

Strategic plan for the Strategic Research Area (SRA) "Epidemiology for Health" (EpiHealth) during the period 2026-2030

I. RESEARCH

Epidemiology for Health (EpiHealth) is a strategic research area (SRA) at Lund University. In partnership with Uppsala University, it has a strong history of conducting epidemiological research at leading research frontiers. Over the past five years, 20% of the 4,500 publications from the SRA EpiHealth appeared in the top 10% of highly cited journals worldwide. A key reason for EpiHealth's prominent position is its deep knowledge of and immediate access to several extensive individual-level data infrastructures that are unique both nationally and internationally. The EpiHealth cohort is a large population-based study in Sweden, involving about 25,000 individuals from Malmö and Uppsala catchment areas aged 45–75, designed to explore lifestyle, genetic, and molecular factors related to common diseases. It provides detailed data and biological samples for research on aging, chronic conditions, and long-term health outcomes. Other significant cohorts within the SRA's data infrastructure include the Malmö Diet and Cancer Study, the Swedish CardioPulmonary BioImage Study (SCAPIS), the Swedish Study on Aging and Care (SNAC, including the GÅS sub-study: Good Aging in Skåne), All New Diabetics in Skåne (ANDIS), and the Malmö Breast Imaging Database (M-BIG). Additional cohorts are the Uppsala Longitudinal Study of Adult Men (ULSAM), SCAPIS Uppsala, the Prospective Investigation of the Vasculature in Uppsala Seniors (PIVUS), the Prospective Study of Obesity, Energy, and Metabolism (POEM), and the Swedish Infrastructure for Medical Population-based Life-course and Environmental Research (SIMPLER) and a National infrastructure (Cohorts.se > 1.0 million participants) is developed for rare diseases. Most of these cohorts are highly phenotyped and extensively linked with registers, with several having longitudinal exposure data and biological sample collections, making them uniquely capable of addressing both specific and broader research questions. Another crucial factor strengthening the SRA EpiHealth is its interdisciplinary nature, which naturally emerges from Lund and Uppsala universities, both recognized internationally as comprehensive institutions. Such interdisciplinarity is vital for successful research across nearly all epidemiological subfields prominent at Lund and Uppsala universities.

In five years, SRA EpiHealth will be recognized as the leading interdisciplinary environment for epidemiological research at the national level and will also gain an international reputation. In ten years, SRA EpiHealth will become a key Nordic player with a strong presence on the global stage for epidemiological research across disciplines.

It will be essential for SRA EpiHealth to maintain and further develop its unique data infrastructures, which include researcher-generated cohorts with health examinations, extensive surveys, and/or biobank data. SRA EpiHealth will support the creation of new data infrastructures, as well as enhance and curate existing ones that originate from the environment and hold strategic value. A key focus is to enable re-examinations and facilitate remote monitoring within SRA EpiHealth cohorts, as this would further increase the attractiveness of the data sources.

The strategic value of the data infrastructures at SRA EpiHealth heavily depends on regular linkage with population and health data registers at both the national and regional levels. Additionally, the accuracy and integrity of the register linkages are essential for maintaining the quality and trustworthiness of the research. Therefore, as a leading user of register data in Sweden, SRA EpiHealth will establish collaboration with major national and regional data providers with the clear goal of ensuring timely and accurate data updates to the environment. From an international perspective, SRA EpiHealth will work with partners to facilitate cross-country data sharing and meta-analyses.

Recent advances in generative artificial intelligence, including but not limited to large-language models, multimodal systems, and reinforcement learning, present significant opportunities for SRA EpiHealth. These advances are likely to influence research questions and scientific approaches, as well as fundamentally transform how epidemiological research is conducted. Therefore, securing sufficient AI expertise and attracting data-driven scientists will be a top priority for SRA EpiHealth, achieved through strategic national and international recruiting at various levels and through strategic collaborations both internally and externally. Additionally, SRA EpiHealth aims to promote efforts to develop, refine, and implement generative AI within its data infrastructure, which will further enhance its overall value. Although not yet available with AI, SRA EpiHealth will encourage the development of methods for causal inference research using AI.

The clinical relevance and close connection to clinical applications of epidemiological research conducted within SRA EpiHealth will remain a key strategic asset. This broad research field includes components of patient-related epidemiological studies such as quality records, treatment research, target trial designs, and prognosis of clinical events. It also involves the development of computerized medical surveillance systems for epidemiological data in primary and outpatient care, along with health economic analyses. An important sub-area is building collaborations with the new patient administration systems that will be implemented in 2026 in Region Skåne, called Skånes Digitala Vårdssystem (SDV). The population covered by SDV is approximately 1.4 million residents, enabling monitoring of preventive measures, risk factors, the progression of chronic diseases, and access to

biobanks. The cohorts with biobanks can be further enhanced by utilizing the rapidly expanding field of multiomics, with ongoing efforts in EpiHealth, GÅS, SCAPIS, ULSAM, and SIMPLER. SRA EpiHealth also aims to strengthen its leadership in key epidemiological sub-disciplines, including but not limited to environmental epidemiology, life-course epidemiology, and molecular epidemiology, while maintaining a broad focus on both non-communicable and infectious diseases. The research extends beyond organ-specific areas to multimorbidity conditions and covers populations throughout the lifespan from childhood to old age.

SRA EpiHealth will actively showcase its unique data infrastructure internationally to increase participation in EU-funded projects. It will also support its researchers in becoming or finding suitable partners for EU grant proposals. To boost visibility and credibility, SRA EpiHealth will more frequently aim to be a visible partner in EU grant proposals. The promotion and matchmaking efforts to increase EU funding will be carried out in close collaboration with grant officers at Lund and Uppsala universities.

