

Research Unit

OPEN

ANNUAL REPORT 2021

Welcome

This annual report for the Research Unit OPEN provides a brief snapshot of our research activities and contributions in 2021. The report presents projects, results, teaching, grants, collaboration, and academic assessment.

Our research areas are epidemiology and register-based research, biostatistics, quality improvement and patient safety in the health system, qualitative research, and effects of vaccines.

Our vision is:

The research unit OPEN is known and respected for health research at a high professional level for the benefit of citizens and patients.

Our mission is:

To create knowledge through research in the healthcare system for the benefit of future patient treatment.

In 2021, 1 postdoc was employed, 4 new PhD projects were initiated and 1 PhD project was completed. We have published 117 peer-reviewed articles and our research have been presented at scientific conferences nationally and internationally (virtually, due to the corona pandemic), and we have been responsible for several courses targeted master students and PhD students. We have received funding of 12,429,315 million DKK.

I would like to thank all researchers, employees and collaborators for their contributions, enthusiasm and commitment in our research unit providing a high standard and invaluable effort.

Enjoy the reading!

A handwritten signature in black ink, appearing to read "Katrine Hass Rubin".

Katrine Hass Rubin
Head of Research

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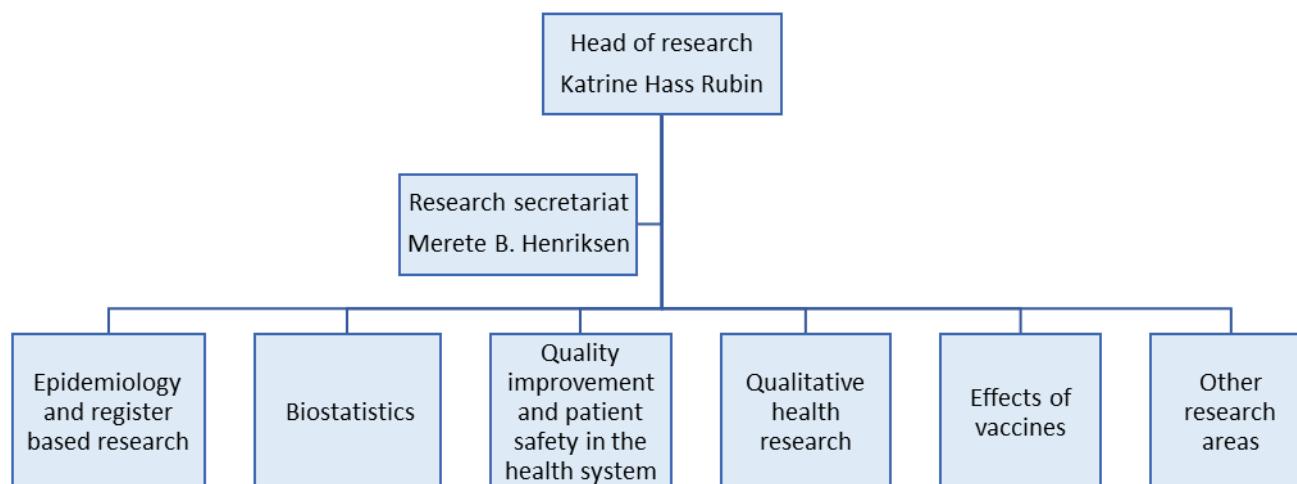
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Organization

OPEN Research Unit refer to the Department of Clinical Research at University of Southern Denmark.

The organization of OPEN Research Unit:



Below is an overview of scientific staff affiliated to OPEN research areas.

Epidemiology and register based research:

Associate professor Katrine Hass Rubin
Associate professor Lonny Stokholm
Associate professor Mette Bliddal

Biostatistics:

Associate professor Sören Möller
Postdoc Simon Bang Kristensen

Quality improvement and patient safety in the health system:

Associate professor Lars Morsø	PhD student Sisse Walløe
Associate professor Søren Bie Bogh	PhD student Olga Tchijevitch
Senior researcher, LLM, Søren Fryd Birkeland	PhD student Camilla Rosendal Lindekilde

Qualitative health research:

