Report on fully implemented tele-mentoring infrastructure and running processes in the pilot sites

Part-financed by the European Union
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and European Neighbourhood and
Partnership Instrument)

Baltic Sea Region
Programme 2007–2013

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WP no.:	5
WP title:	Report on fully implemented tele-mentoring infrastructure und running processes in the pilot sites
Date:	2014.03.26
Reviewer:	Tobias Larsson, Blekinge Institute of Technology, Sweden

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LIST OF ABBREVIATIONS

BelMAPO	Belarusian Medical Academy of Post-Graduate Education
BSR	Baltic Sea Region
CCM	Chronic Care Model
CME	Continuing Medical Education
CNE	Continuous nursing education
CPD	Continuing Professional Development
DSS	Decision Support Systems
ESFD	Estonian Society of Family Doctors
GP	General Practitioner
ICT	Information and communication technologies
KPHCD	Kauhava Primary Health Care District
LUHS	Lithuanian University of Health Sciences
N/A	Not Applicable
OCRH	Ostrovets Central Regional Hospital
PDP	Personal Development Plans
PHC	Primary health care
SEAMK	Seinäjoki University of Applied Sciences
Skype	VOIP service
SOHCD	South Ostrobothnia Health Care District
Svoog	Web-based training program
VUHSK	Vilnius University Hospital Santariškių Klinikos
WLAN	Wireless LAN

ABSTRACT

The current output is the fourth in a series of reports analysing the situation, describing set-up and evaluation of the five tele-mentoring pilots in Belarus, Estonia, Finland and Lithuania.

The report describes the fully implementation of tele-mentoring infrastructure and running processes in the participating pilot sites. It focused on crucial success factors for new ways of cooperation as motivation of participants, use of technology, time and cost savings.

The five pilots have been implemented in the years 2012/2013 by Belarusian Medical Academy of Post-Graduate Education (BelMAPO), Ostrovets Central Regional Hospital (OCRH), Kauhava Primary Health Care District (KPHCD), South Ostrobothnia Health Care District (SOHCD), Seinäjoki University of Applied Sciences (Seamk), Estonian Society of Family Doctors (ESFD), and Vilnius University Hospital Santariškių Klinikos (VUHSK).

1. INTRODUCTION

As our population ages, society faces new challenges. Demand for primary health care services is rising: with the retirement of older professionals and an unwillingness amongst younger professionals to re-locate to remote areas, there is a shortage of physicians, especially in rural areas. It is to meet these challenges that the project "PrimCareIT – counteracting brain drain and professional isolation of health professionals in remote primary health care through tele-consultation and tele-mentoring to strengthen social conditions in remote BSR[1] started its activities.

A literature review carried out at the very first beginning of the project has given an inside on the current state of the art in tele-mentoring. It has shown that tele-mentoring has great potential for health care in the individual countries and also in cooperation between different medical institutions. It is well suited to overcome geographical distances in training and education of young health care professionals.

Still this literature review has revealed that there are many international and some European projects existing on tele-mentoring, but it is not widely used in primary care in Europe, yet. The lack of studies in Europe so far could be due to the fact that until recently enough medical staff was still available in urban as well as in rural areas. Only the lack in certain regions now makes it relevant to consider alternatives for the education of young health.

The current output is the fourth in a series of reports analysing the situation, describing set-up of and evaluating the five pilots in tele-mentoring[2,3,4]. Nine organisations implemented these five pilots in 2012/2013 in the four partner countries Belarus, Estonia, Finland and Lithuania.

[1] http://www.primcareit.net/

[2] The first output: "Report of situation analysis and process description and state-of-art of tele-mentoring solutions in the 6 pilot sites and in the BSR"; the report was aimed to investigate the extent to which technological tools and solutions are used for support on organisational, regional and country level in tele-mentoring relationships.

[3] The second output: "Implementation plan for the five tele-mentoring pilot regions"; the report was implementation plan for the 5 tele-mentoring pilot regions, to carry out tele-mentoring study processes in the four partner countries Belarus, Estonia, Finland and Lithuania with 9 partners cooperating in 5 pilot sites.

4 The third output of tele-mentoring work package: "Mid-term evaluation report in tele-mentoring implementation including necessary adjustments" reviews the progress

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2. REPORTS ON IMPLEMENTED TELE-MENTORING PILOT

Present chapter reports on implementation of tele-mentoring pilots: context, technology and running processes in the pilot sites. The tele-mentoring pilots were implemented:

#1 Belarusian Medical Academy of Post-Graduate Education (BelMAPO) and Ostrovets Central Regional Hospital (OCRH)

#2 Kauhaha Primary Health Care District (KPHCD)

#3 South Ostrobothnia Health Care District (SOHCD) and Seinäjoki University of Applied Sciences (Seamk)

#4 Estonian Society of Family Doctors (ESFD)

#5 Vilnius University Hospital Santariškių Klinikos (VUHSK).

.

2.1. Pilot #1: BelMAPO, OCRH; Belarus

By: Irina Moroz, Tatiana Kalinina, NikolayGvozd, Maksim Makouski, State Educational Institution Belarusian Medical Academy of Post-Graduate Education; Vladimir Mozheiko, Ostrovets Central Regional Hospital

2.1.1. Background

2.1.1.1. Context

The tele-mentoring pilot was carried out in cooperation between the State Educational Institution Belarusian Medical Academy of Post-Graduate Education (BelMAPO) and Ostrovets Central Regional Hospital (OCRH). BelMAPO has the special permission of the Ministry of Education of the Republic of Belarus to carry out the educational activity and the license of Ministry of Health of the Republic of Belarus to carry out the medical activity.

BelMAPO is able to provide training on 76 medical specialties at 4 faculties based on tele-consultations and tele-conferences. Within PrimCareIT project it is planned to use the experience of General Medical Practice and Public Health and Healthcare departments of BelMAPO to carry out tele-mentoring of OCRH 70 doctors and 8 GPs of OCRH hospital-based outpatient clinics. By means of modern IT equipment, solutions and well-qualified specialists

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BelMAPO will organize high-quality training of the specialists from distant rural areas. IT support is organized by the IT Center of BelMAPO.

Tele-mentoring was carried out between a specialist (Mentor) of BelMAPO and PHC (Primary Health Care) specialist of OCRH and 4 hospital-based outpatient clinics affiliated to it (Mentees), which were located in rural areas and considered to be professionally isolated.

OCRH and 4 hospital-based outpatient clinics affiliated to it are at least more than 140 km away from BelMAPO (Minsk). Distance from BelMAPO to The Ostrovets Central Regional Hospital is also about 140 km, to HBOC Kimelishki – 182 km, to HBOC Mikhalishki – 175 km, to HBOC Gervyaty – 170 km, to HBOC Voroniany - 168 km.

