

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 2012.**

Based on our initial application (2009) the main priorities set in 2012 were the following for the strategic research area Epidemiology for Health (EpiHealth):

- to further develop an infrastructure for EpiHealth linking Lund University (LU) and Uppsala University (UU).
- to promote excellence in epidemiological research, on a regional, national and international scale
- to expand our screening project that started in 2011, 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**

We have worked hard to continue and expand the EpiHealth Cohort, based on screening activities in Uppsala (started in 2011) and Lund/Malmö (started in January 2012), now reaching almost 7000 screened subjects. Furthermore we have aimed to strengthen the research infrastructure by new recruitments of co-workers and academic specialists,

**ORGANIZATION**

One important priority has been 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 or international scientific symposia, meetings and conferences, and a number of these have been successfully accomplished.

**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.

## FRÅGA 4

**Q2. Please describe the major activities within the environment in 2012.****RESEARCH AND RESEARCH ENVIRONMENT**

We have during 2012 continued the screening project for the EpiHealth population-based cohort in Uppsala (six nurses have performed screening examinations at our screening site) and also started a new screening centre in Malmö (three nurses doing the same) in early 2012. A number of persons have been screened and blood samples have been sent for biobanking in collaboration with the biobank belonging to the Karolinska Institute, Stockholm. This is done in collaboration with BBMRI.se, which has meant substantial cost reductions. In the spring of 2013 the collected data and biobank samples will for the first time be available for use in research projects based on applications from researchers both within and outside the EpiHealth network (open access). A new professor of Medical epidemiology (Gunnar Engström), fully financed by EpiHealth, and a new Assistant Professor ("lektor") in Reproductive epidemiology (Karin Källén), partly financed by EpiHealth, have started in 2012. We also started to collect information for a register or library of all cohorts useful for epidemiological research within the LU area (Christel Nielsen), to be followed by similar approach at UU.

**ORGANIZATION**

We have further developed an internal structure for leadership (with a Steering Committee and an Executive Committee) and information (web site: [www.med.lu.se/epihealth](http://www.med.lu.se/epihealth)) with focus on leadership, administrative training and development. An overarching aim is to create a more 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 organised the EpiHealth network.

**EDUCATION AND DISSEMINATION**

We have been organizing both local, national and Nordic meetings, for example a symposium on Reproductive epidemiology i Malmö (29-30th March) and the second symposium on Nutritional epidemiology in Lund (22-23rd November), the annual EpiHealth network conference held at Håckeberga castle outside Lund (14-15th May), a second conference for research-group leaders and PhD-students at Lund University held at Örenäs castle outside Lund (8-9th November). The annual Advanced course in epidemiological methods planned to be held in Malmö on "Early life influences on health" was postponed from November to 14-15th January 2013. A Nordic PhD course on cardiovascular epidemiology was held in Ystad on 10-12th September with participation of 38 research students and a faculty of 25 teachers from the Nordic countries. The course ended with a joint symposium on cardiovascular epidemiology and prevention with the Swedish-Danish EU Interreg IV project that EpiHealth is involved in. For further information: [www.med.lu.se/epihealth](http://www.med.lu.se/epihealth)

**RESEARCH COLLABORATIONS**

A. On the local level, contacts with other strategic research areas have been 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 new project has started to investigate protective factors against complications in long-standing type 1 diabetes, the PROLONG study (Valeriya Lyssenko), which has expanded in 2012 and now includes 10 hospital regions. B. 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, and with BBMRI.se - a national infrastructure for development of modern biobanking with European contacts. In December 2012 a contract was signed between LU and Karolinska Institute (KI) for establishing a hub ("nod") of BBMRI.se in southern Sweden to facilitate biobanking of research materials, in collaboration with the biobank structure of the county council (Region Skåne). Similar activities are ongoing in the Uppsala Biobank structure. 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). C. 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 (Själland) in a project dedicated to cardiovascular epidemiology in populations and cohorts of patients for the period 2011-2013. 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 2012.**

**RESEARCH AND RESEARCH ENVIRONMENT**

One of our major results during 2012, has been the continuation and widening of the EpiHealth screening cohort project in Uppsala, and starting in Malmö in January, which has so far recruited 7000 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 with a baseline initial examination in 1995-1997. The data and the biobank is now handled by Centrum för Primärvårdsforskning (CPF) in Malmö with a steering committee consisting of three senior EpiHealth-researchers (Jan Sundquist, Kristina Sundquist, and Peter M Nilsson). Ethical permission for further analyses was obtained during 2012. Under leadership of Olle Melander (LU), around 12,000 individuals from the Malmö Diet and Cancer study have during 2012 been genotyped "genome wide" for around 1,000,000 genetic markers (GWAS and exome chip). 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 prostata cancer cases and Marju Orho-Melander (LU) for incident type 2 diabetes cases. A number of important scientific papers have been published during 2012 in high-impact journals.