High-impact publications usually arise from significant novelty and originality in research questions, as well as from clever scientific approaches and unique data. Additionally, strong illustrations and a clear storyline are common requirements. SRA EpiHealth will engage in various activities to further increase both the quantity and quality of its research output.

SRA EpiHealth will enhance our efforts to provide meeting spaces and opportunities for knowledge exchange among researchers, both within and between Lund and Uppsala universities. The tradition of hosting annual SRA EpiHealth network meetings, alternating between the two locations, will continue. SRA EpiHealth will also establish a pilot satellite office at the Clinical Research Centre in Malmö. This initiative aims to support epidemiological researchers, such as PhD students and members of smaller research groups, who may benefit from more interaction than their regular workplaces offer. This rotating workspace will serve as a smaller version of the EpiHub at UU, which has grown since 2018 into a thriving hub for epidemiological research across six departments, including senior and junior clinical researchers, epidemiologists, PhD students, health economists, biostatisticians, bioinformaticians, and administrative staff, now totaling 70 people. If the Malmö pilot proves successful, it may be expanded and complemented by a similar meeting forum at Forum Medicum in Lund.

SRA EpiHealth plans to integrate two ongoing epidemiology seminar series at LU under the "EpiHealth umbrella," enhancing their visibility, credibility, and reach. One series focuses on epidemiological methods and has a national reach through its hybrid format and diverse speakers from

universities across Sweden. The other is held in person in Malmö and highlights the breadth of local research through presentations from various research groups.

Furthermore, SRA EpiHealth will continue to support high-impact research by emerging scholars, from PhD students to early-career researchers building their own research programs. This will primarily be achieved through seed funding and postdoctoral positions. SRA EpiHealth will also rely on internal systems at Lund and Uppsala universities to regularly monitor its research output, with a particular focus on high-impact publications. This monitoring will be organized by subdiscipline to track how strengths and opportunities for improvement evolve over time in various research areas.

Sustainable development goal (SDG) no. 4, *Good health and wellbeing*, is at the core of most research at SRA EpiHealth, but many other SDGs are also at the forefront, including *No poverty* (SDG1), *Zero hunger* (SDG2), *Gender equality* (SDG5), *Clean water and sanitation* (SDG6), *Decent work and economic growth* (SDG8), *Reduced inequalities* (SDG10), *Sustainable cities and communities* (SDG11), *Climate action* (SDG13), and *Peace, justice and strong institutions* (SDG16). As for publications, SRA EpiHealth will rely on internal systems to monitor the relative attention given to each of the SDGs in its research and identify understudied goals.

II. EDUCATION

Epidemiology has been part of the mandatory curriculum at the doctoral school run by the medical faculties at both LU and UU for several years. SRA EpiHealth will continue to actively participate in developing both existing and new courses that are directly relevant to epidemiological research. Regular support will be given to joint, state-of-the-art courses involving postgraduate students and teachers from both LU and UU. Additionally, SRA EpiHealth will promote teaching activities at all levels among younger researchers within the environment as part of their career development. Through its involvement in education, SRA EpiHealth aims to showcase its unique research environment and data infrastructures to new generations of researchers.

III. SOCIETAL IMPACT

The activities within SRA EpiHealth are not limited to the traditional medical field because clear elements of epidemiological research questions, data, and methods are often present in several other scientific disciplines. Examples of this, where collaboration with SRA EpiHealth develops, include the economic sciences (such as economics, health economics, economic demography, and economic history), technology (including research on environmental exposures, aerosol technology, and AI

models), and sociology (covering research on social risk factors for disease, health, and social care systems).

A key driver in our efforts to strengthen cooperation is to achieve better use of available data infrastructures and resources within SRA EpiHealth. Therefore, it is crucial to build connections with the surrounding community and to enhance collaboration with other universities, including SciLifeLab facilities, and companies such as Regeneron US, NovoNordnet DK, Clinical Microbiotics DK, AstraZeneca Swe, Olink Swe, Nightingale Fin, Metabolon US, Thorasys Can. It also involves working with authorities like the National Board of Health and Welfare, the Public Health Agency of Sweden, the Swedish Association of Local Authorities and Regions [SKR], and regional health officials from Region Skåne and Region Uppsala. Regarding quality registers, there is ongoing collaboration with the register center in Gothenburg, such as the National Diabetes Register, and with the Swedish National Data Service (SND). Additionally, we maintain numerous international contacts across Nordic countries and Europe. SRA EpiHealth also aims to deepen collaboration with other strategic research areas at LU and UU, including EXODIAB (diabetes epidemiology), MULTIPARK (neuroepidemiology), and eSENCE (a national strategic research program in e-Science at Uppsala, Lund, and Umeå University). U-CAN is a collaborative cancer research project led by Uppsala University in partnership with Umeå University, Stockholm University, and the KTH Royal Institute of Technology. The project collaborates closely with several Swedish hospitals to collect samples and data for cancer research.

IV: RECRUITMENTS AND RENEWAL

National and international recruitment of assistant and senior lecturers through national funding initiatives will provide clear long-term strategic benefits for both SRA EpiHealth and its hosting universities. Additionally, SRA EpiHealth aims to secure sufficient AI expertise and data-driven scientists at various levels. The organization will also continue supporting the career development of junior researchers through regular announcements of seed funding and postdoctoral positions. Consideration of gender and diversity will be included in all recruitment processes.