2.1.1.2. Purpose and objectives

The main aim of the pilot is to support PHC specialists in remote areas via ICT (tele-consultations and tele-mentoring).

Pilot goals:

1. To raise the professional level of PHC specialists in rural areas via e-learning and tele-consultations
2. To decrease professional isolation via ICT
3. To develop international collaboration on tele-mentoring and tele-consultations in medicine with the Baltic Sea countries (experience exchange, seminars)

During the project we managed the following:

- To develop and implement Moodle, emergency aid in cardiac rhythm disorders program;
- Pilot participants were equipped with the required technologies to carry out tele-mentoring sessions between BelMAPO and PHC (Primary Health Care) specialists of OCRH and 4 hospital-based outpatient clinics affiliated to it;
- both sides gained the experience in conducting e-learning (video-conferences, webinars and etc.);
- to get the opportunity to improve the knowledge of PHC specialists in remote areas via tele-mentoring technologies.

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2.1.1.3. Timeline

The pilot started in December 2012. The implementation of the pilot was carried out step by step. The more active implementation on tele-consultations started in September 2013, when we improved the technologies in pilot sites (Table 1).

Table 1. Pilot #1 Project procedures and milestones

Steps	Timing	Status
Learning program with amendments based on the testing results	(February 2013)	Finalised (using own technical recourses)
Tele-mentoring	(February 2013 – June 2013)	Finalised
Mid-term evaluation	(June 2013)	Finalised
Updated process of tele-mentoring	(June 2013 – October 2013)	Finalised
Pilot analysis	(November 2013)	Finalised
Final report	(December 2013)	Finalised

2.1.1.4. Participants

Tele-mentoring was carried out between a specialist (Mentor) of BelMAPO and PHC (Primary Health Care) specialist of OCRH and 4 hospital-based outpatient clinics affiliated to it (Mentees)

The role of BelMAPO (Mentor) was the following:

- To develop and implement Moodle, “Emergency aid in cardiac rhythm disorders program”,
- To organize educational seminars and conferences,
- IT support,
- Documentation support.

The role of OCRH and 4 hospital-based outpatient clinics affiliated to it (Mentees) was the following:

- Participation in the tele-mentoring sessions,
- IT support

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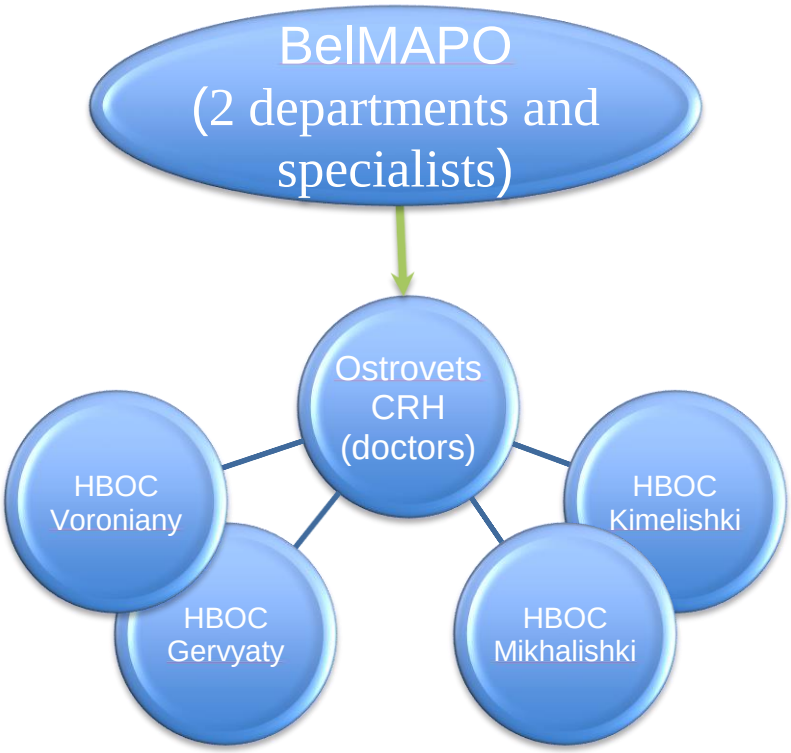

Figure 1. Pilot #1 Participants of the pilot

Tele-mentoring of the OCRH specialists by the mentors of BelMAPO was carried out on-line/off-line via e-mail, webinars, Skype, etc. To participate in the tele-mentoring sessions OCRH and 4 outpatient clinics' specialists were required to pass registration, filling-in the application and testing at BelMAPO web-site de.belmapo.by "BelMAPO and OCRH tele-mentoring".

