacius

15.15-15.30 Short break , coffe and tea

15.30-16.30 **Discussions with junior preclinical researchers**
Susanna Cardell, Angela Cenci Nilsson, Heiko Herwald, Christer Larsson, Hindrik Mulder and Erik Renström

16.30-17.15 Summing up meeting with Per Belfrage and Anne Messeter.

17.15 Transport to Sturup and Kastrup Airport

2003-02-09

FACULTY OF MEDICINE
Lund University

Faculty Office
Project Manager Anne Messeter

PROGRAMME FOR SITE VISIT ON FEBRUARY 11, 2003

All meetings are held at The Old Bishop's Palace, Biskopsgatan 1, in Lund.

Panel members present: Regius Professor of Medicine John Bell, Professor Valerie Beral, Professor Peter Ratcliffe and MRC Senior Fellow Gavin Screaton. Docent Mats Benner is participating in the afternoon sessions.

Arrival at Grand Hotel on February 10.

08.20 Transport to the Old Bishop's Palace

08.30-09.00 Planning meeting with Per Belfrage and Anne Messeter

09.00-10.00 **Discussions with clinical Ph.D and MD/ Ph.D students.**
Participants: Eva Ageberg, Physiotherapy, Martin Englund, Orthopedics, Farhad Khan, Community medicine, Lars Nilsson, Stemcell, Christina Samuelsson, Speech therapy and Danielle van Westen, Radiology.

10.00-10.15 Short break with coffee and tea

10.15-11.15 **Discussions with preclinical Ph.D and MD/ Ph.D students**
Participants: Mikael Ekelund, Physiological sciences, Olga Göransson, CMB, Min Liang, Physiological sciences, Veronica Lindström, Laboratory medicine and Maria Berggren Söderlund, Laboratory medicine.

11.15-11.30 Short break

11.30-12.15 **Gastrointestinal system and renal (including urology)**
Participants: Karl-Erik Andersson, Alexander Giwercman, Åke Nilsson and Bengt Rippe.

12.15-13.00 Lunch with Per Belfrage and Hugh Connell.

13.00-14.00 **Cardiovascular**
Participants: Björn Dahlbäck, Per Hellstrand, Anna Hultgårdh, Bertil Olsson and Peter Nilsson-Ehle.

14.00-14.45 **Reproductive health (including andrology) and pediatrics**
Participants: Lars Holmberg and Karel Marsal.

14.45-15.15 Short break.

15.15-15.45 **Stemcell center/programme:** A new research organization
Participant: Sten Eirik Jacobsen

15.45-17.30 Coffee, tea and refreshments. Summing up meeting and discussions on the structure of the final report etc. with Per Belfrage and Hugh Connell.

17.40 Transport to Kastrup airport