Professor Lise Hounsgaard	PhD student Lotte Abildgreen
Associate professor Lene Bjerregaard	
Postdoc Jette Marcussen	
Postdoc Ellen Tingleff	

Effects of vaccines:

Clinical professor Christine Stabell Benn	PhD student Line Møller Pedersen
Professor Ane Bærent Fisker	PhD student Lise Gehrt
PhD student Andreas Møller Jensen	PhD student Sabine Margarete Damerow
PhD student Anne Marie Rosendahl Madsen	PhD student Sebastian Nielsen
PhD student Julie Odgaard Vedel	

Other research areas:

Clinical professor Bo Abrahamsen (Osteoporosis, pharmaco-epidemiology)
Professor Charlotte Wien (Scholarly communication)
Associate professor Mina Nicole Holmgaard Händel (Nutritional epidemiology)
Clinical associate professor Erik Jakobsen (Lung cancer, register research)
Associate professor Claire Gudex (Health outcome measurement)
PhD student Michael Kriegbaum Skjødt (Osteoporosis)

Collaboration

An example of fruitful research collaboration in 2021 is the collaboration with Department of Ophthalmology, Odense University Hospital, which was established in 2017.

Below Clinical Professor Jakob Grauslund at Department of Ophthalmology describes the collaboration with OPEN:

The past years, I have had a very positive experience of collaborating with the OPEN group, which has led to a number of research projects with epidemiological and registry aspects.

It all began in 2017 when I participated in the exciting and inspiring course: "From idea to project" where Mette Bliddal and Katrine Hass Rubin revealed various unique research opportunities that the Danish national registers can lead to. This revelation gave me the opportunity in cooperation with a number of good local and national colleagues to establish the research network Danish Excellence Center in Ophthalmic Epidemiology (DECODE-EYE), which has subsequently been the focal point for a number of PhD and undergraduate thesis projects. Based on the interplay between ocular and systemic disease, we have thus succeeded in designing a number of major national collaborative projects, including the OASIS and I-OPTA projects, both of which have received major external grants, e.g. from the VELUX FOUNDATION.

We have an exemplary collaboration with Associate Professor Katrine Hass Rubin and Associate Professor Sören Möller as well as a number of talented data managers. Especially we have had the unique pleasure of collaborating with Associate Professor Lonny Stokholm who has worked extremely dedicated as a data manager as well as a highly esteemed project partner in a large number of projects. For us, this daily dialogue with skilled OPEN experts in a number of different fields has been the very central core of the collaboration, and today the collaboration is stronger than ever.

The fact that we have had the opportunity to involve OPEN in our eye projects has given us the opportunity to carry out epidemiological and register-based research projects at an international level, and I can only highly recommend other clinical disciplines to use this opportunity to ensure the extra synergy within their research fields.

Research activities

OPEN Research Unit was established in 2008 with the purpose of handling all research and academic activities in OPEN. The unit is academically affiliated with the Department of Clinical Research at the University of Southern Denmark.

The scientific employees at the OPEN Research Unit have a part-time academic employment at the Department of Clinical Research.

Selected research projects in 2021:

Epidemiology and register based research

Katrine Hass Rubin, Associate professor, PhD

Project: Early detection of individuals at risk of osteoporosis related bone fractures - development, testing, and evaluating of a fully automated data-driven decision support tool in general practice

Project period: 2021-2025

The overall aim is to develop, test, and evaluate a fully automated data-driven decision support tool in general practice to ensure early detection of individuals at risk of osteoporotic fracture. A preliminary fracture risk prediction model has been developed based on Danish data, the Fracture Risk Evaluation Model (FREM). FREM predicts a single fracture risk estimate for each patient based on administrative data on diagnoses from Danish registries. FREM could be applied in general practice as a decision support tool triggering a 'red flag' when detecting a patient at high risk of sustaining an osteoporotic fracture. This 'red flag' draws the doctor's attention to the patient's risk, after which the doctor can decide to refer for further investigation and possible treatment to prevent bone fractures.