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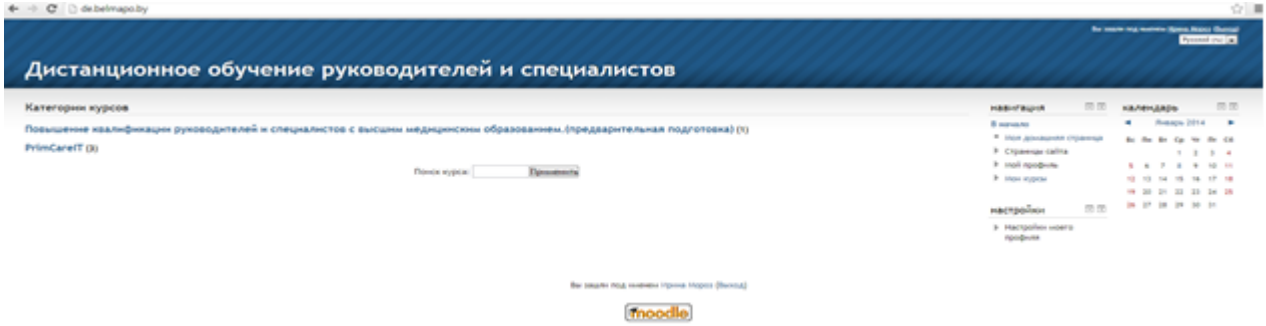
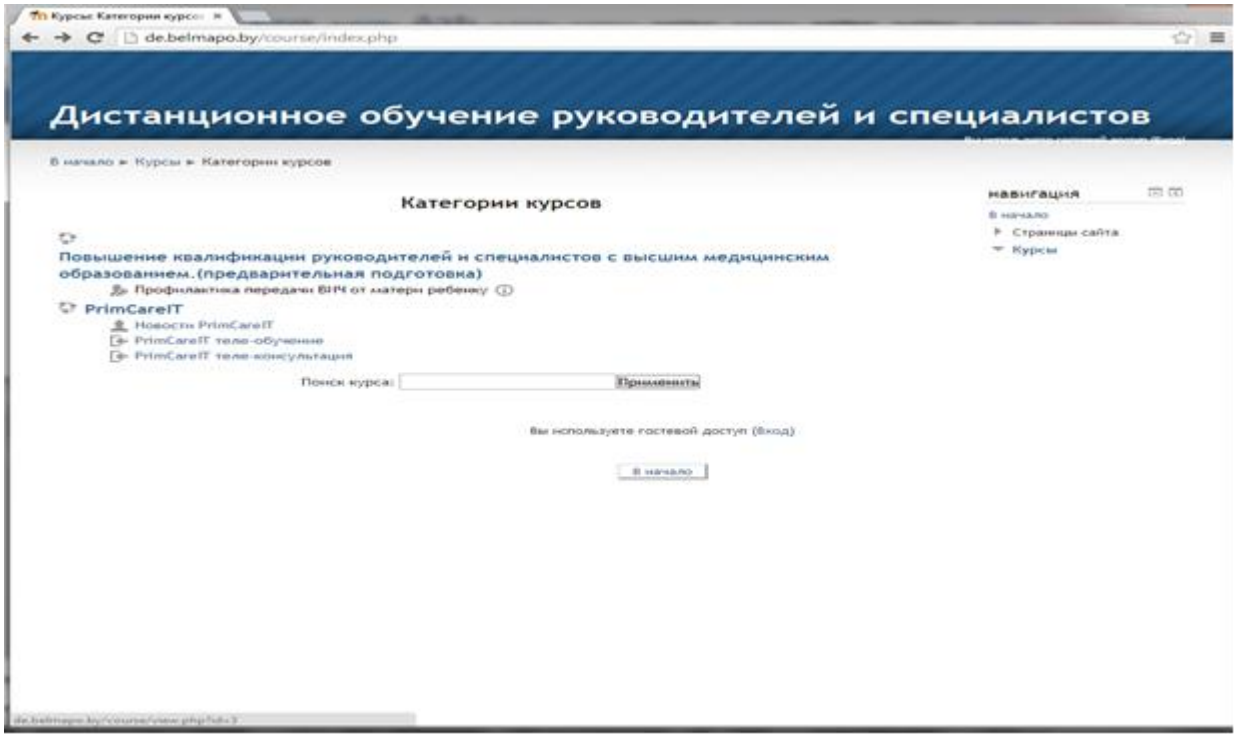
Figure 2. Pilot # 1 Structure and the context of the website





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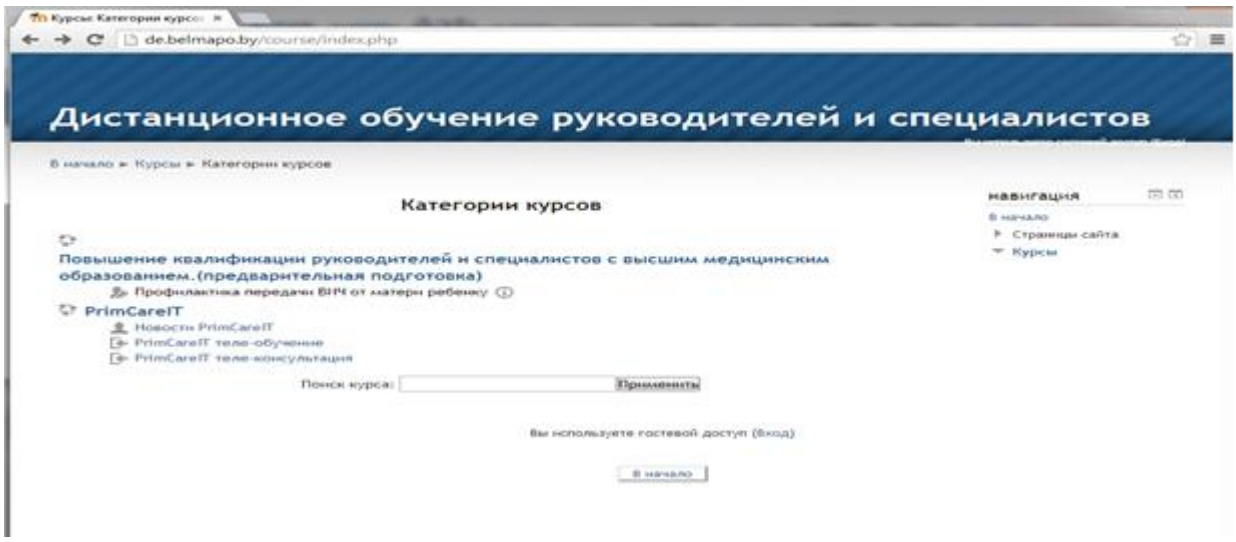

