

ACUTE CAG

Newsletter November 2020

Dear All,

2020 has been a challenging year in health care and clinical research. Some projects have been paused and others have been accelerated to meet and counter the impact of COVID-19 on strategic objectives and planned activities.

The onset of the pandemic and the subsequent need for an emergency response to a new and undescribed pathogen did, however, also highlight the importance of rethinking the flow and triage of acute patients. The aim of our ACUTE CAG collaboration on understanding and investigating acute illness through a lens of resilience mechanisms and personalized recovery capacity has thus resonated outside this group and its peers, and continues to create new possibilities for interdisciplinary research and funding.

It's still difficult to conceptualize what the ACUTE CAG will look like a year from now, but as the governance team we will use the next couple of months, along with the key members, to revisit our carefully laid plans from before and discuss how to address new challenges and opportunities for our organizations and groups.

Kind regards

Lene and Ove

PhD-students in ACUTE CAG

The ACUTE CAG Steering Committee has selected three PhD project for co-financing based on the projects' contribution to the overall objective of the CAG, including a high degree of interdisciplinarity and collaboration across the key members' research groups:

- Register-based disease trajectories in cardiovascular conditions compared to trajectories in cardiovascular conditions complicated by psychiatric conditions - enrollment at DTU
- Identification of biomarker, organ dysfunction, and drug accumulation in acute care – enrollment at UCPH
- Prognostic biomarkers, clinical measurements, radiologic findings and quantitative measurements in acute patients with signs of Deep Venous Thrombosis (DVT) – enrollment at UCPH.

Each project will be supervised by two or more key members. Financiering through ACUTE CAG is conditioned by ready-for-submission protocols and subsequent enrolment to UCPH/DTU.

The projects' current status is that MSc Infection Pharm Anne Kathrine Bengaard has been enrolled at UCPH with the project: Identification of biomarker, organ dysfunction and drug accumulation in acute care in a collaboration between The Clinical Pharmacology Department at Bispebjerg and Frederiksberg Hospital, Department of Health Technology, DTU, and the Clinical Research Department, Amager and Hvidovre Hospital.

CAG meeting 14 January 2020: Biomarkers of human aging - towards clinical validation studies

At the University of Copenhagen, the Mærsk Tower.

Invited Associate Professor Paolo Garagnani from the University of Bologna, Italy talked about “Epigenetic biomarkers of aging”.

Paolo Garagnani described the connections between genes that promoted longevity and genes associated with age-related diseases. Centenarians were used as super-controls for his study of major age-related diseases, since healthy centenarians are a homogeneous and extreme control group.

Paolo Garagnani has also analysed people suffering from Down Syndrome because they develop several age-associated disorders much earlier than the rest of the population. Studies have found that Down Syndrome persons display elevated levels of age biomarkers.

Invited Professor Alexander Bürkle from Konstanz University, Germany talked about “Biomarkers of human ageing – The EU FP7 MARK-AGE Study and beyond”.

The MARK-AGE study aims to identify biomarkers of human ageing. The rate of ageing in humans is not uniform due to genetic heterogeneity and the influence of environmental factors. Age-related changes in body function or composition that could serve as a measure of “biological” age and predict the onset of age-related diseases and/or residual lifetime are termed “biomarkers of ageing”.

Many candidate biomarkers have been proposed but no single measurement has so far produced a useful biomarker of ageing on its own, probably due to the complex nature of ageing.

“MARK-AGE” use a population study to identify a set of biomarkers of ageing which can measure biological age better than any marker in isolation. Two large groups of subjects will be recruited:

- Randomly recruited individuals from the general population covering the age range 35-74 years
- Subjects born from a long-living parent belonging to a family with long living sibling(s)

The Alliance Against Social Inequality in Health



The CAG partner Department of Clinical Research, Amager and Hvidovre Hospital has joined The Alliance Against Social Inequality in Health to raise the visibility of the topic's particular significance for acute patients with chronic conditions and complex care needs.

The Alliance Against Social Inequality in Health wishes to reduce the health consequences of inequality for citizens and patients regardless of their social background and position.

Joint efforts are needed across sectors and in different areas, and regions, municipalities, organizations, the civil society, and the private sector all need to participate.

The alliance partners can jointly or separately initiate activities focusing on e.g. children, adolescents, patients, the labor market, or sports.

