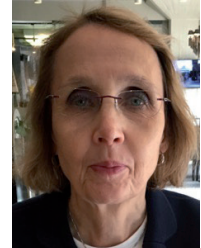


In this issue we start a series of articles describing what activities are underway at the various university clinics in the Nordic countries as well as to get an overview on the academic strengths of each clinic. It is intended to inspire collaboration by displaying the academic resources of the region. First out this time, are Umeå University Hospital, Sweden; followed by Bispebjerg Hospital, Copenhagen, Denmark; University of Tampere, Finland; and Trondheim University Hospital, Norway. We welcome more contributions to this series and invite you that have not already submitted your descriptions of your activities to do so. / The Editor

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We represent the Department of Public Health and Clinical Medicine, Dermatology and Venereology, Umeå University and University Hospital, Umeå, Sweden. Researchers at the Department: Nirina Andersson, MD, PhD; Bo Glas, PhD; Elisabet Nylander, MD, PhD, Professor; Alexander Shayesteh, MD, PhD-student; Berndt Stenberg, MD, PhD Senior Professor; Virginia Zazo, MD, PhD-student.

A main strength of the department/clinic is our continuous multidisciplinary approach. We cooperate with other departments/clinics, mainly from Sweden, but also from abroad.

Our principal areas of research

Sexually Transmitted Infections (STI)/Venereology

Research into sexually transmitted infections (STI) is a smaller subject area than "general dermatology" in Sweden. We are investigating STI from several different angles. First, we have studied risk factors for acquiring an STI, with a focus on *Chlamydia trachomatis*, in order to be able to identify persons who are at high risk of acquiring an infection and to study the effect of intervention on high-risk behaviour. We have found several risk factors and identified a very low incidence of condom use. A short intervention in persons at high risk of acquiring an STI, based on motivational interviewing, and completion of a special form, seems to be effective in diminishing risky behaviour. We have also focused on extra-genital *Chlamydia*, e.g. the incidence and possible impact of the finding that rectal infection with *Chlamydia* seems to be more common than

previously thought. Another focus is on investigating formerly unknown risk factors for acquiring STIs. As some patients have ongoing symptoms even when routine tests are negative we are studying other possible infectious causes of STIs.

Inflammatory diseases, mainly vulvar

Another main area of research is inflammatory diseases, mainly vulvar diseases, in which we focus on, for example, the cause and treatment of erosive lichen planus. This mucosal disease affects mainly oral and genital areas, and has severe symptoms and sequelae. Cooperation with a dentist specialized in mucosal diseases is therefore paramount. Since we also investigate the impact of diseases on patients' psychosocial wellbeing, cooperation with a counsellor/psychologist is necessary.

Regarding another inflammatory disease, in cooperation with researchers from the Department of Pathology, we have studied factors involved in the aetiology of psoriasis, for example, why the effect of ultraviolet B (UVB) treatment may differ between persons.

Hyperhidrosis

Another main area of research is hyperhidrosis, which is, in many respects, an unexplored disease. We have focused on quality of life. In Sweden, we have found that the frequency of primary hyperhidrosis is 5.5% and secondary hyperhidrosis 14.8%; figures that were previously unknown. We have also noticed that primary hyperhidrosis is more common among younger persons and secondary hyperhidrosis among older

persons. Our research into the impact of hyperhidrosis on quality of life has shown that the disease mainly affects psychological health, but the effect seems to diminish soon after treatment.

Patients with axillary hyperhidrosis are those with the most effect on their health, while those with hyperhidrosis in other areas seem to be less affected.

Digital health

Our department has many years' experience delivering clinical teledermatology services: videoconferencing and store-and-forward. We are now investigating the potential role of new modes of service delivery within the healthcare system, focusing on dermatology.

An ongoing research project is into using robotic telepresence for leadership and consultation in a dermatology department. The skills and experience of a senior consultant and head are difficult to replace. When the opportunity arose for the chief physician in our unit to work abroad (in Australia), she arranged to be "present" digitally, in order to continue work in her unit in Umeå.

In order to understand how technology affects users and organizations, we are conducting a user study based on methodologies from human-computer interaction. We will also explore the implications for patients, in terms of trust towards the telepresent clinician and how the patients' experience the power relationship. This experience has already pinpointed valuable challenges, improvements and strategies for remote working.

Environmental health

Our department participates in research organized by the Swedish Contact Dermatitis Research Group into occupational dermatoses and environmental exposure, with a focus on allergic contact dermatitis. Revisions of test panels for patch testing in Sweden are based on published results from the group.

Building-related illness (BRI) is common in the Swedish population. According to Folkhälsomyndighetens Miljöhälsorapport (2017) 20% of the Swedish population report symptoms that they attribute to the indoor environment in their residence, school or workplace. The mechanisms behind BRI are unknown, but a number of risk factors have been determined, such as low rates of ventilation, psychosocial factors, e.g. stress,

frequency of cleaning and exposure to a number of emission sources, such as mould and moisture-damaged building material. We have long experience of studies utilizing epidemiological methods and, in a present study, questionnaires have been combined with advanced measurements of exposure to chemical compounds and particles, tools used to monitor psychosocial factors, measurements of skin sensitivity (capsaicin test) and blood samples from participants. We expect to find chemical compounds or chemical patterns associated with BRI. We also expect to gain an understanding of the mechanism involved in BRI. A new project is currently being initiated to explore the role of transient receptor potential (TRP) channels in the pathogenesis of building-related symptoms.

The department is also involved in a regional project in the northern part of the Nordic countries concerning energy efficient renovation of buildings. Our contribution is a literature compilation of the health effects of renovation. There are several studies reporting beneficial effects, but there are also reports of increased risks of developing several diseases, e.g. atopic dermatitis among children.

An ongoing PhD project aims to develop a specific quality of life instrument for cutaneous leishmaniasis in Iran. Based on qualitative interviews with Iranian patients a tentative questionnaire has been tested in an Iranian out-patient population. The results have been analysed using classical statistics and Rasch analysis, with the goal of developing a 10–15-item instrument with good psychometric properties.

Our main contribution

- A focus on STI and vulvar diseases, which is a relatively uncommon area of research in Sweden.
- Projects on inflammatory diseases, in which all participants have their own specialized role.
- A focus on indoor air.
- Research into hyperhidrosis, which is, in many respects, an unexplored disease.
- Research into e-health, which is a rapidly expanding field.

Our strengths

- We perform a combination of qualitative, quantitative and molecular research.
- Our multidisciplinary approach to projects.
- Our close connection to the clinical implications of all our research.