The present project is planned as a mixed-method study including two PhD-projects. The study includes both qualitative and quantitative data and methods. The project includes five work packages:

WP1: Qualification of coding practices for OF

WP2: Improvement of FREM

WP3: FREM Proof-of-Concept in General Practice

WP4: FREM Feasibility in General Practice

WP5: FREM Cluster Randomized Controlled Trial with National Register Follow-up

Lonny Stokholm, Epidemiologist, postdoc, PhD

Project: Identification of patient-reported barriers to treatment with anti-VEGF for neovascular AMD (I-OPTA).

Project period: 2021-2025

Our main objective is to examine how we can prevent patients with nAMD from interrupting their recommended therapy and, thereby, reduce the risk of loss of visual acuity. Further, we aim to examine the

treatment-induced risk of systemic morbidity and mortality and explore whether this may influence the approach of the patients to the treatment.

This project is planned as a PhD study where we aim to bridge qualitative and quantitative information using mixed methods to obtain a more qualified knowledge of patients with neovascular age-related macula degeneration (nAMD) and to create a broader understanding of their experienced barriers and health literacy in order to engage in the management of their disease.

To ensure that this project is relevant for patient suffering from nAMD, we have invited five patients treated for nAMD, two nurses and two doctors working with this group of patients at the hospital and two private consultant ophthalmologist to partake in a continuous advisory board throughout the study period. We expect the advisory board offer their perspectives as patients, from the primary care, and from the department of ophthalmology.

The study population includes Danish-speaking patients diagnosed with nAMD who had received at least one intravitreal injection with anti-VEGF. The treatment of nAMD is a demanding and long-term treatment with many hospital visits and injections in either one or both eyes. Therefore, it is very important to map the patients' experiences and challenges with the treatment, in order to understand how we best organize the treatment for the individual patient.

Mette Bliddal, Associate professor, PhD

Project: Intrauterine exposure to selective serotonin reuptake inhibitors (SSRI) and risk of psychiatric outcomes till age 22: a Danish national register study

Project period: 2018 - 2022

The aim was to examine the effects of SSRI use in pregnancy on offspring depression, anxiety and adjustment disorders, as well as antidepressant medication use, in a cohort of Danish offspring born 1997-2015, and then followed through Danish national registers for up to 22 years. We used a propensity score-weighted approach to control for potential confounding, and further incorporated data from the Danish National Birth Cohort (1997-2003) to quantify whether sub-clinical indicators not typically reflected in register data can be sufficiently adjusted for using these approaches.

Depression in pregnancy is common, and selective serotonin reuptake inhibitors (SSRIs) are usually the first line of medications for treating perinatal depression. Their effects on fetal development are less clearly understood.

Using Danish National health registers, we tested the association between in utero exposure to SSRI and psychiatric disorders and medication up till age 22. We followed 1,094,202 single-birth Danish children born 1997-2015. Primary exposure was prenatal use of SSRI in mothers, and outcome was first diagnosis/filled prescription. Propensity score weights were used to adjust for maternal depression and potential confounders.

4.6% (n=1018) of exposed and 3.9% (n=42,796) of unexposed offspring had a psychiatric outcome (HR=1.45 [95%CI: 1.30-1.61]). Median age of onset was earlier among exposed (9 years, interquartile range [IQR], 7-13) versus unexposed (12 years, IQR: 12-17) offspring ($p<0.01$). Paternal use during the index pregnancy and maternal use only after the pregnancy were also associated with offspring emotional disorders (HR=1.33 [1.22, 1.46] and 1.42 [1.35-1.49], respectively).

Findings suggest that prenatal SSRI exposure is associated with offspring psychiatric outcomes. However, we find similar associations with paternal prenatal and maternal postnatal use, indicating that the effect is mediated through parental psychopathology and family conditions in childhood.

Biostatistics

Simon Bang Kristensen, Postdoc

Project: Estimating psychometric functions from adaptive designs

Project period: Ongoing

The purpose is to investigate the effect of adaptive sampling on the properties of maximum-likelihood estimators in psychometric and psychophysical experiments.

