

Welcome to the web based questionnaire for Strategic Research Environment! Before you start reporting, make sure to read the instruction and prepare the Excel files that has been attached in a previous e-mail.

FRÅGA 1

This report concerns the research environment named Epidemiology for Health (EpiHealth) (akronym: EpiLu). If you have more than one environment to report, please be sure that you fill in the information in the relevant report!

FRÅGA 2

Q. QUESTIONS FROM THE GOVERNMENT

FRÅGA 3

Q1. Please state the main priorities within the environment in 2013.

Based on our initial application (2009) the three main priorities set in 2013 were the following for the strategic research area Epidemiology for Health (SRA EpiHealth): 1. To further strengthen an infrastructure for EpiHealth linking Lund University (LU) and Uppsala University (UU). 2. To promote excellence in epidemiological research, on a regional, national and international scale, including the set-up and start of an administrative hub ("nod") for BBMRI.se at LU, a national biobank platform. 3. To expand our screening project in persons aged 45-75 years (the EpiHealth Cohort) for evaluation of risk factors and mechanisms behind common chronic disease conditions (i.e. cancer, cardiovascular disease, diabetes, dementia, musculo-skeletal disorders, etc.)

RESEARCH AND RESEARCH ENVIRONMENT

The main priority is to expand the EpiHealth Cohort, based on screening activities in Uppsala (started in 2011) and Lund/Malmö (started in 2012), now reaching a number of more than 12,400 screened subjects and open for external and internal research proposals. Furthermore, we have aimed to strengthen the research infrastructure by new recruitments of co-workers and academic specialists.

ORGANIZATION

We aim to further develop an effective leadership structure and administration, while also promoting gender balance in all activities.

EDUCATION AND DISSEMINATION

Priority has been given to a number of local, national and international scientific symposia, meetings and conferences, and several of these have been successfully accomplished with a good attendance and high quality scientific presentations.

RESEARCH COLLABORATIONS

We have set a priority to promote international contacts and projects, and also developed contacts with industry, organizations and authorities for research and innovation, most importantly AstraZeneca AB and the National Board of Health and Welfare. In addition we have worked with Danish colleagues within a EU Interreg IVA programme, ending in 2013.

FRÅGA 4



Q2. Please describe the major activities within the environment in 2013.

RESEARCH AND RESEARCH ENVIRONMENT

During 2013 we have continued the screening project for the EpiHealth population-based cohort in Uppsala (six nurses involved) and in Malmö (four nurses). Blood samples have been sent for biobanking in collaboration with the biobank belonging at the Karolinska Institute, Stockholm. This is done in collaboration with BBMRI.se, which has meant substantial cost reductions. During 2013 the collected data and biobank samples became available for use in research projects based on applications from researchers both within and outside the EpiHealth network (open access). We also continued to collect information for a regional register or library of all cohorts useful for epidemiological research within the LU area, but also open for applications on a national basis.

ORGANIZATION

We have further developed our internal structure for leadership (with a Steering Committee and an Executive Committee) and information (web site: www.med.lu.se/epihealth) with focus on leadership, administrative training and development. To reach equal gender balance at all levels of the organization, we have therefore promoted an active participation of female researchers in the leadership and representation of EpiHealth as well as in organizing symposia, seminars and meetings. The Vice Coordinator (Marju Orho-Melander) has played an important role for representing EpiHealth at local and national meetings. Karin Källén (LU) and Liisa Byberg (UU) have further organised the EpiHealth network and recruited new members.

EDUCATION AND DISSEMINATION

We have been organizing local, national and international meetings, for example a symposium on cardiovascular epidemiology in Malmö (March 21) and a satellite symposium on biomarkers for the European Society of Hypertension (ESH) in Malmö (June 7-8). In addition, we have supported the European Association for the Study of Diabetes-Study Group of Genetics of Diabetes (SGGD) meeting in Malmö (Marju Orho-Melander) with 150 attendees and invited speakers representing the top diabetes researchers in Europe. In 2013 the annual EpiHealth network conference held in Uppsala (October 17-18) was named the first National conference on biobanks and population cohorts (Lars Lind). In addition, a third conference for research-group leaders and PhD-students at Lund University held at Örenäs castle outside Lund (November 7-8) was well attended. The annual Advanced course in epidemiological methods, this time on "Early life influences on health", was held in Malmö (January 14-15) 2013.

RESEARCH COLLABORATIONS

On the local level, contacts with other strategic research areas have been further developed, especially with eSSANCE-LU for a joint project on improving the technical surveillance of the fetus during delivery (Karin Källén), as well as with EXODIAB for projects in diabetes epidemiology (Marju Orho-Melander, Paul Franks). A promising project that started in 2012 has further expanded with the aim to investigate protective factors against complications in long-standing type 1 diabetes, the PROLONG study (Valeriya Lyssenko), now including 10 hospital regions and also the Steno Diabetes Center in Copenhagen, Denmark, where activities started in 2013. Further, Olle Melander and Marju Orho-Melander have initiated and performed studies connecting cardiometabolic researchers and cancer researchers to investigate the epidemiological connection between these diseases (genetic markers, environmental factors and blood biomarkers). Finally, Orho-Melander has initiated collaboration with Inger Björck's group at LTH and Antidiabetic Food Center, at LU. On the national level, we have research collaborations, most importantly with LifeGene - a project for screening and biobanking of samples from persons aged 0-45 years that was allowed to re-start in December 2013, and with BBMRI.se - a national infrastructure for development of modern biobanking with European contacts. In April 2013 Peter M Nilsson was appointed to be the leader of the LU hub of BBMRI.se in collaboration with the biobank structure of the county council (Region Skåne) and the Lund Technical University (Carl Borrebaeck). Similar activities are ongoing in the Uppsala Biobank structure (Anna Beskow). Most importantly, a number of joint projects linked to EpiHealth have been developed with researchers at LU and UU in collaboration. These include for example: a project on Meta-health data analyses based on data from several epidemiological cohorts (Johan Sundström, UU, and Gunnar Engström, LU); a project on bone metabolism and fracture risk (Karl Michaelsson, UU, and Martin Englund, LU); a project on genetic mapping of cardiovascular risk (Erik Ingelsson, UU, and Olle Melander, LU); and projects on interactions between genes and diet in liver fat accumulation (Marju Orho-Melander, LU, and Ulf Riserius, UU) and type 2 diabetes (Marju Orho-Melander, LU, and Rikard Landberg, UU). On the international level, we have developed active collaborations, i.e. based on a joint EU Interreg IV project linking southern Sweden (Scania) and eastern Denmark (Sjælland) in a project dedicated to cardiovascular epidemiology in populations and cohorts of patients. In addition we have strengthened research dedicated to social and public health epidemiology (Stanford University) and genetic epidemiology (Broad Institute, Baltimore).

FRÅGA 5



Q3. Please describe the major results within the environment in 2013.

RESEARCH AND RESEARCH ENVIRONMENT

One important result during 2013, has been the continuation and widening of the EpiHealth screening cohort project in Uppsala and in Malmö, which has so far recruited more than 12,400 persons. The screened subjects have filled in a web questionnaire, participated in clinical examinations, and donated blood samples for further biobanking and DNA extraction in collaboration with BBMRI.se and the KI biobank. We have also further updated the biobank and data collection from the Womens´ Health in the Lund Area (WHILA) cohort including 6900 postmenopausal women from 1995-1997. Under leadership of Olle Melander (LU), around 14,000 individuals from the Malmö Diet and Cancer study have now been genotyped "genome wide" for around 1,000,000 genetic markers (GWAS and exome chip) and in 2013 the first genetic analyses have been carried out (Olle Melander). This is a collaborative approach of several investigators, for example with partial financing from Jonas Manjer (LU) for breast cancer cases, Hans Lilja (Memorial Sloan-Kettering Cancer Center, New York) for prostate cancer cases and Marju Orho-Melander (LU) for incident type 2 diabetes cases. A number of important scientific papers have been published during 2013 in high impact journals.