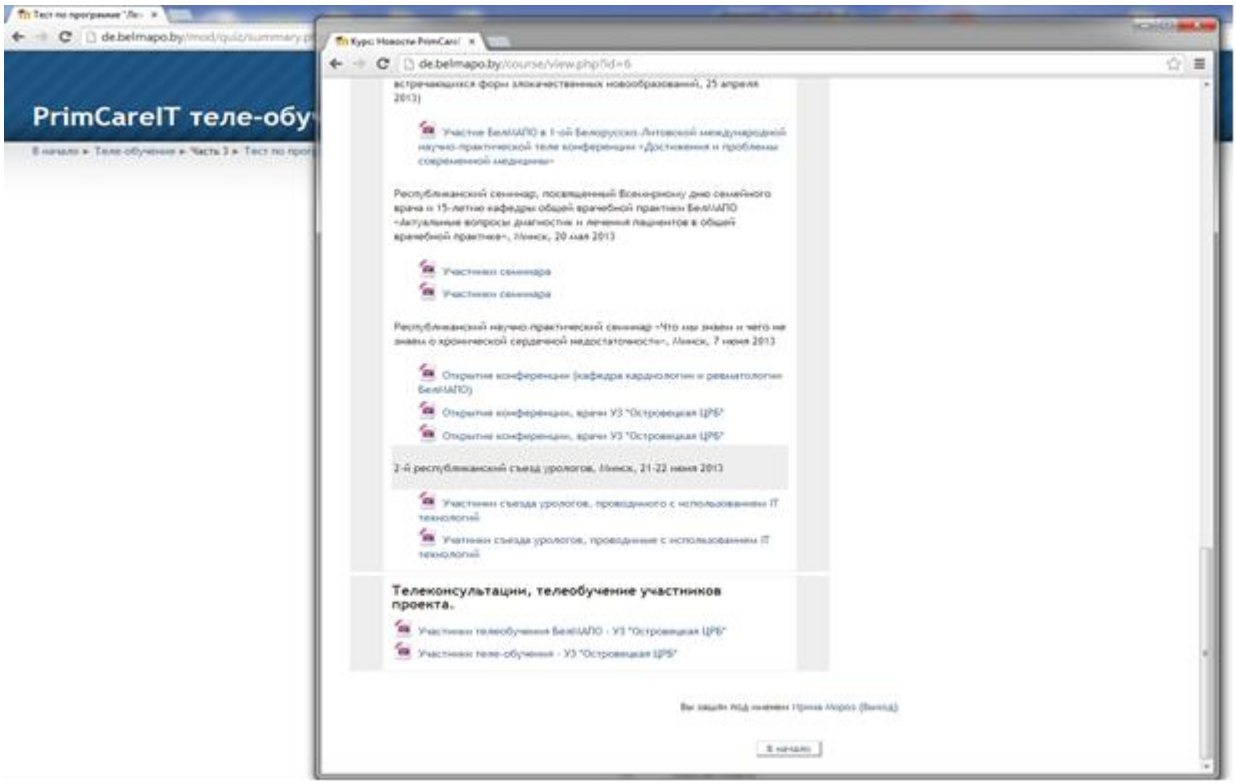

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Figure 3. Pilot # 1 Moodle "Emergency aid in cardiac rhythm disorders program"

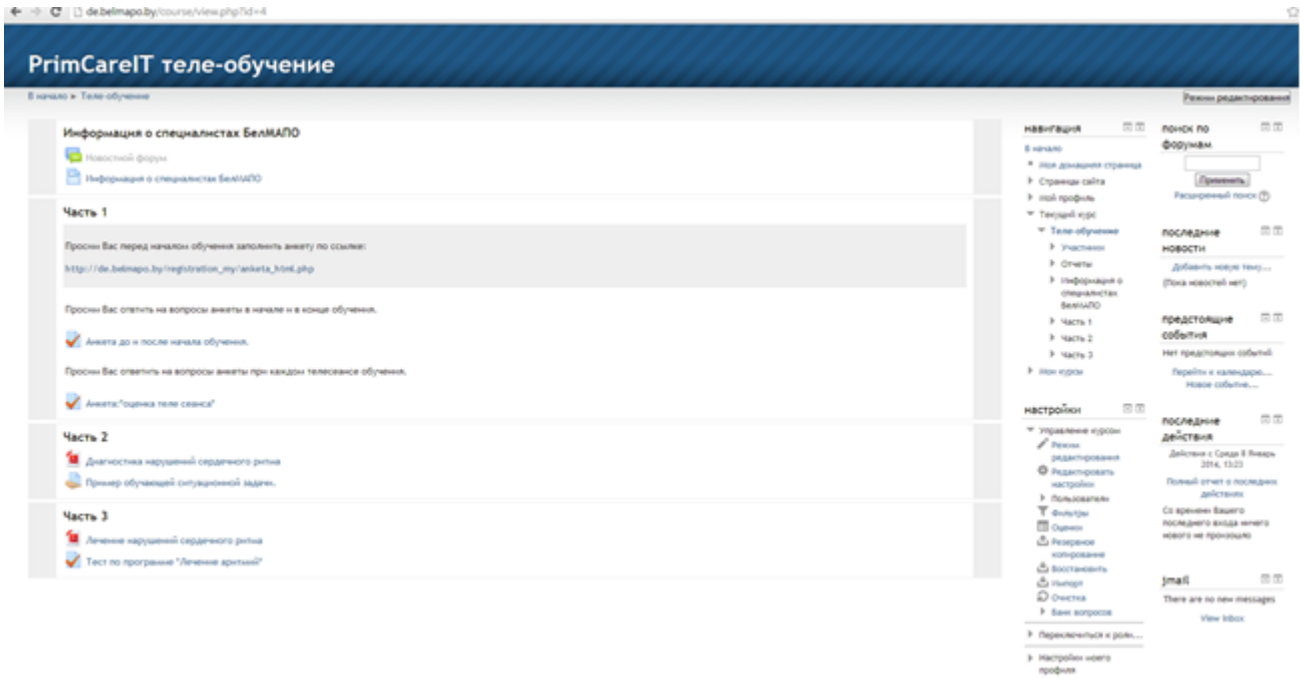

Figure 4. Pilot # 1 Educational program (example of a case study).

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Figure 5. Pilot # 1 Knowledge evaluation (testing questions)

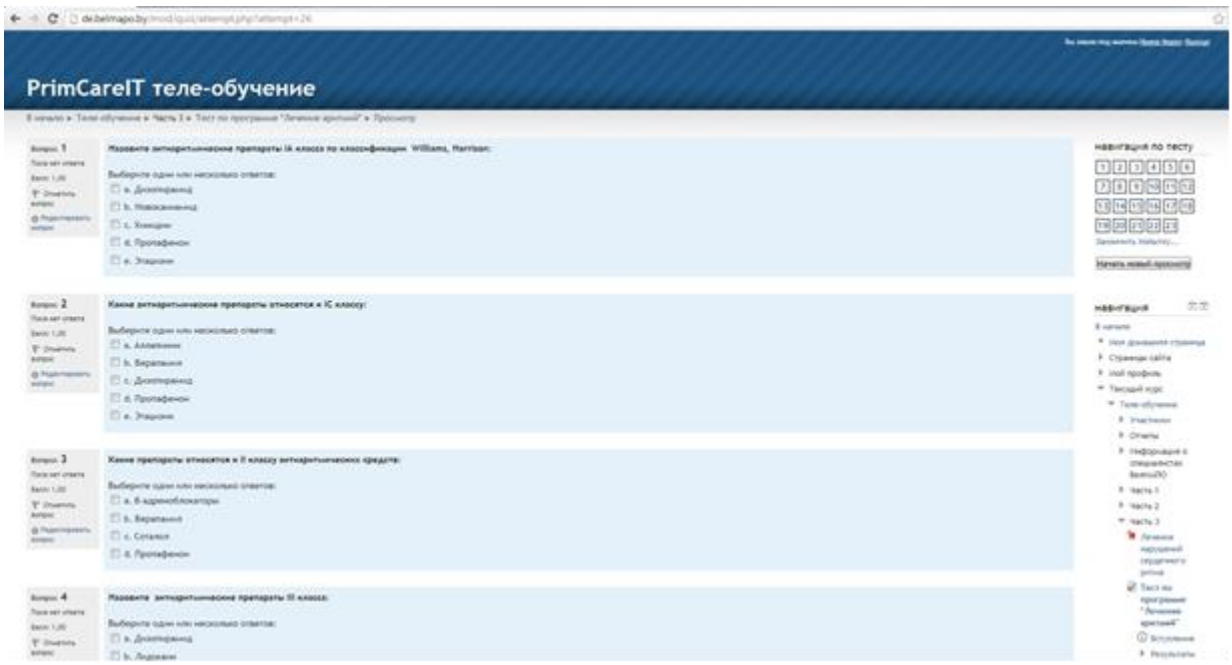

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Figure 6. Pilot # 1 Participants of the pilot

Figure 7. Pilot # 1 Participants of the pilot (tele-mentoring session via Oovoo)

All the participants of webinars, seminars, scientific and practical conferences approved by the Ministry of Health of the Republic of Belarus were given special certificates with the information of the number of hours, required for the further qualification certification.