An adaptive design adjusts dynamically as information is accrued. In psychometrics and psychophysics, a common class of studies investigate a subject's ability to perform a task as a function of the stimulus intensity, meaning the amount or clarity of the information supplied for the task. The relationship between the performance and intensity is represented by a psychometric function. Such experiments routinely apply adaptive designs, which use both previous intensities and performance to assign stimulus intensities. The strategy is to sample intensities where the information about the psychometric function is maximised. Similar schemes are often applied in drug trials to assign doses dynamically using doses and responses from earlier trials. The present paper investigates the influence of adaptation on statistical inference about the psychometric function focusing on estimation. We consider both parametric and non-parametric estimation under both fixed and adaptive designs in schemes encompassing within subject independence as well dependence by including random effects. We study the scenarios analytically, focussing on a latent class model to derive results under random effects, and numerically through a simulation study. We show that while the asymptotic properties of estimators are preserved under adaptation, the adaptive nature of the design introduces small-sample bias. We argue that this poses a dilemma for a study applying an adaptive design in the form of a trade-off between more efficient sampling and the need to increase the number of samples to ameliorate small-sample bias.

Sören Möller, Associate professor, PhD

Project: Methodical considerations on adjusting for Charlson Comorbidity Index in epidemiological studies

Project period: Ongoing

The purpose is to investigate optimal adjustment for Charlson Comorbidity in epidemiological studies.

Confounding by comorbidities is of concern in many epidemiological studies. To take this into account a common strategy is to calculate each participant's Charlson Comorbidity Index (CCI) and use this for adjustment in regression analyses. Various CCI adjustment strategies are possible, and it is unclear, which is preferable. In this simulation study, we compared common adjustment strategies in Cox regression analyses to determine to which degree they mitigate confounding and conservative bias caused by missing adjustment for independent predictors. We found that adjustment for each comorbidity as separate dichotomous covariate is the preferable adjustment strategy in samples of sufficient size as this mitigates both bias sources to the largest degree. If this is impractical in smaller studies adjustment for CCI split into multiple categories is preferable.

In conclusion, the choice of CCI adjustment strategy impacts mitigation of bias in this simulation study, and suboptimal adjustment strategies can cause an observable bias, although of quite limited magnitude of only a few percent in this simulation example. Researcher should be careful when deciding on the adjustment strategies applied to ensure that the desired mitigation of bias sources is achieved.

Quality improvement and patient safety in the health system

Lars Morsø, Associate professor, PhD

Project: OP_838 Coherent patient pathways for recent diagnosed patients / citizens having chronic obstructive pulmonary disease COPD - How to Ensure Referral and Uptake for COPD Rehabilitation?

Project period: 2018 – 2021

The overall objective of the research project was to ensure referral and uptake for COPD rehabilitation.

- Detangling the processes in the cross-sectorial workflow to understand why most patients are not referred to rehabilitation
- Simplifying the referral procedures, and facilitating relational coordination across healthcare settings.

Patients with (COPD) can greatly benefit from rehabilitation initiatives, but referral to rehabilitation is sparse. Therefore, we investigated referral patterns and relevant factors in the cross-sectorial workflow. This by detangling the processes of the cross-sectorial workflow to understand the lack of referrals to rehabilitation, and by simplifying the referral procedures, and facilitating relational coordination across the two health care settings.

Methods:

- Based on semi-structured interviews and observations we conducted a FRAM analysis to map the referring routines
- We simplified the referral procedure by initiating standard wording, to send referrals to the same electronic location, and referral to a standard initial interview
- We facilitated relational coordination by establishing local- and cross-sectional network groups and monitored the network groups' activities.

Results: The hospital and the municipality have different understandings of what rehabilitation is, they use different words and hospital staff lack knowledge of municipality rehabilitation.

We detected flaws in the referral system that resulted in neglecting referrals. Based on knowledge and experiences from the networks we adjusted patient inclusion and data collection.

Conclusion: The FRAM analysis was useful to detangle factors important to cross-sectorial collaboration and resulted in the dissemination of a series of focus areas.

We succeeded in simplifying referral procedures and facilitated cross-sectorial relational coordination. We had to make ongoing adjustments of procedures, information, content, population and data infrastructure.

Søren Bie Bøgh, Associate professor, PhD

Project: Nationwide study on trends in unplanned hospital attendance and deaths during the 7 weeks after the onset of the COVID-19 pandemic in Denmark.

Project period: 2020 – 2022

The aim of this study is to report the nationwide consequences of the COVID-19 pandemic on unplanned hospital attendances in Denmark for 7 weeks after a 'shelter at home' order was issued.