**ORGANIZATION**

Research administrator Camilla Key has been employed fulltime during 2012. She is also web-master for our web site ([www.med.lu.se/epihealth](http://www.med.lu.se/epihealth)) collecting all new informations and reports from activities. 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 (93 and 92) 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 half-day meeting in person with the steering committee on May 15th. Protocols are being kept for documentation.

**EDUCATION AND DISSEMINATION**

Our successful symposia, conferences and meetings during 2012 have been well attended by numerous participants. The major international symposium organized during 2012 by EpiHealth was the symposium on "Reproductive epidemiology in a lifecourse perspective" in Malmö in March, with a broad attendance of around 70 delegates from four countries.

**RESEARCH COLLABORATIONS**

For our annual conference, EpiHealth invited delegates from Göteborg University to attend with the intention to widen the network also to individuals and universities not primarily involved in EpiHealth. Professor Annika Rosengren, Göteborg, described the epidemiological work at that university and possibilities for collaboration were discussed. 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 ongoing EU Interreg IV project with Danish researchers (2011-2013) has resulted in extensive contacts and a cardiovascular symposium organised in Malmö in September, attended by 40 delegates from the previous Nordic PhD course held in Ystad in September. We have also organised regular Skype-conferences and meetings in Malmö and Copenhagen. A separate web site has been created ([www.skarf.eu](http://www.skarf.eu)). More information is available at our own web site [www.med.lu.se/epihealth](http://www.med.lu.se/epihealth). We have started collaboration with Karolinska Institute (KI), Stockholm, for biobank routines, waiting for the set up of the BBMRI.se hub in southern Sweden where EpiHealth will play an important role as the representative of LU. A contract between LU and KI was signed by the Vice-Chancellor of LU in December 2012. 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. The collaboration with the Strategic Research Environment eSSSENCE-LU for a joint project on improving technical surveillance during delivery was supported by a grant of 1.6 million SEK from eSSSENCE during three years (Karin Källén representing EpiHealth). 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 2013 and 2014.

## FRÅGA 6



**A. GENERAL QUESTIONS**

**Only changes during 2012 are to be stated.**

## FRÅGA 7

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

The strategic research initiatives, including EpiHealth, have helped highlight cross-disciplinary 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. A corresponding program tailored to the next generation research leaders was launched last year and comprises ninety participants, four of them belonging to EpiHealth.

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. The strategic research initiatives 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, for example a new Professorship of Medical epidemiology, fully financed by EpiHealth.

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 in 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 (10 million SEK) to EpiHealth for 2012, in total 40% has been allocated to the co-applicant Higher education institution Uppsala University in a similar 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 Steering Committee (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 million SEK allocated to use within the 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 2012 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 and, apart from common conferences and courses in epidemiology/statistics, has launched three major joint research projects linking LU and UU. This has strengthened our collaborations and developed epidemiology at both universities.

A. The first project, Epi-Meta-Health, led from UU, is an effort to merge databases from existing cohorts in Malmö/Lund and Uppsala for replication studies and for performing epidemiological studies regarding less common diseases where large cohort studies are needed. This project will probably, through work package 2 (WP2) in BBMRI.se, be the start of a national-wide effort to perform meta-analysis of most Swedish cohorts offering longitudinal data. In 2012 data have been collected from several cohorts.

B. The second project is to continue our joint cohort screening study, the EpiHealth Cohort. The plan is to enroll up to 300,000 Swedes in the age-groups 45 to 75 years with the aim to study the interplay between genes and life-style factors behind the development of common disorders seen in the elderly, such as myocardial infarction, stroke, bone fractures, dementia, chronic obstructive pulmonary disease, cancer, arthritis etc. Data on life-style exposures are collected via a web-based questionnaire and serum/plasma/DNA will be biobanked following a visit to a test centre where also physiological measures are taken. Future morbidity and mortality rates will be followed by use of national Swedish registers. The study has started at two similar centres (Uppsala and Malmö), but will pending on further granting include also other centers and geographical parts of Sweden. This project is lead by Lars Lind, UU, in collaboration with Sölve Elmståhl from the LU, being responsible for the test center in Malmö. First data delivery is planned for Spring 2013.