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2.1.1.5. Evaluation methods

To assess the results of the tele-mentoring pilot implementation we used the following methods:

2.1.1.5.1. Interview

Individual interviews of BelMAPO and OCRH (including 4 outpatient clinics) specialists to assess the results of the tele-mentoring pilot implementation we used the following methods:

2.1.1.5.2. Questionnaire

- Questioning of each participant before, during and after the implementation of the tele-mentoring pilot.
- The assessment of each tele-session by the participants.
- The assessment of the experts' opinion about the tele-mentoring implementation.

2.1.1.5.3. Skills testing

The assessment of the level of knowledge before and after the sessions.

2.1.1.6. Tele-mentoring framework. Type and number of sessions

E.g. Moodle/ Forum/ Skype etc.

While implementing the pilot on tele-consultations we used various types of IT. (Table 2).

Table 2. Pilot #1 Type and number of sessions

Type	**Telecommunications**	**Number of sessions**
Type A – tele-mentoring in dialogue	Skype	9 online
Type B –tele-mentoring in a lecture (video-presentations courses)	Video-sessions	8 Video-sessions, including 7 webinars)
Type C - tele-mentoring case study	E-mail	10 sessions
Type D - tele-mentoring combined	E.g. Moodle Skype , e-mail	96 learning sessions

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2.1.1.7. Technology

We used the following technologies:

- Video conferencing system
- Computers with wired internet connection
- Web cameras and extension cords
- Laptops with mobile connection
- Wi-Fi and mobile roaming access provided via 3G networks and local LAN, purchased on monthly subscriptions.

We used the following software:

- Oovoo (free of charge) – for communication
- Free attachment to «Open source» for the program providing tele-mentoring (Moodle)

2.1.2. Technology and Technical equipment assessment (basis for this analysis in questioners and interviews)

2.1.2.1. What worked and what didn't and why

The realisation of the project assisted to equip the participants with the required technologies, which further made it possible to succeed in implementation of tele-mentoring among the PHC specialists in the remote areas. The equipment and software the participants had used assured the realisation of the PrimCareIT goals. (Table 3).

Table 3. Pilot #1 assessment of the tele-mentoring pilot

Evaluation Criteria	Pre-testing	Mid-term testing	Post-testing
Satisfaction with technical aspects (%) (How satisfied were you with the functionality of the used technology during the connection?)	50	73	82
Satisfaction with technical aspects (point)	2.8	4.0	4.4
Satisfaction with content (%) (How useful do you consider the content	70	75	90

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Evaluation Criteria	Pre-testing	Mid-term testing	Post-testing
of the session was?)			
Satisfaction with content (point)	4,0	4.2	4.7
Per cent of the interested in tele-mentoring	100	100	100

2.1.2.2. Need of time/support/development

While the project implementation we detected the increase in the necessity of it-support staff, moreover the internet requirements had been also raised.

2.1.3. Communication type assessment (basis for this analysis in questioners and interviews)

In the implementation process of tele-mentoring we used various types of telecommunications: Type A – tele-mentoring in dialogue, Type B –tele-mentoring in a lecture (video-presentations courses), Type C - tele-mentoring case study, Type D - tele-mentoring combined. The most preferred by the participants were Type A – tele-mentoring in dialogue, Type B –tele-mentoring in a lecture (video-presentations courses), mainly on-line webinars.

2.1.4. Participants perspective (basis for this analysis in questioners and interviews)

All the participants (mentors and mentees) of the questionnaire and interview were sure that it was important to develop e-learning in all the medical spheres, esp. important in the following cases:

- in re-training of highly educated specialists;
- in the qualification improvement of highly educated specialists;
- in self-training of highly educated specialists;
- as an element of self-training in the process of the post-graduated education of a doctor;
- as an element of self-training in the process of graduation from the higher medical educational institution;

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- in organisation of seminars, scientific and practical conferences;
- to support the communicative connections.

2.1.5. Organisational perspective

2.1.5.1. Supporting factors

The main factors of tele-consultation pilots implementation were high motivation level and interest of the project participants in using tele-mentoring and tele-consultations in medicine. (Percent of the interested in tele-consultations = 100%), skilled staff. There was also detected the interest of the specialists who made decisions on the different levels.

Table 4. Pilot #1 Supporting factors

Advantages
• High motivation (mentors, mentees, politicians) • Teaching programs • Skilled staff

2.1.5.2. Limiting factors

The main obstacles of participating in tele-mentoring of the specialists were the following.

Table 5. Pilot #1 Limiting factors

Obstacles
• Technical equipment • Lack of experience in tele-mentoring • Absence of legal acts on tele-mentoring in Belarus • Low quality of telecommunication connection • Lack of time due to the working load; • Lack of motivation to use e-learning systems; • Narrow specialisation

2.1.6. Financial perspective (travelling/ time)

The analyses of financial costs were not carried out.

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2.1.7. Tele-mentoring potential effects (basis for this analysis in questioners and interviews)

2.1.7.1. Professional isolation

The main factors which had an influence on the brain drain were considered to be the following:

- payment
- lodging provision
- professional isolation
- territorial remoteness
- available technologies
- possibilities of self-realisation.

There were 18 interview participants who had defined the factors of influence on professional isolation, 8 – found it difficult to answer this question.

The main factors of influence on professional isolation were the following:

- territorial remoteness;
- absence of the possibilities to communicate with colleagues
- low information provision
- working load of a doctor
- low level of technologies availability
- lack of motivation for self-improvement

There were interviewees who had faced certain difficulties with giving answers about the possibilities of tele-mentoring to counteract brain drain. The main argument was that tele-mentoring had not been the main reason for counteracting brain drain. In their opinion the advantage of tele-mentoring was the appearance of additional possibilities to get the education, ingenuously training and communication, PHC specialists in remote areas in particular.