ORGANIZATION

Research administrator Camilla Key has been employed full time during 2013. She is also web-master for our web site (www.med.lu.se/epihealth) collecting all new informations and reports from activities, and constantly updated. The vice coordinator Marju Orho-Melander has been actively representing EpiHealth both at the LU level and at regular meetings with the National Biobank Board ("Nationella Biobanksrådet"). Young female researchers have been given opportunities to attend research courses or to spend time devoted to their research as financed by EpiHealth. Currently an almost equal number of men and women belong to the EpiHealth network. Regular meetings have been held within the leadership structure, based on regular telephone meetings with the EpiHealth Steering Committee, as well as with the Executive Committee. We had one meeting in person with the steering committee on October 17th in Uppsala. Protocols are kept.

EDUCATION AND DISSEMINATION

Two successful larger symposia, as well as smaller conferences and meetings during 2013 have been well attended by numerous participants. The major international symposium organized during 2013 by EpiHealth was the satellite symposium on "New frontiers of biomarkers in cardiovascular disease" held in Malmö 7-8 June, with a broad attendance of around 80 delegates from ten countries.

RESEARCH COLLABORATIONS

For our annual conference in Uppsala (16-17 October), EpiHealth invited delegates from all of Sweden to attend with the intention to widen the network also to individuals and universities not primarily involved in EpiHealth. The theme was biobanks and large cohorts in Sweden, with presentations from all universities, as well as from LifeGene, BBMRI.se and from related international projects such as LifeLines in the Netherlands and the UK Biobank. We have also continued our contact with the research network behind the Northern Sweden MONICA study at the Umeå university (Stefan Söderberg, Mats Eliasson) for joint projects and publications and in planning of the next MONICA survey in 2014. The EU Interreg IV project with Danish researchers (2011-2013) has resulted in extensive contacts and a final summing-up seminar organised in Malmö (December 18), attended by 30 delegates as well as representatives from "Öresundssekretariatet" for EU Interreg IV in Copenhagen. We have organised regular Skype-conferences and meetings in Malmö and Copenhagen. A separate web site has been created (www.skarf.eu). We have continued our collaboration with Karolinska Institute (KI), Stockholm, for biobank routines, in collaboration with the BBMRI.se hub in southern Sweden where EpiHealth will play an important role as the representative of LU. A new automated robot system for lab sample handling has been ongoing at the Clinical Research Unit at the Scania University Hospital in Malmö based on this collaboration with KI (Kerstin Andersson). The collaboration with the Strategic Research Environment eSENCE-LU for a joint project on improving technical surveillance during delivery was supported by a grant of 1.6 million SEK from eSENCE during three years (Karin Källén representing EpiHealth). In addition we have started a collaboration with MultiPark for development of epidemiology and supporting a national research school dedicated to ageing. We also collaborate with other strategic research areas at LU in setting up new resources for bioinformatics, as supported by the LU administration. We have started a number of joint research projects between researchers at LU and UU aiming for joint publications in 2014.

FRÅGA 6



A. GENERAL QUESTIONS

Only changes during 2013 are to be stated.

FRÅGA 7

**A1. What effect has the strategic research initiative(s) had on your university?**

The strategic research initiatives have helped highlight crossdisciplinary research at Lund University. They have enhanced research and they have created added values for the university - and potentially for the national level.

The strategic initiatives mean a challenge not the least in terms of leadership and management. Lund University responded by launching a two-year leadership program for the coordinators and deputy coordinators of the initiatives. This program is now completed.

The strategic research initiatives also help power up the knowledge triangle. In addition to generating scientific breakthroughs, they help create educational arenas with contents at the scientific frontier of the themes represented by the respective initiatives. Thus they play a decisive role in implementing the university's goal to provide research based education of the highest quality. Furthermore, they contribute significantly to the advancement of research infrastructure, and by making this infrastructure accessible to user groups outside their own one, they contribute to the propagation of knowledge, competence and research opportunities. They are also active on the innovation front and new patents are under way as are deepened collaborations with industry

Several of the initiatives have come a long way with implementing a very promising developmental dynamics by recruiting young researchers who contribute different expertise and different angles to the research challenge and by empowering them to develop their own line of thinking. Yet another bonus effect is that the strategic initiatives have made possible several strategic recruitments.

The research environments created by virtue of the strategic initiatives means a very valuable resource for the future. A greater variety of attractive research environments are available on both a university and a national level providing options for talented researchers, both in a starting phase or a truly advanced phase of their careers.

FRÅGA 8

**A2. Describe the model according to which the resources have been allocated.**

Of the Government strategic research funding of 10 057 000 SEK to EpiHealth, 40% has been allocated to the co-applicant Higher education institution Uppsala University in the same way as the previous year, which is according to the distribution given in the application and decision by the Government.

As in the previous year the allocation of funding within EpiHealth has been suggested by the collaboration board, having representatives from Lund University and Uppsala University. The final decision has been taken within each university according to internal rulings.

Of the funding of 6 034 200 SEK allocated to use within Lund University, 5% has been used for actions benefitting all twelve strategic research areas within Lund University to enhance strategic planning and quality assurance. The actions include two leadership programmes, common administrative support and coordination, senior advisor in strategic research questions, coordinated profiling and communication and internal follow up of the second year. The rest of the funding to Lund University has in the same way as previous year been allocated to the LU-internal board of EpiHealth for further distribution according to the suggestions given by the collaboration board.

FRÅGA 9

**A. GENERAL QUESTIONS**

Only changes during 2013 are to be stated.

FRÅGA 10

**A3. What effect has the strategic research initiative(s) had on the co-applicant university/universities (if any)?**

The EpiHealth collaboration started in 2010 has now ended its fourth year of action at UU.

The first UU coordinated project, Epi-Meta-Health, is an effort to merge databases from existing cohorts in Malmö/Lund and Uppsala, but also on a national scale, for replication studies and for performing studies regarding less common diseases where large cohort studies are needed. This project has been supported by WP2 in BBMRI.se and has grown to be the start of a national-wide effort to perform meta-analysis of all Swedish cohorts with longitudinal data. The first disease that is under exploration is subarachnoid hemorrhage. This project is lead by Johan Sundström, Institution of Medical Sciences at UU.

The second project is the EpiHealth cohort study. The plan is to enroll 300,000 Swedes in the age-groups 45 to 75 years to study the interplay between genes and life-style factors on the development of common disorders seen in the elderly, such as myocardial infarction, stroke, bone fractures, dementia, chronic obstructive pulmonary disease, cancer arthrosis etc. Data on life-style exposures will be collected by a web-based questionnaire and serum/plasma/DNA will be biobanked at a visit to a test centre where also physiological measures, such as blood pressure, lung function, cognitive function, anthropometry and ECG will be recorded. Future morbidity and mortality will be followed by Swedish registers. The study is currently carried out at 2 screening centers (Uppsala and Malmö), with the first subject enrolled in mid-April 2011. To date >12,000 individuals have been examined and during the autumn of 2013, the investigators officially declared this resource to be open for scientific studies. Already three epidemiological studies have been initiated from Uppsala. The EpiHealth cohort is an open-access national-wide resource for Swedish epidemiologists. This project is lead by Lars Lind, Department of Medical Sciences at UU.

The creation of these two EpiHealth-based projects has provided a basis for collaboration of scientists across several institutions in Uppsala. The EpiHealth cohort is a driver of the creation of modern biobanking techniques and standards. In that sense, the EpiHealth cohort is also one of the biggest projects using the national infrastructure BBMRI.se.

The EpiHealth cohort will also be a major player for SciLife Lab in the future and already the genotyping facilities at SciLife have been used. The EpiHealth cohort connects also to UCR, which provides a project leader and data management skills.

In Oct 2013, UU invited all epidemiologist in Sweden to the "First Swedish meeting on large population-based studies", a meeting with representation from all Swedish Universities and also representation from UK and Holland. In November 2013, UU also hosted a course in Epidemiological Genetics with participants also from other universities. Thus, the activities of EpiHealth are not only important from the UU internal perspective, but have taken an initiative at the national and international arena.

FRÅGA 11



A4. Will the university monitor and assure the development within the strategic research environment(s)? Please state how and why.

