

## CONFERENCE ABSTRACT

### Universally accessible e-health services for all:

### How to develop accessible health services in Norway

European Telemedicine Conference 2016, Oslo 15-16 November

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**Introduction:** The Norwegian Anti-Discriminatory and Accessibility Act adopted in 2008 states that web based electronic services geared towards the public should be accessible to all. Today, the web content accessibility guidelines (wcag-2) is an agreed standard in Norway. However, it should be fair to state that the developers of Norwegian e-health services have not focused on universal design to any particular extent. To obtain a brief estimate of the status in the field, we have investigated the accessibility to some randomly selected e-health services, applying a ad hoc user panel of 4 persons.

**Methods and materials:** We have during 2015 set up a Windows 7 machine with NVDA synthetic speech output and a Braze Powerbraille display installed. Using Mozilla Firefox, we have investigated the accessibility to 11 Norwegian web based health services. Our investigation included state, municipal and private service providers. The wcag-2 standard and "Referansekatalogen for e-helse" constituted the point of offset for our evaluation. Four users were given specific tasks in connection with each website, and we observed and interviewed the informants as they interacted with each service.

We focused especially on the users' ability to operate the services with the keyboard, and if all the functionality on the web pages could be utilized without applying a mouse.

**Results:** The Helseportalen (<https://helsenorge.no>) provides access to the electronic health record for Norwegian citizens and constitutes a major national initiative in the field of e-health. To which extent can this service be regarded as universally accessible? The html code was found to be robust and consistent, and the functionality, which we investigated, could be operated by the keyboard. This was not true for all of the services, which we evaluated. The login to Helseportalen can be done with mobile bank id, or by a code generator equipped with synthetic speech. However, the initial registration of login method could not be performed by our users. The login to Helseportalen relies on services from private enterprises, and are not necessarily free of charge. The quality of the code on the various sites varied considerably, which potentially causes problems for users of peripheral

equipment. Inconsistent use of html headline-tags slows down navigation on several of the evaluated pages. Multimedia content is not followed by a descriptive text (not required by wcag-2 level aa).

**Discussion:** If the construction of e-health services is regarded a work process involving planning, prototyping, implementation, testing, refinement and documentation, the users should be involved in each of this phases to ensure accessibility to the services made. User oriented design methods have a stronghold in Scandinavia, but if for economic or practical reasons such approaches are not regarded feasible, expert evaluations with emphasis on accessibility should be performed on each stage in the development cycle.

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**Keywords:** universal design; e-health services; wcag-2

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