The COVID-19 pandemic and a governmental national 'shelter at home' order was associated with a marked reduction in unplanned hospital attendances with an increase in MRR for the general population in two of 7 weeks, despite exclusion of patients with COVID-19. The findings should be taken into consideration when planning for public information campaigns.

Søren Fryd Birkeland, Senior researcher, LL.M, PhD

Project: OP_681 Health care users' preferences for involvement in medical decision-making.

Project period: 2015-2022

The purpose is to investigate health care users' preferences for involvement in medical decision-making.

Patient-centeredness is an essential quality parameter of modern healthcare. Accordingly, involving patients in decisions about healthcare is increasingly required by law. Directives are based on ethical principles of autonomy. We aimed to empirically test healthcare users' evaluation of healthcare given different degrees of patient involvement, choices made and outcomes. Using REDCap, we conducted a web-based cross-sectional survey distributed to a randomised sample of men in Denmark aged 45–70 years. Case vignettes used prostate-specific antigen (PSA) screening for early detection of prostate cancer as a clinical model. We measured respondents' satisfaction with care and proclivity to complain in scenarios which differed in the amount of patient involvement (ranging from no involvement, through involvement with neutral or nudged information, to shared decision-making), the decision made (PSA test or no PSA test) and clinical outcomes (no cancer detected, detection of treatable cancer and detection of non-treatable cancer). Participating healthcare users tended to be more satisfied with healthcare - and less inclined to complain - in scenarios illustrating greater levels of patient involvement. Patient involvement through shared decision-making obtained the highest satisfaction ratings. Greater involvement also had an ameliorating effect on satisfaction if a non-treatable cancer was later diagnosed.

PhD students

Ph.d. students supervised by OPEN Research Unit staff in 2021:

- **Andreas Møller Jensen:** Measuring early neonatal mortality in low-income countries. Supervisor: Professor Ane Bærent Fisker. Ongoing
- **Anne Marie Rosendahl Madsen:** Using BCG vaccine to enhance non-specific protection of health care workers during the COVID-19 pandemic. Supervisor: Clinical professor Christine Stabell Benn. Ongoing.
- **Camilla Rosendal Lindekilde:** Graduating Psychiatric Coercive Measures. Supervisor: Clinical associate professor Søren Fryd Birkeland. Ongoing
- **Christina Radl-Karimi:** Coproduction of healthcare services with immigrant patients Supervisor: Associate professor Christian von Plessen. Defended 18 November 2021
- **Julie Odgaard Vedel:** New indicators of BCG vaccination program performance related to better child health. Supervisor: Professor Ane Bærent Fisker. Ongoing
- **Line Møller Pedersen:** Evaluating the effects of polio vaccines on general child health in Guinea-Bissau. Supervisor: Professor Ane Bærent Fisker. Ongoing
- **Lise Gehrt:** Register based studies on childhood morbidity patterns and non-specific effects of the Measles-Mumps-Rubella vaccine across the Nordic countries. Supervisor: Clinical professor Christine Stabell Benn. Ongoing
- **Lotte Abildgren:** SimLEARN: Reducing adverse events through transfer of non-technical skills. Supervisor: Professor Lise Hounsgaard. Ongoing
- **Michael Kriegbaum Skjødt:** Long-term individual and societal consequences of untreated vertebral osteoporotic fractures. Supervisor: Clinical professor Bo Abrahamsen. Ongoing
- **Olga Tchijevitch:** Medication Errors reported to the Danish national incident report database: Analyses, patterns and time trends. Supervisor: Clinical associate professor Søren Fryd Birkeland. Ongoing
- **Sabine Margarete Damerow:** Use of performance-based financing to increase the coverage of maternal and child healthcare in Guinea-Bissau: Impact and side-effects. Supervisor: Professor Ane Bærent Fisker. Ongoing
- **Sebastian Nielsen:** Non-specific side effects of vaccines. Supervisor: Clinical professor Christine Stabell Benn. Ongoing
- **Sisse Walløe:** Patient-experienced quality in integrated care. Supervisor: Associate professor Lars Morsø. Ongoing.