Cross-disciplinary research is at the core of the research strategy of Lund University and we therefore carefully monitor and assure the development of the strategic research initiatives.

During 2012 the Assistant Vice-chancellor of research conducted follow-up and planning talks with 29 strong research environments at Lund university, including 12 strategic research areas (9 with LU as leading partner and 3 as associate partner), resulting in a comprehensive report which was finalized in 2013. The report gives a bird's eye perspective on the research environments in terms of SWOT analyses and a summary of their plans and visions for the future. The report also proposes criteria for evaluation of the research environments and forms for their development. The criteria include dimensions such as quality, creativity/vitality, added value (notably, their ability to create opportunities for education and young researchers), sustainability, branding and story (what was the situation before the instigation of the research environment, what has the environment contributed, what is the potential for the future). Forms of development discussed include networks, centres, institutes and schools. The interdisciplinary or cross-boundary conditions of the research environments sometimes present challenges and the report includes good examples and best practice derived from the research groups' experiences with problems and solutions.

In spring 2014, Lund University will organize a national conference on the Strategic Research Areas. The purpose of the conference is to present and discuss their role for Sweden as a research nation and for challenge-driven research, not the least Horizon 2020. The conference will also be offered as a LERU (League of European Research Universities) conference and selected pro-vice chancellors of research from LERU will be invited to present their strategies for strong research environments and their role in the development of European research initiatives.

Further, Lund university has decided to implement a new assessment procedure, replacing the previously planned follow-up of RQ08, "RQ14". Instead, we will create a continuous process where a main responsibility lies with the individual faculties working with goals, strategies, evaluation and benchmarking. Cross-disciplinary aspects of this process are planned to be strengthened with a special cross-disciplinary committee.

In summary, LU leadership will continue to monitor the development of EpiHealth, through regular contacts with the leadership structure of EpiHealth and by invitations to strategic meetings with representatives from all strategic research areas where LU is involved. This supports the scientific and administrative development of the strategic research areas, as well as the integration between areas. For EpiHealth specifically, the close collaboration with the EXODIAB and eSENCE research areas, but also with MultiPark, provide examples of such integration of the work shared between strategic research areas. We also collaborate with the Faculty of Engineering (LTH) within biobank issues under the hub of BBMRI.se at LU, a new development in 2013.

FRÅGA 12



B. DESIGN

FRÅGA 13



B1. Strategic research programme

Only changes during 2013 are to be stated.

FRÅGA 14



a. List and describe the major challenges of the strategic research programme.

MAJOR CHALLENGES in 2013

1. We constantly face a positive challenge to expand our network, to recruit new co-workers and to promote excellence in science dedicated to epidemiology on the one hand but with access to limited financial resources on the other hand. During 2013 only 10 million SEK was allocated to EpiHealth with 60% funding for LU and 40% for UU. This has caused some constraints for our planned activities, i.e. the rate of expansion of our screening activities and our infrastructure and positions, but additional funding was obtained from the Faculty of Medicine at UU, providing 3 million SEK for the cohort screening project.
2. An important challenge is to further strengthen collaboration between our two universities, as well as between researchers in Malmö and Lund, both groups of researchers belonging to LU. This is influenced by the fact that new researchers are constantly entering the EpiHealth network and they need integration and contacts with other researchers in the network, now expanded with many new names.
3. We wanted to support other population-based studies, i.e. LifeGene that has been allowed to re-start in December 2013 based on a new law for population-based studies, especially LifeGene, passed by the Swedish Parliament in October.

FRÅGA 15



b. Describe the initiatives taken to meet these challenges.

INITIATIVES TO MEET CHALLENGES

1. We have been exploring new ways to improve our financial resources. Lars Lind, the main representative of EpiHealth in Uppsala, has successfully applied for additional funding for the EpiHealth Cohort, provided by the Heart- and Lung Foundation (HLF) of Sweden. In addition, he has received a continued financial support of 3 million SEK to EpiHealth from the Faculty of Medicine, UU, during 2013 to help financing the EpiHealth cohort screening activities. We are also looking for other opportunities to receive more funding from national research agencies, because our screening project is costly. Benefitting from new financial support obtained via our EU Interreg IV project during 2011-2013 together with Danish researchers, we have been able to strengthen the research infrastructure and expanded the number of staff members at the Data handling and coordinating center in Malmö for population-based cohorts and biobanks (i.e. the Malmö Preventive Project and Malmö Diet Cancer cohorts). In 2013 we also started the new cohort called the Malmö Offspring Study (MOS), supported by a five-year grant from the Swedish Research Council.
2. In order to improve the collaboration and bridging different cultures EpiHealth has taken the initiative to organise activities to bridge between Malmö and Lund by use of symposia and seminars, for example for group leaders and PhD students at Örenäs castle in November.
3. In close collaboration with the leadership structure of the LifeGene project (head: Nancy Pedersen, KI, Stockholm) we have worked together for continuous media debate and information related to the unfortunate decision by the Datainspektion in Sweden to put a stop to the LifeGene screening project, but now lifted in December 2013.

The Data Review Board of Sweden ("Datainspektionen") has not deemed the screening activities of EpiHealth illegal in any way, as we have ethical permission provided by the Ethical Regional Committee in Uppsala, obtained in November 2011 for our ongoing activities during 2013. New applications for research analyses based on EpiHealth cohort data have also been approved in 2013 by the committee in Uppsala.

FRÅGA 16



c. Are there any major changes in the research programme introduced in 2013? Please, describe and motivate. This information is important in order to monitor the development of the strategic research environment.

There are no major changes in our general research programme in 2013, as we have tried to follow our original strategic plan and research programme as founded in the goals set in the grant application for EpiHealth from 2009.

We have continued local negotiations with representatives from Region Skåne (Research Directors Hannie Lundgren and Ulf Malmqvist, and Biobank Director Eva Aweström) to find different ways for collaboration. These meetings were arranged under the leadership of the Faculty of Medicine at LU (Anders Bjartell).

During 2013 we have also tried to strengthen two priority areas for EpiHealth: reproductive epidemiology and nutritional epidemiology. This has promoted collaboration between researchers and setting up symposia when representatives from both LU and UU have been active in the planning and presentations. A Berzelius symposium (nr. 89) was under planning in 2013 for taking place in Malmö in April 2014 focusing on reproductive medicine and epidemiology, and supported by the new network "Centre of Excellence for Reproduction and Perinatal Sciences" (CERPS), closely linked to EpiHealth.

Negotiations to set up a local hub for biobanking in Malmö of a national biobank infrastructure (BBMRI.se) led to the signing of a contract between KI and LU, and the appointment of Peter M Nilsson as hub leader in April 2013. From Vice-Chancellor Per Eriksson, LU, a financial support of 1.5 million SEK during a 3-year period has been allocated to the hub of BBMRI.se.

The epidemiological family-oriented Malmö Offspring Study (MOS) started in March 2013 and was funded for 5 years by the Swedish Research Council in November as well as by the Heart- and Lung Foundation of Sweden. MOS is a very important new epidemiological project aiming for new analyses of how genes and environment interact to influence a family history of specific disease categories (cardiovascular, diabetes, cancer, dementia, and COPD). One important aspect is to include a 4-day dietary registration as well as fecal sampling for gastro-intestinal bacteria (microbiota) in order to elucidate on the influence of diet and gastro-intestinal processes for regulation of metabolism and weight control.

FRÅGA 17



B2. Strategy and plan for process of knowledge transfer and utilization of research findings

Only changes during 2013 are to be stated.

FRÅGA 18



a. Describe the major challenges concerning knowledge transfer and utilization of research findings.

Knowledge transfer means a broad interface with not only academic institutions but also with the media and the society at large. This is especially relevant for research dedicated to epidemiology and risk factors, as results can be of concern to many people and whole populations. New topics enter the media agenda all the time (so called "public health hazards") and these represent new challenges for our academic network. EpiHealth tries to play a leading role when providing accurate information to journalists and media.