C. A collaborative project has started to analyse the impact of statin treatment on risk of fractures in elderly subjects from population-based cohorts. This project involves several researchers at both universities (Karl Michaelsson, UU, and Martin Englund and Stefan Lohmander, LU).

The creation of these three EpiHealth-based projects has provided a basis for collaboration of scientists across several institutions in Uppsala and thus influenced research structures at UU. The EpiHealth Cohort is also a major player in the Uppsala BioBank and 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 within BBMRI.se, a national infrastructure for excellence in biobanking, supported by the Research Council of Sweden. In addition, the EpiHealth Cohort will be a major player for the SciLife Lab, linking not only UU, KI and the Stockholm university but also promoted to be a national institute (appointed in 2012) in the future when DNA and serum/plasma samples will be analyzed by use of high-throughput techniques. The EpiHealth cohort also connects to the Uppsala Clinical Research Center (UCR), headed by Karl Michaelsson, which provides a project leader and data management skills. The Uppsala University has developed its excellence in epidemiology based on a number of research projects and published academic theses as a number of excellent papers in 2012, listed separately.

## 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 2011 Lund University conducted an internal assurance process of its strategic research initiatives as part and parcel of the project "Fronesis/crossdisciplinary research and education". This process included a visit by a group of "critical friends" (Craig Heller, Stanford University, Anne Cutler, Max-Planck Institute for Psycholinguistics, and David Price, University College of London). The group made site visits and interviews, held a concluding workshop and produced a report. They write:

"We bring to this review process the firm conviction that cross-disciplinary and interdisciplinary research and education must be a major feature of any university that aspires to be world class. Many of the greatest challenges and opportunities that we face cannot be addressed simply within the confines of the classical disciplines. Progress depends on combining the expertise of individuals coming from diverse disciplines, and thus the modern university has to facilitate these cross disciplinary connections and collaborations if it is to remain at the cutting edge of human knowledge and innovation. The funding that supports the Strategic Research Areas is an effective catalyst for cross and interdisciplinary initiatives at Lund. That benefit has been realized clearly in all of the SRA projects we had the pleasure of visiting."

During 2012 the Assistant Vice-chancellor of research has conducted follow-up and planning talks with all Strategic Research Areas, for EpiHealth in August 2012, focusing on long-term development. Also, an international seminar on the same theme was arranged in May 2012. Based on these activities, a report will be presented to the Vice-chancellor and an action plan for the Strategic Research Areas will be launched in 2013.

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.

LU has organised a number of information meetings with the leadership of the strategic research area environments during 2012, attended also by the Coordinator (Peter Nilsson) and Vice Coordinator (Marju Orho-Melander) of EpiHealth.

## FRÅGA 12

**B. DESIGN**

## FRÅGA 13

**B1. Strategic research programme**

Only changes during 2012 are to be stated.

## FRÅGA 14

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

## MAJOR CHALLENGES in 2012

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 very limited financial resources on the other hand. During 2012 only 10 million SEK was allocated to EpiHealth with 60% funding for LU and 40% for UU. This has caused some new constraints for our planned activities, i.e. the rate of expansion of our screening activities and our infrastructure.

2. Another 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 need integration and contacts with other researchers in the network.

3. We have followed the national debate on LifeGene as well as the announcement of a new law for population-based studies, especially LifeGene, prepared in 2012-2013 but to become active in 2014, at more or less the same time as a new law for biobanking is planned for. This has posed challenges during 2012, including continuous debates also with our critics, for example at a symposium on population-based epidemiological cohort studies held at the annual medical meeting ("Läkarstämman") in Stockholm on November 29th.

## 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, amounting to 500,000 SEK for the year 2012. In addition, he has received a financial support of 3 million SEK to EpiHealth from the Faculty of Medicine, UU, during 2012 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).

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 (i.e. a symposium on "Nutritional epidemiology" held in Lund, but organised from Malmö in November). Another example was the international symposium on "Reproductive epidemiology in a life course perspective" (March) that linked researchers from a number of universities, including UU.

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 on December 19th 2011, something that might eventually also hurt the activities of the EpiHealth cohort screening activities. However, so far 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 2012.