The alliance invites more partners to join on an ongoing basis.

The alliance started January 1, 2020 and is a three-year project. The partners meet twice in the first year and thereafter when needed. After three years, a final meeting will be held and the partners will document the results.

Ove Andersen, Department of Clinical Research: *"We must insist on putting social inequality in health on the agenda, also in relation to research. To succeed, we must include both patients, citizens, and healthcare professionals in our work. We are part of the alliance to ensure that the decisionmakers have the necessary knowledge to fight social Inequality in health."*

Read more: <https://www.cancer.dk/ulighedisundhed/om-alliancen/>

Examples of activities initiated within the CAG framework

The FAM CPH Cohort is initiated by the Clinical Research Department at Amager and Hvidovre Hospital. The aim is to recruit acute medical patients, sample material and data, and characterize the patients to investigate immunological mechanisms of chronic inflammation and biological aging. The cohort has been approved by the Committee on Health Research Ethics for an extended study period and for other national emergency sites to join.

The I-SENSE project (Implementing Social Distancing Policy Measures in the Battle against the Coronavirus – a comparative study of Denmark and Sweden) has been granted 4,1 mill. DKK from the Innovation Fund Denmark under the "Grand Solutions – Covid-19".

The partners are:

- Department of Clinical Research, Amager and Hvidovre Hospital
- Department of Health and Social Context, National Institute of Public Health, The University of Southern Denmark
- Department of Health, Medical and Caring Sciences, Linköping University



Research in the COVID-19 Infection

The Clinical Research Department, Amager and Hvidovre Hospital has received DKK 500.000 in funding from "Læge Sofus Karl Emil Friis og hustru Olga Doris Friis' Legat" for the project COVID-19 infektion - Vurdering af sygdoms- alvorlighed ved modtagelse af akutte patienter med kroniske sygdomme (The COVID-19 Infection - Evaluating the illness-severity when receiving acute patients with chronic diseases).

The aim is to investigate if the suPAR-biomarker, during an acute admission, can support the prognosis of COVID-patients' clinical courses.

LÆGE SOFUS KARL EMIL FRIIS OG HUSTRU OLGA DORIS FRIIS' LEGAT

The project: Person-centered care for the acute older patient with multimorbidity

This project has received strategic funding from Amager and Hvidovre Hospital and it will co-design a Danish version of the instrument: Life and Vitality Assessment (LAVA). It will assess the life domains of importance to older adults irrespective of health and will be targeting acute medical settings. The co-creation will be done with patients and professionals at Amager and Hvidovre Hospital to ensure development of a feasible, applicable, and relevant tool that can be implemented in daily clinical practice and transferred to similar acute medicine settings across Denmark.



The HUMAIN-project, Implications of AI in acute care

The CAG partners: the Technical University of Denmark, Center for Healthy Aging at the University of Copenhagen, and Department of Clinical Research, Amager and Hvidovre Hospital have together with Aalborg University, Landspítala Reykjavík, and Gothenburg University applied for funding equivalent to approximately 12.000.000 DKK from NordForsk for the HUMAIN-project. The aim is to examine how machine learning and artificial intelligence tools can improve clinical excellence.

NordForsk facilitates and provides funding for Nordic research cooperation and research infrastructure.

The application has been approved to enter phase two and is awaiting the application process to be completed during the fall of 2020.



Examples of publications within the ACUTE CAG collaboration

Simvastatin improves mitochondrial respiration in peripheral blood cells; Jon Ambæk Durhuus, Svenja Hansson, Thomas Morville, Anja Birk Kuhlman, Tine Lovsø Dohlmann, Steen Larsen, Jørn Wulff Helge, Maria Angleys, Alba Muniesa-Vargas, Jens R. Bundgaard, Ian David Hickson, Flemming Dela, Claus Desler & Lene Juel Rasmussen: Scientific Reports, 12 October. 2020

Mortality and major complications after emergency laparotomy: A pilot study of risk prediction model development by preoperative blood-based immune parameters; Rune Petring Hasselager, Nicolai Bang Foss, Ove Andersen, DMSc, Mirjana Cihoric, MD, Morten Bay-Nielsen, Hans Jørgen Nielsen, Linda Camilla Andresen, Line Toft Tengberg: ACTA Scientific Journals