The so called Third Task of universities (to popularize scientific findings for lay people and the media) is a major and important challenge to EpiHealth, and a task that we have taken seriously. Many of our researchers have been interviewed by local and national media during 2013. A further challenge is to translate the knowledge accumulated for a wider application in innovation and developments of products.

FRÅGA 19

**b. Describe the initiatives taken to meet these challenges.**

We have spread knowledge via scientific meetings, symposia and seminars during 2013. EpiHealth also participated in a public annual event organised by the Faculty of Medicine in collaboration with the county council (Region Skåne and the Skåne University Hospital), the so called Lund University Research Day ("Forskningens Dag"). In 2013 the theme was "Joint disease" with a focus on musculo-skeletal problems and epidemiology. Two representatives from EpiHealth (Martin Englund and Ingemar Petersson) actively took part in this event at two separate sessions on 5-6th November. Many interested lay people attended.

We have tried to develop good and fruitful contacts with journalists and the media to describe our activities and to explain our findings, for example according to diet or environmental health hazards as well as for risk factors of chronic diseases. Media coverage has been documented in newspapers and in the weekly "Dagens Medicin". Questions from the public or from professional groups have been dealt with via e-mail or comments on blogs. We have also used our own web site (www.med.lu.se/epihealth) to spread information, not only about our own activities, but also about related research activities and projects, e.g. the LifeGene study and the national infrastructure for modern biobanking, the BBMRI.se project.

We have also tried a strategy of media communication in 2013 based on advertisements both in national and international media about EpiHealth and its activities. All together 6 such advertisements have been published.

Our contacts with industry have developed, most importantly with Astrazeneca Ltd. for joint epidemiological projects, for example the Malmö Osteo-Arthritis (MOA) project, in collaboration with Gunnar Engström and Maria Gerhardsson (Astrazeneca), and Stefan Lohmander and Peter M Nilsson (LU). Analyses have continued during 2013 and a manuscript was submitted.

FRÅGA 20

**c. Have there been any major changes in the planned activities during 2013? Please, describe and motivate. This information is important in order to monitor the development of the strategic research environment.**

During 2013 we have followed our strategy for planned activities within EpiHealth according to goals set in our Strategic plan, and no major changes have occurred. However, other developments have to be closely followed to see if the activities of EpiHealth might be affected. Two new focus areas for EpiHealth have been further developed during 2013; reproductive epidemiology and nutritional epidemiology. This has led to creation of new networks and the organisation of symposia and seminars. One example is the new network "Center of Excellence in Reproduction and Perinatal Sciences" (CERPS) set up with representatives from LU and clinical specialities at the Scania University Hospital in Lund and Malmö (Aleksander Giwercman). Also researchers in Uppsala belong to these networks, for example Liisa Byberg in reproductive epidemiology and Ulf Riserus in nutritional epidemiology.

FRÅGA 21

**B3. Collaboration/strategic alliance partners in 2013**

FRÅGA 22



Please upload the excel file B 3 Collaboration/strategic alliance partners, in which you have listed the collaboration/strategic alliance partners in 2013, in relation to the strategic research environment. Define the extent of the collaboration according to the scale below.

Extent of collaboration

3: Collaboration/strategic alliance partner that is part of the core of the environment. The collaboration/strategic alliance partner is contributing with long-lasting resources to the environment.

2: Collaboration/strategic alliance partner which supports and participates in subprojects in the environment.

1: Collaboration/strategic alliance partner that participate in open activities without contributing with resources to the environment.

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 23

**B4. Recruitment**

Only changes during 2013 are to be stated.

FRÅGA 24



a. Describe the strategies for recruitment to the strategic research environment.

We have continued to find and recruit new academic competences of great importance to the EpiHealth network, including specialists in epidemiology, bioinformatics and biostatistics. This can be done by announcements, through our web site but also via personal contacts. We wanted to recruit new competences during 2013 and thereby strengthen our infrastructure, at the same time also aiming for increased gender equality. Of special relevance for EpiHealth is the strategy to recruit academic experts in various fields of advanced epidemiology, as for example the Professor in Medical epidemiology (Gunnar Engström) and a Professor in Epidemiological methods (Jonas Björk). They have both expanded their work in 2013.

At UU, Erik Ingelsson, Professor of Cardiovascular Genetics, previously at the Karolinska Institute, is leading advanced analyses that started in early 2013. He is already collaborating with LU researchers (Olle Melander).

FRÅGA 25



b. Describe career opportunities offered by the strategic research environment to young researchers.

Careers in epidemiology have been possible in a number of different research areas linked to EpiHealth, and many young researchers have applied for positions within the wider network, most often in order to write a PhD thesis or in their post-doc period. We have supported five young researchers in 2013 by providing salaries for a limited period of time (weeks, months) in order to write applications for grants or other funding to themselves, and to finalise manuscripts or to participate in conferences. This is a priority that will be further continued during coming years. One PhD-student, Samuel Eryd-Aronsson, has been supported half-time during most of 2013 by funding from the EU Interreg IV project in collaboration with EpiHealth.

The different research group leaders of EpiHealth of LU and their PhD-students were invited to a 2-day research conference at Örenäs castle on 7-8 November 2013 to discuss their research projects and career opportunities, as organised by Karin Källén and Gunnar Engström. Many young researchers had the opportunity to present their projects and to get a deeper involvement with EpiHealth. The intention is to repeat this successful conference also by the end of 2014. Four young researchers participate in the Lund University programme for future academic leaders (Karin Källén, Valeriya Lyssenko, Jonas Manjer and Martin Englund). This programme ended in January 2013.

FRÅGA 26



c. Describe the strategy/plan for staff mobility between the university (universities) and business or public sector (e.g. staff exchange program).

The EpiHealth network encourages staff mobility and exchange activities. We try to develop excellent contacts with the research-oriented pharmaceutical industry, for example with Astrazeneca Ltd. where one of the senior researchers involved in EpiHealth (Gunnar Engström) was previously employed but now stays in close contact. Karin Källén represents the link between EpiHealth and the Medical Birth Register (MBR) at the National Board on Health and Welfare (Socialstyrelsen), where she also spends part of her time (40%). This is of great importance as a bridge to this national authority and supporting reproductive epidemiology.

Some young PhD-students, but also senior researchers with epidemiological projects, have visited other universities for shorter or longer stays during 2013, and this is according to our mobility plan. Johan Sundström from UU moved for one year to the The George Institute for Global Health, Missenden, Australia, in order to promote collaboration and epidemiological projects when Swedish cohort data can be used. He returned to UU during the summer of 2013 and is leading the Epi-Meta-Health project linking researchers at UU and LU. Louise Brunkwall, a research student in Marju Orho-Melanders group visited the Frank Hu research team at Harvard University in Boston for 5 weeks to facilitate collaboration between nutritional epidemiology research at the Lund and Harvard universities.

A new initiative: BLUE ScY: Boston, Lund and Umeå Education in Science opportunity

The BLUEScY project is intended to establish bilateral exchanges for mid-term PhD students and post-doctoral fellows who are primarily based at either Lund (LU) or Umeå (UmU) universities in Sweden. Paul Franks is organising the programme, which is supported financially by EpiHealth. The application process is competitive and peer-reviewed by international experts in relevant fields of research. Partner institutions in Boston are the departments of Epidemiology and Nutrition at the Harvard School of Public Health (HSPH) and the Broad Institute of Harvard and MIT. The BLUE ScY program emphasises training in biostatistics and molecular, nutritional and genetic epidemiology of diabetes, obesity, and cardiovascular disease. In 2013, one student (Louise Brunkwall, working with Prof. Marju Orho-Melander) visited HSPH (Department of Nutrition) and worked with Dr. Lu Qi (project: gene-nutrient interactions in glucose traits). In 2014, two more students Tibor Varga (working with Prof. Paul Franks) and Petr Volkov (working with Dr. Charlotte Ling) will visit the Broad Institute of Harvard and MIT to work with Drs. Sek Kathireasn (project: lipid genetics) and Manolis Keller (project: epigenetic bioinformatics) respectively. Each student receives a scholarship of around 80,000 SEK to help support travel and living expenses directly related with the visit.