## FRÅGA 16



**c. Are there any major changes in the research programme introduced in 2012? 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 2012, 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 submitted to the Research Council in 2009. According to this we have started all activities that were once described in the strategic plan. However, the process of announcing and recruiting for a new position as Professor of Medical epidemiology at Lund University has taken longer time than expected. It was announced in the Spring of 2011, but final decisions were taken in 2012 leading to the start on December 1st, 2012.

The start of the screening project in Malmö was set up independently in January 2012 and in a similar way that is already ongoing in Uppsala. We have also continued local negotiations with representatives from Region Skåne (research directors Hannie Lundgren and Ulf Malmqvist) to find other ways for collaboration, for example to use a common medical resource (a physician) for follow-up of screening results outside the normal range. A sum of 3 million SEK/year for five years has been allocated by Region Skåne, via its collaborative board (LSUS) with the Faculty of Medicine at LU, to support the collaboration between the EpiHealth cohort and the so called BIG-3 screening project headed by Region Skåne. This is promising for the future.

During 2012 we have also tried to focus on two new 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.

Negotiations to set up a local node (hub) for biobanking in Malmö of a national biobank infrastructure (BBMRI.se) continued all through 2012, based on contacts between the Deans of medical faculties in Sweden. From Vice-Chancellor Per Eriksson, LU, a financial support of 1.5 million SEK during a 3-year period has been allocated to the node of BBMRI.se when a final contract has been signed. This was finally achieved on December 22nd, 2012, and represents a major change in infrastructure from the start of EpiHealth benefitting our research programme.

## FRÅGA 17



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

**Only changes during 2012 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.

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 taken seriously. Many of our researchers have been interviewed by local and national media during 2012.

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 2012, but at LU 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 2012 the theme was "Healthy fetus - A healthy adult" with a focus on reproduction, early life factors and epidemiology. Two representatives from EpiHealth (Karin Källén and Peter M Nilsson) actively took part in this event at two separate sessions on 6-7th November.

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 (e.g. on the blog "SFAM-Ordbyte" for general practitioners where critical arguments have been posted directed against population-based screening activities). We have also used our own web site ([www.med.lu.se/epihealth](http://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.

Our contacts with industry have developed, most importantly with Astrazeneca Ltd. for joint projects, for example the Malmö Osteo-Arthritis (MOA) project, in collaboration with Gunnar Engström and Maria Danielsson (Astrazeneca), and Stefan Lohmander and Peter M Nilsson (LU). This has led to the generous donation of research materials (x-ray uptakes from MOA) from Astrazeneca AB to the Data centre for population-based studies in Malmö. Analyses started in 2012..

## FRÅGA 20



**c. Have there been any major changes in the planned activities during 2012? Please, describe and motivate. This information is important in order to monitor the development of the strategic research environment.**

We continue our 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. The new Proposition on Research that was published by the Swedish government in October 2012 means a strong support for biobank-based life science research activities involving population-based cohorts.

Two new focus areas for EpiHealth have emerged during 2012; 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 Giewercman). Also researchers in Uppsala belong to these networks, for example Liisa Byberg in reproductive epidemiology and Ulf Riserus in nutritional epidemiology.

We hope that the Research Council of Sweden will further support a process leading to new political decisions in 2013 so that screening activities can continue, both for LifeGene and for EpiHealth. Similar national projects are ongoing abroad, for example in the UK (<http://www.ukbiobank.ac.uk/>) and in Germany (<http://www.biobanken.de/BiobankenRegisterEN/Registry.aspx>).

## FRÅGA 21

**B3. Collaboration/strategic alliance partners in 2012**

## FRÅGA 22



Please upload the excel file B 3 Collaboration/strategic alliance partners, in which you have listed the collaboration/strategic alliance partners in 2012, 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 2012 are to be stated.

## FRÅGA 24

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

Our strategy is 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 2012 and thereby strengthen our infrastructure, at the same time also aiming for gender equity. Of special relevance for EpiHealth is the strategy to recruit academic experts in various fields of advance epidemiology, often based on handling of data from biobanks. For example, a Professor in Medical epidemiology (Gunnar Engström) at LU was recruited and started in late 2012. This is a substantial addition of academic competence to the research network at LU as this position will enable support to ongoing and planned projects.