The disadvantage of tele-mentoring usage was that it could not have solved the following issues:

- payment for work;
- lodging provision;
- lack of experience;

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- distance from urban infrastructure.

The majority of the participants considered that tele-mentoring could have counteracted professional isolation as it had given the possibility to improve the qualification, training, experience exchange and communication with qualified specialists-mentors.

The main arguments of the participants who considered that tele-mentoring had not been able to counteract professional isolation were: lack of motivation of doctors to use new forms of education, low equipment provision, lack of experience in tele-mentoring participation.

2.1.7.2. Staff expertise

The realisation of the pilot showed the positive attitude of the participants and decision-makers towards the tele-mentoring promotion.

2.1.7.3. Knowledge exchange

The pilot implementation improved the professional level of the specialists who worked in the remote areas, made it possible to participate in the tele-mentoring. The fact was proved by the 100% interest and the increase of the satisfaction level of the tele-sessions (from 70 % to 90%), educational level rise (from 60 % to 89%).

2.1.8. Conclusion / basis for this analysis in interviews/

2.1.8.1. SWOT-analysis

SWOT-analysis assisted to detect the following:

- Strengths are pilot positive attributes and resources which enhance your ability for tele-mentorship.
- Weaknesses are pilot aspects that you feel the need to improve upon or skills that lack, aspects which you feel detract from your ability to have good tele-mentoring pilot.
- Opportunities are the resources and opportunities you have a round you which you might be able to access and which support the pilot.
- Threats are the pressures and practicalities and other aspects of pilot and responsibilities which might get in the way and hamper your ability to have good tele-mentoring pilot.

Table 6. Pilot #1 SWOT-analysis

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STRENGTHS	WEAKNESSES
personnel potential; eLearning departments availability; support of the Ministry of Health of The republic of Belarus; continuing training; qualification improvement; counteraction of professional isolation	poor financing poor experience in eLearning lack of modern technical recourses, blanks in the legislation on tele-consultations in medicine
OPPORTUNITIES	**THREATS**
opportunity to learn from the masters of the profession, study modern technologies of diagnostics and treatment	lack of motivation of the health professionals, additional teaching and working load (programs development, etc.)

2.1.8.2. Lessons learned

The project realisation assisted in the following:

- Improvement of the professional level of PHC specialists in remote areas (esp. in rural areas),
- Improvement of the motivation level of the PHC specialists in remote areas to use modern IT;
- Decrease of the level of professional isolation;
- Large-scale implementation of the IT into the educational process of PHC specialists in remote areas (Type A – tele-mentoring in dialogue, Type B –tele-mentoring in a lecture (video-presentations courses were the most preferred by the participants),
- Gaining experience in using tele-mentoring by the partner countries.

We also found out that for the efficient implementation of tele-consultations it was important to upgrade the equipment and IT-support, internet connection regularly. That caused additional financial and staff resources.

2.1.9. Maintenance and further development of ICT in PHC

All the gained data will be further used in the project of the regulatory act of the Ministry of health of the Republic of Belarus on the implementation of IT into practice.

2.1.10. Case description

Story of successful usage of tele-mentoring and tele-consultations in Ostrovec CRH.

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Henry Koltan, general practitioner of a Mikhalishki outpatient clinic, is a member of PrimCareIT project. During the project he managed to complete training (Tele-mentoring program, Moodle) on Arrhythmia treatment. Henry also participated in the Republican scientific and practical conference on “Topical issues of diagnostics and treatment of elderly patients” 27.09.2013, Minsk, organized by BelMAPO. Mikhalishki outpatient clinic was equipped with the all necessary resources for participation in tele-consultations and tele-mentoring, incl. tele-ECG.

The information gained during the sessions and the conference was applied while diagnosing and treatment of a patient of 76 years old, who 27.09.2013 consulted a Mikhalishki GP with the heart ache. After the screening the doctor made the ECG and forwarded it to the doctor of functional diagnostics Vera Kolmach, Ostrovec CRH. She proved the acute myocardial infarction. Based on the special algorithm the patient was treated with the thrombolysis by alteplase in the Mikhalishki outpatient clinic. After that the patient was transported by the ambulance to the Ostrovec CRH. Cardiologist stated the total lack of myocardial ischemia symptoms during the control examination.

Conclusion: Thanks to the usage of tele-mentoring and tele-consultations the patient was treated with the acute thrombolysis. It helped to avoid disability or death of a patient.

2.2. Pilot #2: ESFD; Estonia

By: Kristjan Krass, Larua Prett, Eret Jaanson; The Estonian Society of Family Doctors

2.2.1. Pilot Background

Since 2005, the Estonian countrywide e-Health approach includes four pillars: Electronic Health Records (EHR), Digital Registrations, Digital Imaging and Digital Prescriptions.

In Estonia the highest rates of infrastructure availability are attained. GPs in Estonia also show extremely high use rates of security features.

EHR encompasses the whole country, registers virtually all residents' medical history from birth to death, and is based on state-developed IT infrastructure. It was launched on 17th December 2008 and since 1st January 2009 all healthcare providers have been obliged to send an agreed number of standardized medical documents, electronic information notes and electronic medical

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documents to it.

100% of the Estonian GP practices use a computer. The same share of practices disposes of an Internet connection. In Estonia, broadband represents the most usual form of access to the Internet with 72% of GP practices resorting to broad-band connections.

With respect to the use of Decision Support Systems (DSS), Estonia also scores highly with 94% of the GPs reporting using a Decision Support System for prescribing or diagnosis. Virtually all Estonian GP practices store at least some sort of electronic medical patient information. The data types stored most often include diagnoses (95% of GPs) and medications (84% of GPs). Other types of medical data are stored less frequently, but all types are stored by at least 50% of the GP practices

In the end of 2006 the special web-based training program for ESFD called Svoog, was started.

2.2.1.1. Pilot Research Context

The tele-mentoring pilot is carried out by the Estonian Society of Family Doctors (ESFD). University of Tartu, Faculty of Medicine, Chair of Polyclinic and Family Medicine is supporting through guided teaching and Technical University of Tallinn through knowhow in e-Health.

Pilot is running in five family medicine centres that are at least more than 40 km away from the University of Tartu that is the main centre of medical education in Estonia. The participants in the pilot are four experienced mentors who have supervised many young colleagues during their residency. The four mentees are novice in the profession and have a few years' experience in working in a rural area. The mentors and mentees participating in the pilot have no previous experience in tele-mentoring.