FRÅGA 27



B5. Education

Only changes during 2013 are to be stated.

FRÅGA 28



The integration of education, research and innovation needs to be strengthened (knowledge triangle). Describe how curricula, teaching and examination, at all levels of education including doctoral level, are developed in relation to the strategic research environment.

Many of the experienced members of the EpiHealth network are active already today in teaching activities directed to undergraduate students as well as PhD-students, because epidemiology is an important component of many clinical research fields. We have continued a discussion on how to promote teaching and coordinate activities. A survey has been made to investigate the content and standards of teaching in medical statistics at LU, in order to expand and improve the quality (Jonas Björck).

Two new representatives of PhD-research students have been appointed to the Steering Committee of EpiHealth (Sophie Hellstrand, LU, and Carl Johan Drott, UU).

Some undergraduate students are tutored to write papers in epidemiology by members of the EpiHealth network. In addition, we try to support teaching activities directed towards undergraduate students as well as organising an annual course in advance epidemiology on the post-doc level for national applications to participate.

We aim to support innovation but in our field of expertise, epidemiology, this is mostly a matter of new methods to be used in society at large, for example surveillance of risk factors and health hazards. EpiHealth is involved in this process on different levels, for example mapping of environmental health hazards in the Scania region in collaboration with local authorities, when new technical and epidemiological methods (i.e. geocoding) are introduced and tested.

FRÅGA 29



B6. Industrial and Societal problems addressed.

Only changes during 2013 are to be stated.

FRÅGA 30



a. Describe industrial and/or societal problems and needs that are addressed.

1. EpiHealth has addressed many societal problems in 2013, of interest also to the industry. One typical example is the development of new understanding of healthy food built on knowledge from both observational studies and intervention studies. There is a great public interest in healthy food choices, not the least as many for the society expensive diseases are heavily increasing in frequency (obesity, type 2 diabetes etc). This has been addressed in several recent publications of EpiHealth investigators. Importantly, scientific collaboration between EpiHealth scientists and Antidiabetic Food Center (AFC) in at LU have been initiated. This is a way to promote the knowledge triangle hoping for new food products to be launched built on our collaboration, for example "smart food" for patients with diabetes. Collaborations between researchers addressing gene-diet interactions in diabetes and obesity (Marju Orho-Melander's group) and AFC (Inger Björck) have been utilizing epidemiological research results to design more effective diet interventions based on individual genetic background (personalized medicine). Leading researchers from UU also collaborate with LU researchers (Ulf Riserus, Rikard Landeberg).

2. An important societal problem is to safeguard healthy pregnancies and early life circumstances. This is one of the main focus areas of EpiHealth today. Karin Källén is our contact with The Medical Birth Register at the National Board on Health and Welfare, and also active in our network to promote reproductive and perinatal sciences (CERPS). In Uppsala, Liisa Byberg has further developed the data-base called "Uppsala Family Study" with extensive data from several generations.

3. A much debated societal problem is environmental pollutions and their health consequences. This is addressed by several EpiHealth research who use geocoding to analyse health data in the population and their association with environmental influences based on information on where people live (postal codes).

FRÅGA 32



C. PRECONDITIONS

FRÅGA 33



C1. Organization and leadership of the strategic research environment in 2013

FRÅGA 34



a. Describe how the strategic research environment is organized, including the set-up with co-applicant Higher education institutions (if any), and collaborating research institutes (if any) Specify the main bodies in the environment with an organization chart (please upload the organization chart below).

The organization of EpiHealth has remained more or less the same in 2013, but with some new representatives elected (see below). This is based on our Steering Committee, SC (previously called the Joint Collaborative Board, JCB) with representatives from both LU and UU, with a smaller Executive Committee, EC (with representatives from both LU and UU). The work of both committees is based on regular telephone conferences and personal contacts during annual conferences. The names and contact details of committee members are shown at: http://www.med.lu.se/epidemiology_for_health_epihealth/kontakt. Some of these names were also principal investigators (PI) behind the initial application in 2009.

Steering Committee:

- Peter M Nilsson, LU, Director, EC, PI
- Marju Orho-Melander, LU, Vice Director, EC, PI, liason representative in the board of EXODIAB
- Sölve Elmståhl, LU, EC, responsible for the EpiHealth Cohort in Malmö-Lund
- Maria Albin, LU, EC
- Karin Källén, LU, PI, contact person for National Board on Health and Welfare
- Ingemar Petersson, LU, Representative of Region Skåne
- Anders Bjartell, LU, representative of the Faculty of Medicine
- Paul Franks, LU, liason representative of the board of EXODIAB
- Sophie Hellstrand, LU, PhD-student representative
- Joyce Carlson, LU, affiliated to SC as an expert on biobank questions
- Lars Lind, UU, EC, PI, responsible for the EpiHealth Cohort in Uppsala
- Karl Michaelsson, UU, leader of Uppsala Research Center, UCR
- Stellan Sandler, UU, Dean of the Faculty of Medicine
- Johan Sundström, UU, UCR
- Carl Johan Drott, UU, PhD-student representative

FRÅGA 35



Upload organization chart here

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 36



b. Describe the leadership and management (the main strategic and operative bodies) of the strategic research environment, including number of men and women in the management team, the decision-making procedure, and who is in charge. Also upload the excel file "C1 b List of personnel in management" that was sent out together with the instructions for reporting. The excel file should include name of person, name of institution/organization, gender and role in management (refer to the organization bodies in the organizationchart) for those active within the management during 2013.

EpiHealth is lead by Peter M Nilsson, Coordinator, and Marju Orho-Melander, Vice Coordinator. They share responsibilities and they both represent EpiHealth, internally within Lund University (LU) as well as externally at meetings, conferences and while acting as representatives for LU in LifeGene (PMN), BBMRI.se, LifeGene (PMN) and the National Biobank Council (Nationella Biobanks Rådet) (MOM).

EpiHealth is headed by a Steering Committee (SC) with 13 ordinary members, as listed on our web site: (http://www.med.lu.se/epidemiology_for_health_epihealth/kontakt). In addition, we have one expert on biobank-associated technical issues, Joyce Carlson in Lund, affiliated to the Steering Committee. The SC holds regular telephone conferences amounting to 3-4 per years and also personal contacts during the annual EpiHealth conference. Meetings and decision taken are documented in protocols. A SC meeting in person was held on October 17th 2013 in Uppsala.

The Executive Committee (EC) consists of five members: Peter M Nilsson, Marju Orho-Melander, and one member each representing Malmö (Sölve Elmståhl), Lund (Maria Albin) and Uppsala (Lars Lind). The EC holds regular telephone conferences amounting to 4 per year, and in between personal contacts via e-mail, telephone contacts and personal meetings. Peter M Nilsson and Marju Orho-Melander have weekly contacts as they both work in Malmö and have joint research projects. The coordinators share the responsibility to be in charge of EpiHealth.

The LU internal part of the SC consists of the following members: Peter M Nilsson, Marju Orho-Melander, Maria Albin, Sölve Elmståhl, Paul Franks, Sophie Hellstrand, Karin Källén, and Anders Bjartell. In addition, Joyce Carlson is an associated SC member for biobank questions. The annual budget is decided by the LU internal part of the SC. This means that we have a total of 11 men and 4 women engaged in the SC - the structure for leadership and management of EpiHealth, among them two representatives elected by and representing organisations of PhD research students at LU and UU. The collaborative partner, Uppsala University, is represented by five ordinary members in the SC, the Medical Faculty in Lund by one member, and the Region Skåne (regional county council) by one member in the SC. The central research administration of EpiHealth is organised by Camilla Key.

WORK PLAN

The work of the Steering Committee (SC) is to decide on the work of EpiHealth in general, including the strategic plan, major activities, information, web-site, building of networks and infrastructures. The most important documents are shown as PDFs at our website (strategic plan), but internal protocols are kept within the EpiHealth administration.