Furthermore, an Assistant Professor in Reproductive epidemiology (Karin Källén) has strengthened the ambition of EpiHealth to promote reproductive epidemiology and research into the early life influences of adult health, already ongoing within the SIMSAM-Early life (Anna Rignell-Hybom, LU) research network to which Karin Källén belongs.

At UU we have received a new important researcher to the EpiHealth network: Erik Ingelsson, Professor of Cardiovascular Genetics, previously at the Karolinska Institute. He is already collaborating with LU researchers.

## 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, 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 four young researchers in 2012 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 2012 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 8-9 November 2012 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 2013.

Four young researchers participate in the Lund University programme for future academic leaders (Karin Källén, Valeriya Lyssenko, Jonas Manjer and Martin Englund). This programme will formally end in late 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) has held a salaried research position as senior advisor in epidemiology during most of 2012.

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 the year 2012, and this is according to our mobility plan. Johan Sundström from UU has 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 is still leading the Meta-Health project linking researchers at UU and LU.

## FRÅGA 27



**B5. Education**

**Only changes during 2012 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 started a discussion on how to promote teaching and coordinate activities. Two representatives of PhD-research students have previously belonged to the Steering Committee of EpiHealth (Giuseppe Giordano, LU, and Niklas Ericsson, UU), but as they have both finished their term after defending their theses in 2012 we are seeking replacements.

Some undergraduate students are tutored to write papers in epidemiology by members of the EpiHealth network, for example on early life factors and birth weight in developing countries such as Kenya, or tropical disease in Argentine.

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 2012 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 2012, 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 of 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 and was also high-lighted at the second EpiHealth Symposium on Nutritional Epidemiology, held in Lund on 21-23 November 2012, where 65 academic- and food-industry researchers as well as representants from the Antidiabetic Food Center (AFC) in Lund attended. Importantly, scientific collaboration between EpiHealth scientists and AFC 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 Björk) have been initiated and will be performed in 2013 utilizing epidemiological research results to design more effective diet interventions based on individual genetic background (personalized medicine). Leading researchers from UU with collaboration with LU researchers were also present (Ulf Riserus, Rikard Landeberg).

2. An important societal problem is the increasing frequency of obesity leading to many deleterious health consequences. This has been addressed by new observational studies and analyses in 2012 focusing on gene-environmental interactions of importance in obesity and risk of type 2 diabetes. Several researchers associated with EpiHealth have been involved in this kind of research, for example Marju Orho-Melander and Paul Franks, both members of the Steering Committee of EpiHealth. Associated with the increasing trends of obesity and type 2 diabetes, another leading focus area has been cardiovascular disease (CVD) genetics and gene-environment interactions in CVD (Olle Melander, Marju Orho-Melander, Erik Ingelsson). This has been a very successful research area within EpiHealth. The broad strategic research environment EpiHealth has additionally facilitated collaboration in 2012 between social/community medicine epidemiologists (Jan Sundquist, Kristina Sundqvist) and genetic epidemiologists (Olle Melander, Marju Orho-Melander, Paul Franks). One result of this is that collaborative project grant applications have been submitted to the NIH.

3. Another societal problem is to safeguard healthy pregnancies and early life circumstances. This is one of the main focus areas of EpiHealth today. During 2012 we have organised a big international conference on Reproductive Epidemiology in collaboration with WHO-Copenhagen that took place in Malmö on March 29-30, 2012. In the Organisation Committee some leading researchers were active, for example Peter M Nilsson, LU, Karel Marsal, LU, Liisa Byberg, UU, and Karin Källén, LU. This is a way to show what register-based research can provide new knowledge, something that has been ongoing since several years in collaboration between Karin Källén and The Medical Birth Register at the National Board on Health and Welfare. In Uppsala, Liisa Byberg has developed the data-base called "Uppsala Family Study" with extensive data from several generations.

## FRÅGA 32

**C. PRECONDITIONS**

## FRÅGA 33

**C1. Organization and leadership of the strategic research environment in 2012**

## 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 essentially the same in 2012 as was reported for 2011. 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](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
- Jan Sundquist, LU, PI
- 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
- Giuseppe Giordano, LU, PhD-student representative (defended thesis in 2012, will therefore be replaced)
- 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
- Johan Sundström, UU, UCR
- Niklas Eriksson, UU, PhD-student representative (defended thesis in 2012, will therefore be replaced)

The three main areas of activities in EpiHealth remain to be:

1. Basic epidemiology (genetic studies, gene-environment studies, epigenetics)
2. Research infrastructures (biobanks, biostatistics, bioinformatics)
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)

## 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 2012.**

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 (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](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 May 15th 2012 outside Lund.