By implementing tele-mentoring pilots in the regions, we aim to support professional development of the mentees and to counteract professional isolation by creating a functional network of contacts between the participating health care professionals.

ESFD believes that the tele-mentoring in the pilot sites will bring notable benefits to the mentors and mentees through improved knowledge sharing. Also distances between the participating health care centres which are located in rural areas and the University of Tartu range from 40 km or more. This means that in traditional mentoring a large part of the daily work hours will be spent travelling. With tele-mentoring, it is possible to have connection with all units in the same

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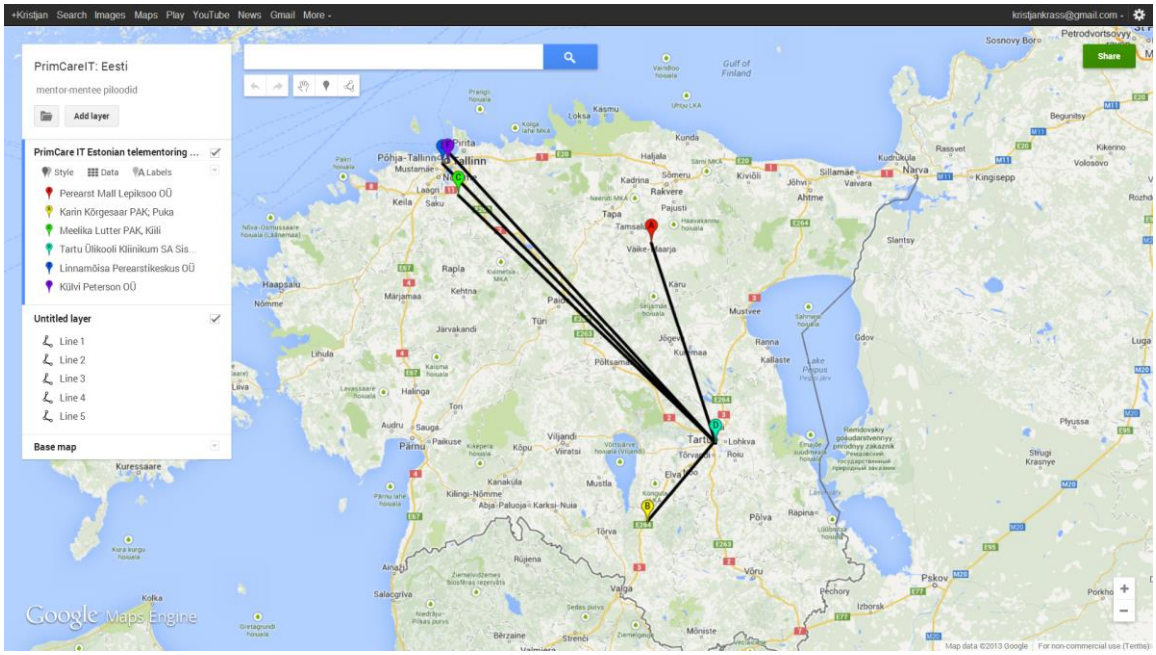
day as tele-mentoring can be done in the office or in a conference room via PC or videoconferencing equipment and the resources spent to the travelling could be saved.



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2.2.1.2. Purpose and Objectives of Pilot

The pilot aims to implement:

- tele-mentoring as with the invention of the internet, supporting continuing medical education (CME) and cost evaluation in remote areas in primary care sector.
- counteract professional isolation through tele-mentoring.

The key points when creating a new environment are easy access, user friendliness and handiness. All sorts of different functions should be in one place together so that later physicians would start to use it daily. Our environment wants to meet all these needs. It is characteristic to eLearning that in addition to the support of colleagues for a lifelong learning one has also the support of a social network and we are hoping that this is something that will help to decrease brain drain and professional isolation.

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2.2.1.3. Timeline of Pilot

- Dec. 2012: Kick-off meeting; Start pilot testing;
- Jan.-Feb. 2013: -Pre-test questionnaire; start-up of the pilot;
- Feb. until Oct. 2013: Tele-mentoring, 26 sessions;
- Sept.-Oct. 2013: Post-test questionnaire; end of piloting + evaluation questionnaire;
- Nov. 2013: Evaluation of the results;

2.2.1.4. Pilot Participants

The tele-mentoring pilot is carried out by the Estonian Society of Family Doctors (ESFD). University of Tartu, Faculty of Medicine, Chair of Polyclinic and Family Medicine is supporting through guided teaching and Technical University of Tallinn through knowhow in e-Health.

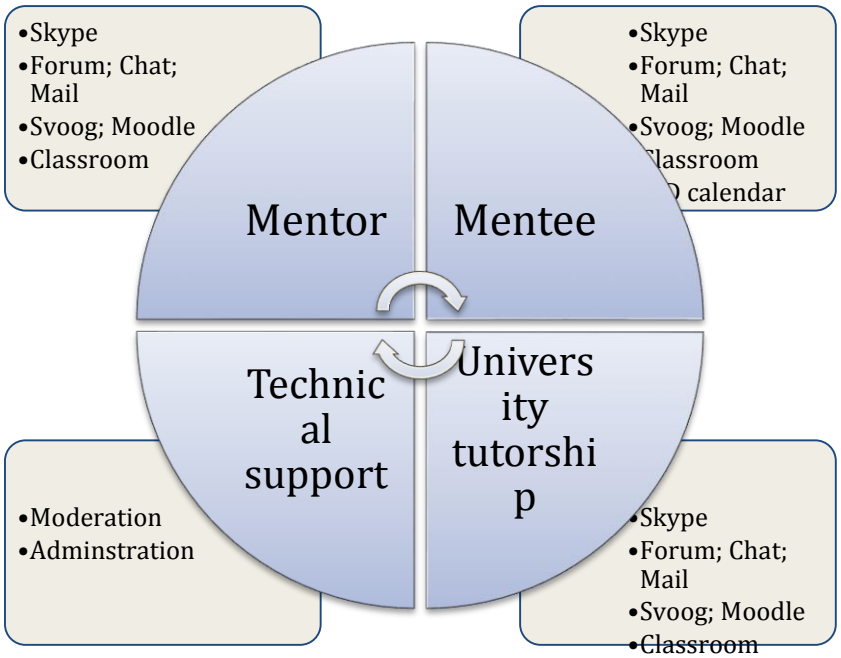

Figure 8 Pilot#2 Organisation of pilot 2

The participants in the pilot are four experienced mentors who have supervised many young colleagues during their residency. The four mentees are novice in the profession and have a few years' experience in working in a rural area. The mentors and mentees participating in the pilot have no previous experience in tele-mentoring. Pilot is running in eight family medicine centres

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that are at least more than 40 km away from the University of Tartu that is the main centre of medical education in Estonia.