The work of the LU-specific part of the SC is to decide on the part of the EpiHealth budget that is specified for LU (60%). This includes salaries to the coordinator and vice coordinator, as well as the persons being responsible for the EpiHealth Cohort. In addition, new recruitments for positions within the EpiHealth network at LU have to be decided by the LU-specific part of the SC. These decisions are also documented in protocols kept within the EpiHealth administration. A corresponding procedure is carried out at the UU-specific part of the SC for the UU share (40%) of the total budget.

The work of the Executive Committee (EC) is to discuss the work of EpiHealth in a more direct and operational way, for example to take decisions on the planning of meetings, conferences as well as other activities, most importantly our screening cohort. The general goal is to strengthen the integration of research linking LU and UU.

The sub-committee of EpiHealth for the screening cohort will hold internal telephone meeting bi-monthly under leadership of Lars Luind, UU, and Sölve Elmståhl, LU.

FRÅGA 37



Upload excel file "C1b List of personnel in management" here

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 38



C2. List of participating personnel in the strategic research environment in 2013

FRÅGA 39



a. Please upload the Excel-file "C2 a List of personnel" that was sent out together with the instruction for reporting. The Excel-file should include name of person, name of institution, gender, position, role in research environment etc for those participating more than 10 percent of full time in the environment during 2013.

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 40



Please also state the number of relevant personnel (female and male) participating more than 10 % of full time in strategic research environment (regardless of financing) during 2013. The number should be the same as the number of personnel that has been listed in the excel-file C 2 a Number of personnel.

	Female	Male
Number of personnel	108	108

FRÅGA 41



b. If the principal investigators differ from 2012, please comment.

The principal investigators of EpiHealth are the same as in 2012, however not all of them are members of the steering committee (SC). From the list of 10 names of PIs from the original application (2009), only the following are still PIs with a current position within the SC of EpiHealth:

LU: Peter M Nilsson, Marju-Orho Melander, Karin Källén

UU: Lars Lind

FRÅGA 42



C3. Economic report for year 2013

FRÅGA 43



a. Specify the income during 2013 to the strategic research environment. Include "in-kind contributions" and specify such contributions in question D3 (other comments). Use the same delimitation of your strategic research environment as in the last follow-up years, when specifying incomes.

	Government strategic research funding	Co-funding from main applicant Higher education institution	Co-funding from co-applicant Higher education institutions	Funding from collaborating research institutes	Funding from other collaborators	Other external funding
Funding in SEK	10057000	20300591	5261000	0	0	67890316

FRÅGA 44



Please specify the types of funding sources included in "Other external funding" from the table above, together with a rough estimate of their relative contribution. (E.g. funding from public agencies, public research foundations, EU-framework programmes, other international funding, private non-profit organisations, or private companies). N.B an exhaustive list is not required.

The contribution from external funding has been the following during 2013:

VR: 30.00%
 FAS: 15%
 EU: 15%
 SSF: 10%
 Region Skåne (county council): 5%

FRÅGA 45



b. Specify how the strategic research funding from the Government in 2013 (box one above) has been used. The use of funding shall include the use at co-applicant higher education institutions. "High cost equipment" is investments in infrastructure and shall be reported as purchase value or depreciations. Use the same model as in the last follow-up for years. "Infrastructure running costs" are costs for using infrastructure e.g. electricity, premises, rents and so on. "Other costs shall be specified in the box below.

	Personnel	Running costs	High cost equipment	Infrastructure running costs	Other costs
Costs in SEK	7178009	4064757	37513	771552	1765934

FRÅGA 46



Please specify the types of costs included in "Other costs" from the table above, together with a rough estimate of their relative size. N.B an exhaustive list is not required.

Refers only to indirect costs i.e. overhead.
Both universities use the calculation model that was implemented in 2009 by SUHF.

FRÅGA 48



C3. Economic report for year 2013

FRÅGA 49



d. Specify the distribution of the Government funding 2013 to the strategic research environment.

	Share allocated to co-applicant Higher education institutions	Share allocated to collaborating research institutes	Share allocated to other collaborators
Share (in percent of Government funding)	40	0	0

FRÅGA 50



e. If the share allocated 2013 to the co-applicant Higher education institutions (if any) do not correspond to the one given in the application, please comment.

The share to UU was the same as stated in the application (40%).

FRÅGA 51



f. If collaboration with research institutes was intended in the application; does the share allocated or the amount of money spent on collaborative efforts 2013 correspond to the one given in the application? Please comment.

Not relevant as we do not collaborate with institutes.

FRÅGA 52

**C4. Use of research infrastructure**

This question regards the use of research infrastructure within the environment in 2013. For more information see the document FAQ 2013.

FRÅGA 53



a. Please upload the Excel-file "C4 a Research infrastructure" that was sent out together with the instruction for reporting. The Excel-file should include the name of each infrastructure used within the environment 2013, what type of infrastructure (national/international), the objective for using the infrastructure (what the infrastructure is used for, free text, max 20 words), the extent of usage (alternatives: minor usage, some usage, extensive usage) and the relevance of the infrastructure for the environment (alternatives: for convenience, important, critical).

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 56

**D. RESULTS FROM THE STRATEGIC RESEARCH ENVIRONMENT IN 2013**

FRÅGA 57

**D1 Scientific quality in international comparison**

FRÅGA 58



a. Describe the most important results during 2013, including development of new methods.

1. We have continued and expanded the ambitious EpiHealth Cohort for screening of persons aged 45-75 years of age, both in Uppsala and in Malmö. This is based on our commitment stated in the original research application plan from 2009 and implied costs as well as considerable personal time investment and work, led in Uppsala by Lars Lind and in Malmö by Sölve Elmståhl. This is further described at our web site: http://www.med.lu.se/epidemiology_for_health_epihealth/kohort. So far approximately 12,400 persons have been screened and donated blood samples stored in a biobank at Karolinska Institute (KI) with which we collaborate. The data became available to researchers both within and outside the EpiHealth network during 2013. A full presentation of the EpiHealth cohort design was recently published during 2013 (Lind L, et al. EpiHealth: a large population-based cohort study for investigation of gene-lifestyle interactions in the pathogenesis of common diseases. Eur J Epidemiol. 2013 Feb;28(2):189-97).

2. Among scientific results of highest international relevance, where one or several EpiHealth members were involved, the following are highlighted. We have initiated studies on the role of gene x diet interactions in cardiometabolic disease and found evidence for that genetic variants in some of the type 2 diabetes (T2D) and obesity associated genes interact with dietary intakes (Am J Clin Nutr 2013, J Nutr Res 2013, Genes Nutr 2013) and with physical activity level in a collaborative project between Paul Franks and Marju Orho Melander (Plos Genet 2013). Further, we have used a network-based analysis of genome wide association and found novel candidate genes for lipid and lipoprotein traits (Mol Cell Proteomics 2013). In addition, we have collaborated within the international CHARGE consortium to study interactions between genes that associate with fasting glucose and insulin and several diet variables (J Nutr 2013, Am J Clin Nutr 2013). Together, these studies demonstrate that our genetic make-up modifies how dietary factors affect our susceptibility to cardiometabolic disease and that we need to understand more about such interactions. We have also studied risk factors for liver fat accumulation in non-alcoholic fatty liver disease (NAFLD), in particular the adiponutrin gene (PNPLA3) in collaboration with Prof Yki-Järvinen (Obesity 2013, Diabetologia 2013, J Hepatol 2013). Further, we have identified branched-chain and aromatic amino acids as novel markers of CVD development and as an early link between diabetes and CVD susceptibility (Eur Heart J 2013).

3. New methods have been developed during 2013 and tested for web-based recordings of dietary intakes, and fecal sampling of gastrointestinal bacteria for genetic analyses, microbiota (Marju Orho-Melander, Elisabet Wirfält, Ulrika Ericson, Sophie Hellstrand). This is of great value in a new large-scale study that started in March 2013 - the Malmö Offspring Study (MOS) - when offspring across two generations to index subjects (parents) in the Malmö Diet Cancer cohort will be invited for analyses of family traits of chronic disease conditions (Peter M Nilsson, Olle Melander). So far 400 subjects have been recruited. MOS has been funded for five years by the Swedish Research Council.