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, Giuseppe Giordano, Karin Källén, Anders Bjartell, and Jan Sundquist. 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 four 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. The general goal is to strengthen the integration of research linking LU and UU.

## 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 2012**

## 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 2012.

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 2012. 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	92	93

## FRÅGA 41



b. If the principal investigators differ from 2011, please comment.

The principal investigators of EpiHealth are the same as in 2011, 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, Jan Sundquist.

UU: Lars Lind

## FRÅGA 42



C3. Economic report for year 2012

## FRÅGA 43



a. Specify the income during 2012 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	10000000	32068250	18000000	0	0	43736750

## 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 2012:

FAS: 12.59%

VR: 27.00%

SSF: 10.53%

Region Skåne (county council): 8.47%

EU: 16.48%

Comment: The EU-Interreg IV project "Cardiovascular Prevention and Epidemiology around Öresund" during 2011-2013 has contributed to the EpiHealth research network and salaries of staff at the Data management unit in Malmö.

## FRÅGA 45



b. Specify how the strategic research funding from the Government in 2012 (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	4075799	2369001	5986	270000	935063

## 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 2012

## FRÅGA 49



d. Specify the distribution of the Government funding 2012 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 2012 to the co-applicant Higher education institutions (if any) do not correspond to the one given in the application, please comment.

The share to the Uppsala university is the same (40%) as stated in the application.

## 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 2012 correspond to the one given in the application? Please comment.

No collaboration with research institutes was planned for.

## FRÅGA 52

**C4. Use of research infrastructure**

This question regards the use of research infrastructure within the environment in 2012. For more information see the document FAQ 2012.

## 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 2012, 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 2012**

## FRÅGA 57

**D1 Scientific quality in international comparison**

## FRÅGA 58



**a. Describe the most important results during 2012, including development of new methods.**

1. We have started the ambitious EpiHealth Cohort for screening of persons aged 45-75 years of age, first in Uppsala in April 2011, and then in Malmö in January 2012. This is based on our commitment stated in the original research application plan from 2009 and has costed us a considerable amount of money and personal 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](http://www.med.lu.se/epidemiology_for_health_epihealth/kohort). So far approximately 7000 persons have been screened and donated blood samples stored in a biobank at Karolinska Institute (KI) with which we collaborate. We expect that the data will become available to researchers both within and outside the EpiHealth network in late Spring 2013.

2. Among scientific results of highest international relevance, where one or several EpiHealth members were involved, has been the contribution of biobank data (DNA) and phenotypic data from the Malmö cohorts (MPP, MDC) as well as Uppsala (PIVUS) and Umeå (Västerbotten Project) for an international collaboration to describe the family and genetic background of type 2 diabetes within EPIC Interact (Peter M Nilsson, Leif Groop, Paul Franks), as published in Diabetologia.

Other outstanding publications have focused on novel biomarkers for type 2 diabetes, cardiovascular disease and -mortality as well as breast cancer in JAMA (Olle Melander, Marju Orho-Melander) and gene-diet-interactions in lipid disorders, obesity and type 2 diabetes (Orho-Melander group and Wirfält group).

3. New methods have been developed during 2012 and tested for web-based recordings of dietary intakes (Marju Orho-Melander, Elisabet Wirfält, Ulrika Ericson, Sophie Hellstrand). This is of great value in a new large-scale study under planning - 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). MOS has been planned for in 2012 with start of pilot study scheduled for February 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. 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, and WHILA cohorts), in Lund (MISS-cohort) or in Uppsala (ULSAM, PIVUS and Uppsala Families cohorts). Data from the very large Värmland Survey in 1962-1965 (n= 97,000) has started to be used for studies in cardiovascular epidemiology (Payam Khallili) in collaboration with the Örebro University, as well as contributing to a project in Uppsala for national meta-analyses called Epi-Meta-Health, headed by Johan Sundström. These cohorts are of both national and international importance.

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).

A new population-based screening project for patients with diabetes (DOLCE), with an added biobank, has started in the city of Chernigiv, northern Ukraine, a high-risk area for cardiovascular complications of diabetes (Valeriya Lyssenko), with some support from other researchers in EpiHealth (Peter M Nilsson). The same researchers lead a new national epidemiological project (PROLONG) to investigate why patients with longstanding type 1 diabetes for more than 30 years seem to escape serious major complications from the cardiovascular or renal systems. This project is focused on protective factors, including the role of protective genetics.