Risk of COVID-19 in health-care workers in Denmark: an observational cohort study; Iversen, K., Bundgaard, H., Hasselbalch, R. B., Kristensen, J. H., Nielsen, P. B., Pries-Heje, M., Knudsen, A. D., Christensen, C. E., Fogh, K., Norsk, J. B., Andersen, O., Fischer, T. K., Jensen, C. A. J., Larsen, M., Torp-Pedersen, C., Rungby, J., Ditlev, S. B., Hageman, I., Møgelvang, R., Hother, C. E., Gybel-Brask, M., Sørensen, E., Harritshøj, L., Folke, F., Sten, C., Benfield, T., Nielsen, S. D. & Ullum, H., 3 aug. 2020, I : Lancet Infectious Diseases.

Elevated suPAR Is an Independent Risk Marker for Incident Kidney Disease in Acute Medical Patients; Iversen, E., Houliind, M. B., Kallemose, T., Rasmussen, L. J. H., Hornum, M., Feldt-Rasmussen, B., Hayek, S. S., Andersen, O. & Eugen-Olsen, J., 12 jun. 2020, I : Frontiers in Cell and Developmental Biology. 8, s. 1-11 11 s., 339.

Post-hospital medical respite care for homeless people in Denmark: a randomized controlled trial and cost-utility analysis; Bring, C., Kruse, M., Ankarfeldt, M. Z., Brúnés, N., Pedersen, M., Petersen, J. & Andersen, O., 5 jun. 2020, I : BMC Health Services Research. 20, 1, 508.

Characteristics of patients with COVID-19 pneumonia at Hvidovre Hospital, March-April 2020; Israelsen, S. B., Kristiansen, K. T., Hindsberger, B., Ulrik, C. S., Andersen, O., Jensen, M., Andersen, S., Rasmussen, C., Jørgensen, H. L., Østergaard, C., Lindhardt, B. Ø., Kronborg, G. & Benfield, T., 15 maj 2020, I : Danish Medical Journal. 67, 6

High suPAR and Low Blood Eosinophil Count are Risk Factors for Hospital Readmission and Mortality in Patients with COPD; Håkansson, K. E. J., Ulrik, C. S., Godtfredsen, N. S., Kallemose, T., Andersen, O., Eugen-Olsen, J., Marsaa, K. & Rasmussen, L. J. H., 5 apr. 2020, I : International Journal of Chronic Obstructive Pulmonary Disease. 15, s. 733-743 11 s.

Patterns of Multimorbidity and Differences in Healthcare Utilization and Complexity Among Acutely Hospitalized Medical Patients (≥65 Years) - A Latent Class Approach; Juul-Larsen, H. G., Christensen, L. D., Bandholm, T., Andersen, O., Kallemose, T., Jørgensen, L. M. & Petersen, J., 28 feb. 2020, I : Clinical Epidemiology. 12, s. 245-259 15 s.

Highlighting the ACUTE CAG collaboration

To highlight the impact of the ACUTE CAG collaboration, the governance team encourage the key members to submit peer-reviewed publications and other dissemination activities for promotion through the ACUTE CAG homepage.

Example of Acknowledgement phrasing:

Author X is a member of the Clinical Academic Group: Recovery Capacity After Acute Illness in And Aging Population (RECAP).

Send an e-mail to: henriette.moeller.02@regionh.dk

The ACUTE CAG symposium and the annual meeting in 2021

Unfortunately, we must recognize that the planning and execution of a symposium and an annual meeting must be postponed until the ban on larger meetings can be lifted.

In the meantime, to support the possibility for more informal meetings in smaller groups and collaborations across the CAG, the governance team has established a shared position between Center for Health Aging and Clinical Research Department. By this, Linda Andresen will ensure a day-to-day coordination and the visibility of the ACUTE CAG objective at UCPH.

CAG contact information

Governance team:

Ove Andersen, ove.andersen@regionh.dk, +45 38 62 33 35

Lene Juel Rasmussen, lenera@sund.ku.dk, +45 29 17 65 32

CAG-coordinator Linda Andresen, linda.camilla.andresen@regionh.dk, + 45 38 62 33 22

Secretariat services:

Henriette Møller, henriette.moeller.02@regionh.dk, +45 38 62 15 01