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**Please cite the original version:** Kujala, S. ; Rajalahti, E. ; Heponiemi, T. & Hilama, P. (2018) Health Professionals' Expanding eHealth Competences for Supporting Patients' Self-Management. In Adrien Ugon, Daniel Karlsson, Gunnar O. Klein, Anne Moen (Eds.) Building Continents of Knowledge in Oceans of Data: The Future of Co-Created eHealth. Amsterdam: IOS Press, 181-185.

doi: 10.3233/978-1-61499-852-5-181

URL: <http://ebooks.iospress.nl/volumearticle/48778>

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# Health Professionals' Expanding eHealth Competences for Supporting Patients' Self-Management

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**Abstract.** An increasing number of new eHealth services that support patients' self-management has changed health professionals' work and has created a need for a new eHealth competence. In this study, we evaluated the health professionals' eHealth competences and training needs in a public health organization in Finland. The target organization's goal was to increase the number of eHealth services provided to patients, and health professionals and their competences were seen as critical for the adoption of services. Data was collected through an online survey of 701 health professionals working in the target organization. Professionals perceived their basic computer skills as good and they were mostly willing to use eHealth services in patient work. However, health professionals need guidance, especially in their patient work in the new eHealth-enabled environment. They were less confident about their competence to motivate and advise patients to use eHealth services and how to communicate with patients using eHealth solutions. The results also imply that eHealth competence is not merely about an individual's skills but that organizations need to develop new working processes, work practices and distribution of work. We suggest that the training and support needs identified be considered in curricula and lifelong learning.

**Keywords.** Health professionals, eHealth competences, eHealth services

## 1. Introduction

Increasingly, eHealth services are offered to patients who will consequently take a more active role in the maintenance of their health [1]. As a result, the work and role of health professionals are changing, and health professionals need eHealth competence for practicing in an increasingly eHealth-enabled and changing health care environment [2,3]. Beyond computer skills and literacy, new eHealth services create new competence needs. Health professionals play a critical role in utilizing eHealth services in patient work and in engaging patients to use these services for self-management [4].

What are eHealth competences in practice? Previous studies have focused on nursing students' and nurses' ICT skills and informatics competence [2,5]. The Technology Informatics Guiding Educational Reform (TIGER) [6] identifies three

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categories of competences in nursing informatics: basic computer competences, information literacy and information management. Health care is information intensive, so the focus on information management is justifiable. However, as the scope of eHealth is broadening from information systems to eHealth services such as patient portals, other aspects of eHealth competences need to be considered. Sihvo et al. [7] used group interviews of experts and identified seven categories of competences: 1) ICT skills, 2) interactive e-communication, 3) work development skills, 4) positive attitude toward using eHealth, 5) knowledge of eHealth services and their use in patient work, 6) service development and implementation skills, and 7) multichannel health coaching and instruction skills. In summary, eHealth competences can be defined as a broad set of skills employing ICT and eHealth services, information management, multichannel health coaching, patient communication, development and implementation.

Collaboration between the European Union and the United States aims to ensure that health care staff have competences to apply technology effectively in health care [6]. The present study aims to contribute to this effort by identifying health professionals' eHealth competences as well as the current practical challenges that health professionals face with eHealth services.

In this study, we evaluate the current state of eHealth competences of health professionals in a public health organization in Finland. The identification of deficits in eHealth competences helps in developing training and support for health professionals in adopting new eHealth services. The strategy of the target health organization is to use eHealth services widely, and it has already provided a set of self-management services to patients. The organization's goal is to increase the number of eHealth services provided to patients so that all patients initiate their care through the eHealth services. In the organization, health professionals and their eHealth competences were seen as critical for the adoption of services, and the identification of training and support needs was deemed essential.

## **2. Methods**

An online questionnaire was developed to assess the eHealth competences of health professionals, including nurses, social workers, and physicians. The survey contained questions about demographics, self-perceived eHealth competences and actual patient guidance behavior. Self-perceived eHealth competences were assessed as in [8] using multiple-choice questions with competence statements with a five-point Likert scale. The scale ranged from 1 (fully disagree) to 4 (fully agree) and included a fifth option, 5 (I don't know), that was removed from the analysis. Nine statements were selected to broadly represent different eHealth competence areas identified from the literature (see Table 1). In addition to self-perceived competence assessments, respondents were asked to rate how often they had guided patients in using the three most common patient portals and in searching for health information from patient portals. Respondents were asked an open-ended question with regard to training and support needs. The quantitative data was analyzed using descriptive statistics and the responses to the open question were content-analyzed.

The reliability of the questionnaire was tested with nine health professionals. They filled in the questionnaire and talked aloud at the same time to describe how they understood the questions. Based on the iterative pilot testing, the questionnaire was revised by clarifying wording and slightly modifying some items.

The survey study was carried out between June 14 and August 31, 2017 in the South Savo Social and Health Care Authority, which is a public health organization in Finland. The survey study was introduced in the intranet news page of the organization and an invitation was sent to health professionals by their work email. The invitation letter included a description of the target group (health professionals) and the purpose of the survey. Although participation was anonymous, respondents could submit their email address at the end of the survey to participate in a draw for 10 pairs of movie tickets and two wireless computer mice.