Upcoming PhD students in 2022 at the Research Unit:

- **Caroline Ariane Dahl Wraa:** "Using processing improvement models to increase research productivity"

Upcoming PhD students in 2022 at the Research Unit (continued):

- **Benjamin Sommer Thinggaard:** “Identification of patient-reported barriers to treatment for neovascular AMD (I-OPTA)”
- **Anne Clausen:** “Early detection of individuals at risk of osteoporotic fractures through automatic risk assessment in primary care”
- **Anna Trier Heiberg Brix:** “Major lower extremity amputations: Epidemiology, outcome and potential for improvement.”

Academic assessment

In 2021 the staff at OPEN Research Unit has:

- Participated in scientific congresses nationally and internationally (virtually, due to the corona pandemic). Ex.:
 - Norpen – Online
 - Dansk Selskab for Epidemiologi årsmøde – online
 - ICPE (International Congress for Pharmacoepidemiology) - online
 - Dansk Selskab for Farmakoepidemiologi årsmøde – online
 - 4th Nordic Conference in Nursing Research, Methods and Networks for the future
 - FOSTREN-EViPRG Training School
- Given scientific oral presentations. Ex.:
 - Speaker at: Norpen; NIH workshop on secondary vaccine effects; BCG congress Lille; GA Forum; Dansk Selskab for Folkesundhed; Danish Epidemiological Society; Dansk diabetes akademi; Norpen
 - Speaker at: EasDec, International conference; Rapid Fire presentation
 - ICPE – 2 posters
 - Speaker at: EMWA (European Medical Writers Association) conference “Measurement of health-relates quality of life” and “Getting into Medical Writing”
 - Speaker at: Nordic Conference in Nursing Research “Methods and Networks for the future”
- Supervised PhD students (co-supervisor)
 - Maria Hornstrup Christensen: “Gestational Diabetes Mellitus and Future Health” (ongoing),
 - Nanna Lindekilde: “Type 2 diabetes in people with a psychiatric disorder – an exploration of the prevalence, incidence, and potential mediating mechanisms” (defended in 2021),
 - Jonas Sanberg: “Utilization outcome and development of laparoscopic anti-reflux surgery in Denmark (defended in 2021)
 - Anne Thykjær: “Diabetic Retinopathy in response to Systemic Treatment and Intervention – Real World Data from a National Danish Database” (ongoing)
 - Frederik Nørgaard Pedersen: “Diabetic retinopathy as a marker of cognitive dysfunction and depression: a clinical and epidemiological approach”(ongoing)
 - Katrine Hartmund Frederiksen: “Treatment, comorbidity and mortality in retinal vein occlusion - a nationwide registry-based and a clinical study” (ongoing)
 - Tina Kirstine Vestphal: “Relatives of mentally ill patients in forensic and general psychiatry - Those who fight alongside” (ongoing)
 - Kristian J. Paaske: “How can patients be involved in psychiatric care? Generating new knowledge about patient involvement in treatment psychiatry through action research” (ongoing)
- Supervised master students and a pre-graduate student
 - Maria Emma Carius Larsen: “Diabetic retinopathy as a potential marker of Parkinson's disease: a register-based cohort study” (defended in 2021)
- Worked as reviewers for scientific journals. Ex.: Acta Obstetricia et Gynecologica Scandinavica, Scandinavian Journal of Public Health

- Evaluated research protocols for local, national and international scientific foundations
- Continuous evaluation of research protocols for SDU's research ethics board
- Member of the assessment committee for scientific positions at the Department of Clinical Research, University of Southern Denmark
- Been appointed as censors for the Health Faculty in Aarhus; Mathematics and statistics at Danish Universities and certified project leader, IPMA, level
- Worked as chair of the Danish Society of Pharmacoepidemiology
- Scientific Committees:
 - EDCTP Scientific Advisory Committee
 - Danish Ministry of Health's expert committee on contact tracing
 - FOSTREN-EViPRG Training School "Fostering and Strengthening Approaches to Reducing Coercion in European Mental Health Services"
- Dissemination of research to decision-makers in the health care system.

Teaching

OPEN Research Unit is responsible for several courses targeted master students and PhD students at the Faculty of Health Sciences at University of Southern Denmark.

