

## Using the Internet to Manage Atopic Eczema

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Thomas Schopf, dermatologist in Tromsø, Norway, recently defended his dissertation “Using the Internet to Manage Atopic Eczema” for the degree of PhD at the University of Tromsø – The Norwegian Arctic University. Supervisors were Roald Bolle and Trond Flægstad. Assessment committee was Iris Zalaudek, Graz, Austria (1<sup>st</sup> Opponent), Thomas Halvorsen, Bergen (2<sup>nd</sup> Opponent), and Terje Risberg, Tromsø.

Telemedicine enables remote diagnosis and management of medical conditions. The main benefit is less travelling and better access to health care. The Internet has dramatically changed the access to health information. Both patients and health care personnel can read about health-related issues on websites or interact with each other on discussion forums, social networks or web-based messaging services. This work investigates the use of the Internet to support patients and health care personnel managing atopic eczema in a community-based setting.

The aim of the first study was to evaluate how web-based consultations for parents of children with atopic eczema affect health outcomes, self-management behaviour, health resource use and family costs, as well as to investigate the workload of the doctor. In a randomised controlled trial, conducted at the University Hospital of North-Norway and the Hammerfest County Hospital, participants in the intervention arm could send requests to a dermatologist via a secure web-based messaging service for a period of 1 year.

Nineteen of the 50 participants in the intervention group used the web-based service. The majority of users would recommend the consultation service to other parents of children with atopic eczema. There were no significant differences in the outcomes between the intervention and control group. The SCORAD index improved non-significantly from pre- to post-intervention in both groups. Except for hospital admissions, both groups had significantly fewer overall health care visits after the one-year intervention compared to baseline. The time needed by the physician to read and answer a request was less than 5 min in the majority of cases that were studied.

The aim of the second study was to develop a web-based curriculum in atopic eczema for the education of primary care physicians and nurses, and to compare perceptions of



Thomas Schopf defended his thesis at the University of Tromsø. From left to right: Iris Zalaudek (1<sup>st</sup> Opponent), Trond Flægstad (Supervisor), Thomas Schopf, Roald Bolle (Supervisor), Thomas Halvorsen (2<sup>nd</sup> Opponent), and Terje Risberg.

the course between doctors and nurses. Furthermore, travel savings of physicians participating in the web-based curriculum were investigated. Also, the study examined whether the combination of a web-based curriculum and guidance via e-mail or multimedia messaging service (MMS) improved practice behaviour of primary care physicians managing patients with atopic eczema.

Physicians and nurses had similar perceptions of the course. Nearly one third commented that a mix of professions in the course was positive. The cost of developing the web-based course was NOK 716,841, and the first 86 learners saved NOK 455,198 in travel expenses. The break-even point between travel/hotel expenses and course development costs was identified at 135 saved travel refund applications.

In a randomised educational trial, physicians in the intervention group had access to the web-based course, including

guidance from a dermatologist via e-mail or MMS. There was a significant increase in the duration of topical steroid treatment compared to baseline for both groups, but no significant differences between the groups. Eleven percent of the treatment reports in the intervention group led to referral to specialist health care compared to 30% in the control group, a statistically significant difference.

This work provides evidence that web-based services may be used effectively for guidance of patients and health care personnel. Educational web-based interventions may reduce travel costs and reduce referral rates.

## References

1. Bergmo TS, Wangberg SC, Schopf TR, Solvoll T. Web-based consultations for parents of children with atopic dermatitis: results of a randomized controlled trial. *Acta Paediatr* 2009; 98: 316–320.
2. Schopf TR, Bolle R, Solvoll T. The workload of web-based consultations with atopic eczema patients at home. *BMC Research Notes* 2010; 3: 71.
3. Schopf T, Flytkjær V. Doctors and nurses benefit from inter-professional online education in dermatology. *BMC Med Educ* 2011; 11: 84.
4. Schopf T, Flytkjær V. Impact of interactive web-based education with mobile and email-based support of general practitioners on treatment and referral patterns of patients with atopic dermatitis: randomized controlled trial. *J Med Internet Res* 2012; 14: e171.