The EU-Interreg IV project that started in 2011 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 and applications have been submitted during 2012 (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). 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 network EpiHealth is now taking up a leading role in Sweden, also inviting researchers from other universities (Umeå, Jönköping, Karolinska Institute, Örebro) to join us during conferences and research projects. These researchers are also invited to upload their projects at our web site for the project data-base found there. By the end of 2012 one leading researcher from Karolinska, Erik Ingelsson, moved to Uppsala and joined the EpiHealth research network. He has access to extensive materials and actively participated in a number of national and international projects.

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) 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. Currently, one leading representative of EpiHealth (Johan Sundström) is spending one year of sabbatical at the George Institute in Australia for advanced epidemiological studies.

## 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 2012.

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 2012, 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	16	9

## FRÅGA 63



	Female	Male
Number of Lic degrees	0	0

## FRÅGA 64



D.1 Scientific quality in an international comparison

## FRÅGA 65



**d. Publications 2012**

Please only list articles published during 2012, 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 2012 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.)
	802	1	51

## FRÅGA 67



D.1 Scientific quality in an international comparison

## FRÅGA 68



e. Conferences, research visits and visiting researchers in 2012

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 2012. 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
	16	10	11

## 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 2012

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 2012 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 of Health and Welfare	2021000555	Medical Birth Register improvements
Astrazeneca Ltd	5560117482	Utilization of epidemiological data from MDC cohort

## FRÅGA 73



## D2. Strategic importance for the business sector and society

## FRÅGA 74



## b. Innovation impact in 2012 (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 2012 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 of 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 2012 (cont.)

iii. Have new or improved products/groups of products such as services or goods been utilized by public organizations during 2012?

Yes

No

## FRÅGA 77



iv. Have new or improved products/groups of products such as services or goods been introduced in the market during 2012?

Yes

No

## FRÅGA 78



D2.Strategic importance for the business sector and society

## FRÅGA 79



b. Innovation impact in 2012 (cont.)

v. Were new private or public companies established during 2012 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 2012 (cont.)

vi. If new private or public companies were established during 2012 ("yes" on previous question). please list names and business registration numbers of the new companies in 2012.

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 2012

i. Has there been any application for immaterial property rights (IPR) during 2012? (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 2012

ii. If there has been any applications for immaterial property rights (IPR) during 2012 ("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 2012. 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 2012

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 2012. (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 2012. (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 2012. (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 2012. 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
	3	0	3

## FRÅGA 89



## D2. Strategic importance for the business sector and society

## FRÅGA 90



## e. Education in 2012

i. Has the strategic research environment carried out contract education on behalf of external clients during 2012?

Yes

No

## FRÅGA 91



D2.Strategic importance for the business sector and society

## FRÅGA 92



e. Education in 2012

ii. If the strategic research environment has carried out contract education during 2012, 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 2012

Some research has impact in the public realm, e.g. through supporting government in setting policy or standards. Please, list any such impacts during 2012.

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

## FRÅGA 95



## D2. Strategic importance for the business sector and society

## FRÅGA 96



## g. Public impact in 2012

Please list public impacts through for instance media, textbooks, conferences, popular science presentations and policy lobbying etc during 2012.