Following courses have been held in 2021:

- Research Profile - Data Management, Master Medicine, University of Southern Denmark
- Research Profile – Research Dissemination, Master Medicine, University of Southern Denmark
- Register-based Clinical Epidemiology Research, PhD course, University of Southern Denmark
- Data management plan and responsible handling of research data
- Introduction to Bayesian Statistics in Health Research, PhD course, University of Southern Denmark
“Epidemiology and biostatistics”, Masters in Nursing/ Midwifery/Occupation Health/Physiotherapy/Health Sciences
- “Planlægning og gennemførelse af et epidemiologisk forskningsprojekt”, Masters in Nursing/ Midwifery/Occupation Health/Physiotherapy/Health Sciences.
- “Development and application of the preference-based HRQoL measure, EQ-5D”, Valgfag i psykometri, Kandidatuddannelserne i klinisk sygepleje, ergoterapi og jordemodervidenskab (SEJ), University of Southern Denmark
- Academic English in the Health Sciences, PhD, Department of Clinical Research/Department of Regional Health Research, University of Southern Denmark
- Structure of a scientific article, PhD, Department of Clinical Research/Department of Regional Health Research, University of Southern Denmark
- Structure of a thesis, PhD, Department of Regional Health Research, University of Southern Denmark
- “Academic writing”. Module 1, Master of Science in Nursing, University of Southern Denmark
- “Mental Health”. Master of Science, Health Science, Nursing, Physiotherapy, Occupational Therapy, Midwifery Science. Faculty of Health Sciences, University of Southern Denmark.

Fundings

The following list consist of funding received by OPEN Research Unit during 2021:

BR. HARTMANNs FUND		
Søren Fryd Birkeland	Do psychiatric staff agree on the use of coercion?	33,500 DKK
FACULTY SCHOLARSHIP HEALTH SCIENCE, SDU		
Sisse Walløe	Patient-experienced quality in integrated care	540,000 DKK
Camilla R. Lindekilde	Graduating psychiatric coercive measures	540,000 DKK
HELSEFONDEN		
Olga Tchijevitch	Drug safety in the healthcare system: Analysis of the Danish Patient Safety Database	450,000 DKK
KAREN ELISE JENSENS FOND		
Christine Stabell Benn	Specific and non-specific effects of measles vaccine and BCG vaccine for mother and child in Africa	2,000,000 DKK
MINISTRY OF HIGHER EDUCATION AND SCIENCE		
Christine Stabell Benn	Specific and non-specific effects of measles vaccine for mother and child in Africa	2,880,000 DKK
OUH FUND, FREE RESEARCH		
Ane Bærent Fisker	Can BCG vaccination at first health-facility contact reduce early infant mortality	299,000 DKK
PRIVATE DONATIONS		
Christine Stabell Benn	Bandim Health Project research communication	1,834,115 DKK
THE REGION OF SOUTHERN DENMARK, INDEPENDENT AND STRATEGIC RESEARCH		
Lars Morsø	Who, what, where and how severe? Complaints to the hospitals about the healthcare treatments	388,000 DKK
THE REGION OF SOUTHERN DENMARK, PHD FUND		
Olga Tchijevitch	Medication Errors reported to Danish national report database: Analyses, patterns and time trends	578,000 DKK
SYNOPTIK FONDEN		
Lonny Stokholm	Systemic and ocular complications following intravitreal antiangiostatic therapy for wet AMD	75,000 DKK
THE VELUX FOUNDATIONS		
Lonny Stokholm	Identification of patient-reported barriers to treatment for neovascular AMD	2,811,700 DKK
Total		12,429,315 DKK

Publications

Scientific publications

In 2021, 117 papers were published in peer-reviewed journals. Please refer to the list below or our website:

[KI, OUH, Forskningsenhed for OPEN - Open Patient data Explorative Network \(Odense\) – Publikationer – Syddansk Universitet \(sdu.dk\)](#)