Much of the focus of genetic association studies has during 2013 shifted to rare variants and thus genes and other functional units are becoming the focus of analysis. Melander and Orho-Melander have contributed to evaluation of new approaches for performing meta-analysis of rare variant association tests, including burden tests, weighted burden tests, variable-threshold tests and tests that allow variants with opposite effects to be grouped together. Together with collaborators from University of Michigan School of Public Health and Broad Institute, US, they show that such approach retains useful features from single-variant meta-analysis approaches and demonstrate its use in a study of blood lipid levels in ~18,500 individuals genotyped with exome arrays (Nat Genetics 2013).

FRÅGA 59



b. Describe briefly the development since the start and the standing of the strategic research in an international context (state of the art).

The EpiHealth network has strengthened its role as a leading research body in Sweden for advanced analyses in epidemiology and public health ever since 2010. This is reflected in a very wide network with many leading research group leaders, as well as the increasing publication trend based on findings from large-scale population cohorts and biobanks. Some of these cohorts are found in Malmö (Malmö Preventive Project, Malmö Diet Cancer, Malmö Offspring Study and WHILA cohorts), in Lund (MISS-cohort) or in Uppsala (ULSAM, PIVUS and Uppsala Families cohorts). A promising project in Uppsala is up and running for national meta-analyses called Epi-Meta-Health, headed by Johan Sundström. These cohorts are of both national and international importance. At LU a local survey of existing population- or patient-based cohorts indicated that 30 cohorts are available to researchers in epidemiology (Christel Nielsen).

Many of the researchers within the EpiHealth network have been able to attract large research funding for projects. The Research Council of Sweden has also supported the infrastructure of biobanks and population-based cohorts in Malmö to Peter M Nilsson, with substantial funding for the years 2012-2014 (2.5 million SEK).

The EU-Interreg IV project 2011-2013 linking southern Sweden with eastern Denmark is an important project to broaden the basis of EpiHealth researchers. Similar collaborations are planned within other EU consortia (MARE project, etc.).

Within the European Prospective Investigation into Cancer and Nutrition (EPIC) research network, representatives for the Malmö biobanks have played an important role as collaborators with many other European centers, for example related to cancer (Jonas Manjer), diabetes (Peter M Nilsson, Leif Groop), and cardiovascular disease (Olle Melander, Gunnar Engström). Advances in understanding the gene-environmental interaction linked to dietary intakes have been achieved (Marju Orho-Melander) as well as regards interactions linked to physical activity (Paul Franks).

In summary, the strategic research area EpiHealth is now playing a leading role in Sweden, also inviting researchers from other universities (Umeå, Jönköping, Karolinska Institute, Örebro) to join us during conferences and research projects, for example the first National conference on biobanks and large cohorts in Uppsala in October 2013. These researchers are also invited to upload their projects at our web site for the project data-base found there. In an international perspective, the trend is that researchers belonging to EpiHealth have contributed to many large consortia for the description of the genetic architecture of some common risk factors and chronic diseases such as hypertension, hyperlipidaemia, obesity, myocardial infarction, type 2 diabetes and some cancer forms. This could lead to cutting-edge scientific breakthroughs were cohort data and genetic information from Malmö (MPP, MDC, MOS) and Uppsala (ULSAM, PIVUS) have already made large contributions. Our contacts with universities and academic centres are of greatest importance, for example with the Stanford University and the Broad Institute, Boston, USA. One leading representative of EpiHealth (Johan Sundström) spent one year of sabbatical at the George Institute in Australia for advanced epidemiological studies, returning to Uppsala in the summer of 2013.

FRÅGA 60



D1. Scientific quality in an international comparison

FRÅGA 61



c. Please upload the Excel-file "D1 c List of degrees" that was sent out together with the instruction for reporting. The Excel-file should include name of person, gender, type of degree obtained in 2013.

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 62



Please also state the number of obtained doctoral and licentiate degrees (male and female) during 2013, from the strategic research environment. The numbers in the boxes below should be the same as the number of degrees that have been listed in the excel-file D 1 c.

	Female	Male
Number of PhD degrees	11	11

FRÅGA 63



	Female	Male
Number of Lic degrees	0	0

FRÅGA 64



D.1 Scientific quality in an international comparison

FRÅGA 65



d. Publications 2013

Please only list articles published during 2013, not submitted papers or manuscripts. Please upload the Excel-file "D1 d i-iii List of publications" that was sent out together with the instruction for reporting. All sheets in the excel-file should be filled in with information on the following areas before uploading.

i. Scientific peer-reviewed publications in refereed journals. Including: Authors, Title, Journal, Volume, Issue, Pages (x-y) and Year of Publication.

ii. Peer-reviewed conference papers.

iii. Other scientific publications (books, theses etc).

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 66



Please also state the number of publications in 2013 from the strategic research environment. The number should be the same as the number of publications that has been listed in the excel-file D 1 d i-iii.

	Number of scientific peer-reviewed publications	Number of peer-reviewed conference papers	Number of other scientific publications (books, thesis etc.)
	819	3	47

FRÅGA 67



D.1 Scientific quality in an international comparison

FRÅGA 68



e. Conferences, research visits and visiting researchers in 2013

Please upload the Excel-file "D1 e i-iii List of conferences etc" that was sent out together with the instruction for reporting. All sheets in the excel-file should be filled in with information on the following areas before uploading:

i Major conferences and seminars arranged.

ii Visiting researchers (not included in C2a) and duration (more than 2 weeks). (Name, position, home university etc).

iii Research visits by personnel in the strategic research environment (included in C2 a) and duration (more than 2 weeks). (Name, position, host university, department etc.).

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 69



Please also state the number of conferences, visiting researchers and research visits during 2013. The number should be the same as the number that has been listed in the excel-file D1 e i-iii.

	Number of conferences	Number of visiting researchers	Number of research visits
	11	8	13

FRÅGA 70



D.2 Strategic importance for the business sector and society

It needs to be stressed that there is a significant time-lag between the production of results and their impact on the business sector and society.

FRÅGA 72



b. Innovation impact in 2013

Some research has an impact on industry and society e.g. concerning improved methods for treatment, improved effectiveness etc.

i. Please state names and business registration numbers (only for Swedish organizations) of the organizations that during 2013 have utilized results and competence from the strategic research environment in the development of improved methods etc.

Start by specifying the number organizations utilizing results and competence from the strategic research environment in the development of improved methods etc. Click on OK and the specified number of rows will be created. Fill in the created table by stating name of organization, business registration number and comments (if any).

Number of organizations

Name of organization	Business registration number	Comments (e.g. type of innovation)
National Board on Health and Welfare	2021000555	Medical Birth Register
AstraZeneca Ltd.	5560117482	Utilization of epidemiological data from the MDC cohort

FRÅGA 73



D2. Strategic importance for the business sector and society

FRÅGA 74



b. Innovation impact in 2013 (cont.)

Some research has an impact on industry and society e.g. through supporting the development of new goods, services or processes.

ii. Please state names and business registration numbers (only for Swedish organizations) of the organizations that during 2013 have utilized results and competence from the strategic research environment in the development of goods, services or processes.

Start by specifying the number of organizations utilizing results and competence from the strategic research environment in the development of goods, services or processes. Click on OK and the specified number of rows will be created. Fill in the created table by stating name of organization, business registration number and comments (if any).

Number of organizations

Name of organization	Business registration number	Comments (e.g. type of innovation)
National Board on Health and Welfare	20211000555	Support of the Medical Birth Register
Astrazeneca Ltd.	5560117482	Epidemiological studies collaboration

FRÅGA 75



D2. Strategic importance for the business sector and society

FRÅGA 76



b. Innovation impact in 2013 (cont.)

iii. Have new or improved products/groups of products such as services or goods been utilized by public organizations during 2013?

Yes

No

FRÅGA 77



iv. Have new or improved products/groups of products such as services or goods been introduced in the market during 2013?

Yes

No

FRÅGA 78



D2.Strategic importance for the business sector and society

FRÅGA 79



b. Innovation impact in 2013 (cont.)

v. Were new private or public companies established during 2013 as a consequence of research and activities related to the strategic research environment?