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

13

Type of activity	Purpose of activity	Name of activity	Reference
Open symposium	Popularization of research	Research Day	<a href="http://www.med.lu.se/forskning/forskningens_dag">http://www.med.lu.se/forskning/forskningens_dag</a>
Textbook	Education	Diabetes och metabola syndromet	<a href="https://www.studentlitteratur.se/#produkt/67/39683/innehall/show-authors">https://www.studentlitteratur.se/#produkt/67/39683/innehall/show-authors</a>
Blog debate on SFAM Ordbyte	To describe EpiHealth and its activities	EpiHealth and population-based studies	SFAM Ordbyte, all year, several contributions
Magazin "Vetenskap och Hälsa"	Popularization of research	Article: "Barn av sin tid"	<a href="http://www.vetenskap.halsa.se/barn-av-sin-tid/">http://www.vetenskap.halsa.se/barn-av-sin-tid/</a>
Magazin "Vetenskap och Hälsa"	Popularization of research	Article: "Jämför födelsedata med avgångsbetyg"	<a href="http://www.vetenskap.halsa.se/jamfor-fodelsedata-med-avgangsbetyg/">http://www.vetenskap.halsa.se/jamfor-fodelsedata-med-avgangsbetyg/</a>
Magazin "Vetenskap och Hälsa"	Popularization of research	Article: "Miljögifter hotar"	<a href="http://www.vetenskap.halsa.se/nya-miljogifter-hotar/">http://www.vetenskap.halsa.se/nya-miljogifter-hotar/</a>
Magazin "Vetenskap och Hälsa"	Popularization of research	Article: Hur mår provrörsbarnen?"	<a href="http://www.vetenskap.halsa.se/hur-mar-provrorsbarnen/">http://www.vetenskap.halsa.se/hur-mar-provrorsbarnen/</a>
Article in Skånska Dagbladet	Information about EpiHealth screening	Article: "Skåningar löser sjukdomsmysterium"	<a href="http://www.skanskan.se/article/20120207/NY_HETER/702069905/1006/-/skaningar-loser-sjukdomsmysterium">http://www.skanskan.se/article/20120207/NY_HETER/702069905/1006/-/skaningar-loser-sjukdomsmysterium</a>
Article in Sydsvenskan	Information about EpiHealth screening	Article: "Skåningar skall vara med och lösa medicinska gåtor"	<a href="http://www.sydsvenskan.se/sverige/skaningar-na-ska-vara-med-och-losa-medicinska-gator/">http://www.sydsvenskan.se/sverige/skaningar-na-ska-vara-med-och-losa-medicinska-gator/</a>
Web information	Information about EpiHealth screening	Article: "Befolkningsstudien EpiHealth slog upp dörrarna"	<a href="http://www.med.lu.se/clinvetmalmo/nyheter/120207epihealth">http://www.med.lu.se/clinvetmalmo/nyheter/120207epihealth</a>

Type of activity	Purpose of activity	Name of activity	Reference
Dagens Medicin	Debate summary	Article: "Lifegene och EpiHealth är olagliga"	<a href="http://www.dagensmedicin.se/nyheter/lifegene-och-epihealth-ar-olagliga/">http://www.dagensmedicin.se/nyheter/lifegene-och-epihealth-ar-olagliga/</a>
Läkartidningen	Debate summary	Article: "Lifegen och EpiHealth bör diskuteras brett"	<a href="http://www.lakartidningen.se/07engine.php?articleId=17907">http://www.lakartidningen.se/07engine.php?articleId=17907</a>
Vetenskap och Hälsa	Research information	Article: "Omfattande befolkningsstudie startar i Malmö"	<a href="http://www.vetenskaphalsa.se/omfattande-befolkningsstudie-startar-i-malmo/">http://www.vetenskaphalsa.se/omfattande-befolkningsstudie-startar-i-malmo/</a>

## FRÅGA 97



## D3. Other comments

## FRÅGA 98



## Other comments

EpiHealth has grown substantially during 2012, 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 senior researchers as a Professor in Medical epidemiology (Gunnar Engström) and one Assistant Professor in Reproductive epidemiology (Karin Källén) at LU and a Professor of Cardiovascular Genetics at UU (Erik Ingelsson). To continue on this successful track we need more funding and efforts are currently made to increase funding.

We feel the importance of the new Proposition for Research and Innovation, delivered by the Swedish Government in October 2012 to further strengthen the basis for life sciences and the need of large cohorts from population-based studies. The new analytical methodology of mendelian randomization has begun to shed light over which associations in observational epidemiology are really causal and which are not, for example shown in a Lancet paper 2012 (Voight et al.), where several EpiHealth investigators were involved (Marju Orho-Melander 2nd author). This means a lot to EpiHealth as many of the cohorts linked to our research network contribute not only data on phenotypes but also of genetic markers and register follow-up information, all components much needed for applying mendelian randomization principles in international publications. This method will in many aspects revolutionize the understanding of causal inference in observational epidemiology. This will be of importance for two new research areas of high priority to EpiHealth, nutritional epidemiology and reproductive epidemiology.

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. The first step is often guided by the epidemiological observations of risk markers/ risk factors or potential disease mechanisms based on gene-environmental interactions. This is exactly where the strategic research area EpiHealth would like to contribute and to play a leading role, in full agreement with the political ambition of the Swedish authorities to support an important role for Swedish research also internationally, as manifested in the Proposition for Research and Innovation in October 2012 from the Department of Education in Sweden.