### 3. Results

A total of 701 health professionals filled in the questionnaire; the response rate was 24% of the total health care personnel in the studied organization. The mean age of the respondents was 44.1 years ( $SD = 11.9$ ) and 89.5% of them were females. Most of the respondents were nurses (62%). In addition, respondents included social workers (6%), physicians and dentists (5%), ward secretaries (5%), physiotherapists and other therapists (3%), instrument or facility care personnel (3%), health administration workers (2%) and psychologists (1%).

Table 1 shows the self-perceived level of competences and Table 2 summarizes how often health professionals had guided patients to use different eHealth services. Health nurses and midwives had guided patients most often. Doctors and ward secretaries were the second-most active professions. Social workers, practical nurses and psychologist were the least active in guiding patients. Of the respondents, 234 took the opportunity to answer the open question about their training and support needs. Most frequently, the responses requested training for a specific service or software (57 mentions) or that "everything should be gone over again" (53 mentions). Many of the respondents requested an introduction to eHealth services and their possibilities, or training about how to guide patients to use eHealth services or how to communicate with patients using eHealth services (47 mentions). Some mentioned that they would like to have an orientation when new services or programs are implemented (11 mentions) or that they would like to learn basic computer skills (10 mentions).

**Table 1.** Percentage of health professionals agreeing with the competence statements. Scale from 1 (Fully disagree) to 4 (Fully agree).

Competence statement	M	S.D.	Professionals agree (%)
I can work based on the principles of information security and privacy protection.	3.7	.52	98.1
I can use eHealth applications and services.	3.4	.67	91.3
I have good basic computer skills.	3.4	.74	88.3
I am willing to use eHealth services in patient work.	3.3	.73	88.0
I can motivate and guide patients to use eHealth services.	3.0	.82	74.0
I can fluently communicate with patients via a computer.	3.0	.92	72.6
I can advance the implementation of a new eHealth service.	2.9	.84	70.1
I can utilize the professionals' materials of Kanta.fi*.	2.9	.92	68.9
I can redesign my own work processes.	2.9	.87	68.8

\*Note: Kanta.fi is a national digital patient data repository that also includes instructions and information for health professionals.

**Table 2.** Percentage of health professionals who had guided patients to use an eHealth service.

	Never	1–4 times	5–9 times	10 or more
Local patient portal	61	23	5	11
Searching for information	57	25	7	11
Electronic prescription	40	25	10	25
National patient data repository	38	28	9	25

#### 4. Summary and conclusions

Overall, health professionals evaluated their competences as fairly good, but they seem to need guidance in particular in their patient work in the new eHealth-enabled environment. Respondents felt their basic computer skills were good and they were willing to use eHealth services in patient work. Still, computer skills varied and many professionals requested training for a specific software or service or wanted to review the basics. Furthermore, a minority of respondents (12%) were not willing to use eHealth services in patient work. Generally, respondents felt themselves uncertain regarding new tasks in guiding patients to use eHealth services and regarding communication with patients using a computer. More than half of the respondents had neither guided patients to use the local patient portal or had searched for information from eHealth services. Health professionals were also less confident about communicating with patients utilizing eHealth solutions. It is a new skill that improves over time [9], but health professionals could also receive training in this regard.

The results of the competence evaluation reflect the established use of information systems in Finnish health care. Based on our evaluation, health professionals are mostly experienced in using computers and they have received training on information security and privacy protection. However, the number of eHealth services for patients is increasing rapidly, and this change is causing challenges to health professionals. Health professionals are not familiar with all eHealth services and the benefits of these services in their work. They are not equipped with a clear plan on how to adopt new eHealth services and integrate them to their patient work. They were concerned about how tasks and responsibilities were shared and how they should modify their own work. Clearly, eHealth competence is not merely about an individual's skills but it also concerns the organization's need to develop new working processes, practices and distribution of work in conjunction with the health professionals.

Health professionals' expected role in engaging and advising patients to use eHealth services was not entirely clear to them. For example, one of the physician respondents commented that "it is not the physician's task to guide patients to use eHealth services." However, as a health professional's endorsement influences a patient's capacity to use eHealth services [4], health professionals need to be active and know how to motivate and guide patients.

To conclude, we examined health professionals' competences related to eHealth services and identified that health professionals need support in adopting new eHealth services to patient work. We suggest that the training and support needs identified be considered in curricula and lifelong learning. The identified competences expand the earlier competence models from the eHealth service point of view. The eHealth competences can be seen to be ever-expanding as new technology, such as robotics, gains ground in the field. Gradually, eHealth will become an essential part of health care, but the capability of health professionals to constantly adapt their work to new technologies

and services will continue to be fundamental. E-learning is a promising approach for supporting this health professional development in hectic healthcare where shift work inhibits professionals to participate traditional training [10]. However, many of the professionals did not know about the existing online materials in Kanta.fi. Thus, e-learning services need to be promoted and health organizations should support their use.

## Acknowledgements

The authors are grateful to the DigiSote project and the South Savo Social and Health Care Authority. This work was supported by the Strategic Research Council at the Academy of Finland, decision number 303606.

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