Yes

No

FRÅGA 80



D2.Strategic importance for the business sector and society

FRÅGA 81



b. Innovation impact in 2013 (cont.)

vi. If new private or public companies were established during 2013 ("yes" on previous question), please list names and business registration numbers of the new companies in 2013.

Start by specifying the number of new private or public companies. Click on OK and the specified number of rows will be created. Fill in the created table by stating name of organization, business registration number (only for Swedish organizations) and comments (if any).

Number of new companies

Name of organization	Business registration number	Comments

FRÅGA 82



D2. Strategic importance for the business sector and society

FRÅGA 83



c. Immaterial property rights in 2013

i. Has there been any application for immaterial property rights (IPR) during 2013? (Immaterial property rights consist of patents, design patents and trade mark protection).

Yes

No

FRÅGA 84



D2. Strategic importance for the business sector and society

FRÅGA 85



c. Immaterial property rights in 2013

ii. If there has been any applications for immaterial property rights (IPR) during 2013 ("yes" on previous question), please list the applications below. Immaterial property rights consist of patents, design patents and trade mark protection.

Start by specifying the number of applications for immaterial property rights (IPR) during 2013. Click on OK and the specified number of rows will be created. Fill in the created table by stating patent/ID-number and type of IPR.

Number of immaterial property rights

Patent/ID-number

FRÅGA 86



D2. Strategic importance for the business sector and society

FRÅGA 87



d. Mobility in 2013

Please upload the Excel-file "D2 d i-iii Mobility" that was sent out together with the instruction for reporting. All sheets in the excel-file should be filled in before uploading. The Excel-file should include name of person, gender, name of organization etc in the following areas:

i. List of persons from industry who have been employed or engaged within the framework of the strategic research environment during 2013. (By employed we mean at least 10 percent of a full time employment. By engaged we mean e.g. in kind contributions. By industry we mean privately and publicly owned companies active in a market.)

ii. List of persons from organizations outside of academia other than industry, who have been employed or engaged within the framework of the strategic research environment during 2013. (By employed we mean at least 10 percent of a full time employment. By engaged we mean e.g. in kind contributions.)

iii. List of researchers from the strategic research environment who have been employed or engaged by industry or industrial research institutes during 2013. (By employed we mean at least 10 percent of a full time employment. By engaged we mean e.g. in kind contributions.)

Antal bifogade filer: 1. Filen/filerna kan ses i resultatöversikten (webb).

FRÅGA 88



Please also state i) the number of persons from industry, ii) the number of persons from organizations outside of academia other than industry, and iii) the number of researchers from the research environment who have been employed or engaged by industry/industrial research institutes during 2013. The number should be the same as the number of persons that has been listed in the Excel-file D 2 d i-iii.

	Number of persons from industry	Number of persons from organizations outside of academia other than industry	Number of researchers from the research environment who have been employed or engaged by industry/industrial research institutes
	1	3	2

FRÅGA 89



D2. Strategic importance for the business sector and society

FRÅGA 90



e. Education in 2013

i. Has the strategic research environment carried out contract education on behalf of external clients during 2013?

Yes

No

FRÅGA 91



D2.Strategic importance for the business sector and society

FRÅGA 92



e. Education in 2013

ii. If the strategic research environment has carried out contract education during 2013, please list clients on whose behalf the strategic research environment has carried out contract education.

Start by specifying the number of clients. Click on OK and the specified number of rows will be created. Fill in the created table by stating name of external client, subject area of contract education, number of participants of the contract education and extent of contract education (days).

Number of clients

Name of external client	Subject area of contract education

FRÅGA 93



D2. Strategic importance for the business sector and society

FRÅGA 94



f. Policy impact in 2013

Some research has impact in the public realm, e.g. through supporting government in setting policy or standards. Please, list any such impacts during 2013.

Start by specifying the number organizations where these impacts have taken place. Click on OK and the specified number of rows will be created. Fill in the created table by stating name of organization, area of activity, role and kind of impact.

Number of organizations

Name of organization	Area of activity	Role	Kind of impact
National Board on Health and Welfare	Guidelines for deliveries	Epidemiological analyses	Useful for county councils
Region Skåne County Council	Environmental surveillance	Epidemiological analyses	Useful for planning

FRÅGA 95



D2. Strategic importance for the business sector and society

FRÅGA 96



g. Public impact in 2013

Please list public impacts through for instance media, textbooks, conferences, popular science presentations and policy lobbying etc during 2013.

Start by specifying the number of activities. Click on OK and the specified number of rows will be created. Fill in the created table by stating type of activity, purpose of activity, name of activity and reference (e.g. <http://www.xxx.yy>)

Number of activities

10

Type of activity	Purpose of activity	Name of activity	Reference
Research Day at Faculty of Medicine, LU	Popularization of science	Joint problems in medicine	http://www.vetenskaphalsa.se/leder-ror-oss-alla-om-artros-och-ledvark/
Advertisement	Promotion of EpiHealth	Epidemiological research	http://doc.mediaplanet.com/all_projects/13633.pdf
Advertisement	Promotion of EpiHealth	Epidemiological research	Innovation och forskning Media Planet Juni 2013
Advertisement	Promotion of EpiHealth	Epidemiological research	Life Science Media Planet September 2013
Advertisement	Promotion of EpiHealth	Befolkningsstudier underlättar utveckling av nya läkemedel	Forskning i framkant Media Planet juni 2013
Advertisement	Promotion of EpiHealth	Epidemiological research	Hjärta och Käril Media Planet maj 2013
Advertisement	Promotion of EU Interreg and EpiHealth	Population-based cardiovascular studies	http://www.med.lu.se/epidemiology_for_health_epihealth/euinterreg
Web publication	Information to researchers	EpiHealth öppnar sin databank för forskning	http://www.uu.se/press/nyheter/artikel/?id=2859&area=2,10,16&typ=artikel&na=&lang=sv
Symposium	Information within Medicon Village	Epi Scania Symposium 2013	http://www.mediconvillage.se/sv/events/epi-scania-symposium-2013
News information	Media coverage	Kontroversiell kartläggning	http://www.fokus.se/2013/10/kontroversiell-kartlaggning/

FRÅGA 97



D3. Other comments

FRÅGA 98



Other comments

EpiHealth has grown substantially during 2013, both in numbers of active researchers and projects, but also in building research infrastructures. This concerns i.e. developing our EpiHealth screening cohort and the recruitment of new staff and members of the network. We have further developed two new research areas of high priority to EpiHealth, nutritional epidemiology and reproductive epidemiology. One related network at LU is the "Centre of Excellence for Reproduction and Perinatal Sciences" (CERPS) now planning for a Berzelius symposium (nr. 89) in April 2014. Also UU researchers will participate.

The important method to analyse causality in epidemiology called "Mendelian Randomization" has been further developed by a publication in "Lakartidningen" during 2013 and a lecture at the Gothenburg University by Peter M Nilsson.

The important international role for Sweden in advanced epidemiology rests on the unique resources available in this country, for example the personal 10-digit identification (ID), a number of national registers of highest quality and the willingness of many citizens to support screening activities and research projects, including their voluntary donation of blood samples to modern biobanks for research on biomarkers and genetic markers of disease conditions. This makes it an ethical imperative that Sweden contributes to international research in order to promote healthy conditions for individuals and populations based on new understanding. During 2013, Peter M Nilsson, was invited to participate as an expert on epidemiological research linked to biobanks, to the so called "Bengt Westerberg committee", appointed by the Swedish government and planning for a new legislation in Sweden to regulate epidemiological research. This is one way EpiHealth and its representatives can make a contribution on the national level for new legislation.

The three main areas of activities in EpiHealth will remain to be: 1. Basic epidemiology (genetic studies, gene-environment studies, epigenetics), 2. Research infrastructures (biobanks, biostatistics, bioinformatics), and 3. Clinical epidemiology (studies based on data from patients, health economy, serology studies for epidemics of infectious disease, supervision of health hazards in the environment and present in different occupations).