1. Aabakke AJM, Krebs L, Petersen TG, Kjeldsen FS, Corn G, Wøjdemann K, et al. SARS-CoV-2 infection in pregnancy in Denmark—characteristics and outcomes after confirmed infection in pregnancy: A nationwide, prospective, population-based cohort study. *Acta Obstetrica et Gynecologica Scandinavica*. 2021 November; 100(11):2097-2110. <https://doi.org/10.1111/aogs.14252>
2. Abdulkadir LS, Sodemann M, Gudex C, Möller S, Nielsen DS. The impact of a health introduction course for medical interpreters in the healthcare sector. *Nordic journal of Nursing Research*. 2021 June;41 (2):109-116. <https://doi.org/10.1177/2057158520975188>
3. Abrahamsen B, Smith CD, Minisola S. Epidemiology of Tumor-Induced Osteomalacia in Denmark. *Calcified Tissue International*. 2021 August; 109(2):147-156. <https://doi.org/10.1007/s00223-021-00843-2>
4. Ahrenfeldt LJ, Möller S. The reciprocal relationship between socioeconomic status and health and the influence of sex: A European share-analysis based on structural equation modeling. *International Journal of Environmental Research and Public Health*. 2021 May 1; 18 (9). 5045. <https://doi.org/10.3390/ijerph18095045>
5. Ahrenfeldt LJ, Möller S, Wensink MJ, Eisenberg ML, Christensen K, Jensen TK, et al. Impaired fecundity as a marker of health and survival: a Danish twin cohort study. *Human reproduction (Oxford, England)*. 2021 August; 36 (8): 2309–2320. <https://doi.org/10.1093/humrep/deab077>
6. Ahrenfeldt LJ, Möller S, Wensink MJ, Eisenberg ML, Christensen K, Jensen TK, et al. Impaired Fecundity as a Marker of Health and Survival: A Danish Twin Cohort Study. *Obstetrical and Gynecological Survey*. 2021 Nov. 1; 76 (11): 677-678. <https://doi.org/10.1097/OGX.0000000000000982>
7. Andersen A, Fisker AB, Nielsen S, Rodrigues A, Benn CS, Aaby P. National Immunization Campaigns With Oral Polio Vaccine May Reduce All-cause Mortality: An analysis of 13 years of demographic surveillance data from an urban African area. *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America*. 2021 May 18; 72 (10): e596-e603. <https://doi.org/10.1093/cid/ciaa1351>
8. Andersen V, Pedersen AK, Möller S, Green A. Chronic inflammatory diseases – diabetes mellitus, rheumatoid arthritis, coeliac disease, Crohn’s disease, and ulcerative colitis among the offspring of affected parents: A Danish population-based registry study. *Clinical Epidemiology*. 2021 Jan.; 13:13-20. <https://doi.org/10.2147/CLEP.S286623>
9. Andersen HR, Dalsager L, Jensen IK, Timmermann CAG, Olesen TS, Trecca F, et al. Prenatal exposure to pyrethroid and organophosphate insecticides and language development at age 20-36 months among children in the Odense Child Cohort. *International Journal of Hygiene and Environmental Health*. 2021 June; 235. 113755. <https://doi.org/10.1016/j.ijheh.2021.113755>

10. Andersen MS, Jensen TK, Dreyer AF, Madsen JB, Christesen HT, Brandslund I, et al. Free thyroxine in early pregnancy is an independent negative predictor of 3rd trimester HbA1c. Odense child cohort. *Clinical endocrinology*. 2021 Sept; 95 (3): 508-519. <https://doi.org/10.1111/cen.14492>
11. Andreasen RA, Kristensen LE, Egstrup K, Baraliakos X, Strand V, Horn HC o.a. The Prognostic Value of Pain Phenotyping in Relation to Treatment Outcomes in Patients with Axial Spondyloarthritis Treated in Clinical Practice: A Prospective Cohort Study. *Journal of Clinical Medicine*. 2021 April; 10 (7). 1469. <https://doi.org/10.3390/jcm10071469>
12. Aslerin SL, Tingleff E. Pårørendes oplevelser af at blive involveret af de sundhedsprofessionelle i plejen og behandlingen på voksenpsykiatrisk afdeling: Et systematisk litteraturstudie. *Klinisk Sygepleje*. 2021 September 14;35(3):194-218. <https://doi.org/10.18261/issn.1903-2285-2021-03-03>
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