Table 7: Pilot # 2 Audience Profile
Demographics N =8

Individual			
Mentor or Mentee	Mentor: 4	Mentee: 4	
Profession	Doctor-resident		2
	Family doctor		6
Age:	< 25	0	
	25—30	3	
	31—40	1	
	41—50	3	
	> 50	1	
Gender:	Female	7	
	Male	1	
Nationality:	Estonia	8	
Experience:	Less than a year from diploma		0
	3-years from diploma		4
	6-years from diploma		0
	10-years and more experience		4
Employment history:	2-3 years		4
	17-40 years		4

2.2.1.5. Evaluation Methods

Questionnaires (questions about attitude, suitability, beneficiary and experienced positive changes) were used to measure the outcomes of the pilot. Finally interviews were made with the participants to get their views and experiences after the pilot had finished.

Study statistics will include the numbers, tables, charts, and graphs from questionnaires' dates and are processed.

2.2.1.5.1. Questionnaire

In the first session, information about the pilot procedures was given. The demographic audience profile and also pre-test were done and later also a post-test was held. Each pilot session has been also evaluated. We have asked the people involved to fill in a questionnaire

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about every topic that was discussed, to find out how the info was exchanged and if the participants were satisfied with the result and with the means of communication (For questionnaire see appendix).

2.2.1.5.2. Interview

Follow-up interview with 8 questions regarding your experiences and what might affect professional isolation and brain drain in family practice (interview seen in appendix).

2.2.1.6. Tele-mentoring framework

There were FORUM and four MOODLE sessions and SVOOG videoconferences during February and June 2013.

Joomla CMS Forum: February to April 2013. 15 different topics were started in the cardiology, children medicine and in general medical management. Topics were discussed 29 times in the group mentoring methodology by mentors and mentees.

E-Learning environment Svoog: February to June 2013. 41 different video presentations were added to e-learning environment. Video presentations are added form various areas.

Moodle LMS: There were four course sessions of e-course “Life-long professional development” during April and June 2013

- First session information about the introduction to the topic
- Second session about the introduction PUN / DEN / PAM method
- Third session about the introduction of the learning process
- Forth session about the summary of the learning process

2.2.1.7. Pilot Technology

Learning technologies integration within the e-learning solution were (e.g. mentoring, chat, forums, expert-led discussions, Web seminars, online meeting and virtual classroom sessions, etc.) installed on the Cloud Server (technology infrastructure was built in internet). Technical functionalities in the pilot are implemented through Joomla CMS, Moodle LMS, SKYPE and SVOOG.

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2.2.2. Technology and Technical Equipment Assessment

Pilot technology that assisted in the communication of knowledge, and mentor-mentee development aimed to have use of standard and open web technologies (free) that may change as new technologies and developments emerge.

Learning technologies Integration within the e-learning solution were (e.g. mentoring, chat, forums, expert-led discussions, Web seminars, online meeting and virtual classroom sessions, etc.) installed on the Cloud Server (technology infrastructure was built in internet). Technical functionalities in the pilot are implemented through Joomla CMS, Moodle LMS, SKYPE and SVOOG.

Technology infrastructure abled options for delivery, tracking, management and reporting of online content, or more sophisticated so that all learning offerings (incl. classroom) can be managed within the same software-based environment

Mentors and mentees ´were provided laptops with preinstalled Windows 7 and Office 2010 software and Skype for everyday use. With laptop participants entered to the web accessing to e-learning environment webpage: https://www.perearstiselts.ee

In the pilot the used tools are Skype (whiteboard, desktop sharing) and Joomla CMS, eLearning environment Svoog (mail, forum, event calendar, video-presentations, chat) and Moodle for courses (mail, forum and Personal Development Planning calendar). All individuals were well equipped with the necessary tele-mentoring technology.

2.2.2.1. What worked and what didn't and why

Firstly in the eLearning environment many different ways of communication were tested. First the communication between colleagues in the family doctors' email list (discussing different cases, interesting findings, analysing these, changing experience, asking questions from colleagues etc.). New web based environment enables one on one communication (chat) as well as communication in a community (mentors and mentees).
Secondly we have created forum for discussing different clinical subjects and also operational subjects. We are glad to witness that mentors and mentees in our pilot are using forum successfully and quite many topics have already been discussed for example does elevated

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high cholesterol (HDL) need treatment.

Third test is linked to eLearning environment that has been built on the bases of Moodle courses. Nowadays many universities are using Moodle as an eLearning platform. The first course that was created in Moodle is called Professional Development Planning. This course is meant for identifying the personal learning needs by pinpointing the events in practice that need reflection or activity and making a personal learning agenda. In our pilot the participants had to create a consultation diary using PUN & DEN / PAM method. This course was created with the help of University of Tartu, Faculty of Medicine, Chair of Polyclinic and Family Medicine. The course started at the beginning of May.

In addition to the opportunities already named, there is also a calendar that contains information about conferences and different trainings and there are links to useful sites, presentations' slides and video presentations.

2.2.2.2. Need of time/support/development

There were no major problems with the equipment used in the pilot, but there were some issues with the technology that was used. The main issues were the following:

- the design and functionality of is important as the e-learning felt quite complicated for users and when it is difficult to orientate and there are too many clicks in a web environment the motivation will decrease
- video and audio quality should be at high standard
- tolerance with equipment's problems can be quite low and therefore the feedback is critical

2.2.3. Communication type Assessment

Pilot aimed to asses for different communication types:

Table 8: Pilot # 2 Communication types

Type	Telecommunications	Number of sessions
Type A – tele-mentoring in dialogue	Skype	2 online
Type B –tele-mentoring a video-presentations courses	Video sessions	41 video sessions

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Type C - tele-mentoring case study	Forum	15 sessions
Type D - tele-mentoring combined	Moodle	4 learning sessions

2.2.3.1. What worked and what didn't and why more why information

The pilot members mentioned:

- Skype was used for group meetings/ discussions and in general it is good tool with sufficient functionality. The difficult was that participants sometimes had different software version that made the connection quality boor or forgot the password for logging;
- Forum (group mentoring) the time cap is important: answers should come more quickly;
- SVOOG (group mentoring) the context is important;
- Moodle (individual mentoring) the contexts is important - if not interesting, then motivation decreases quickly;

2.2.3.2. Need of time/support/development

All the pilot members agreed that tele-mentoring is innovative way of learning and sharing the knowledge and new networking opportunities and professional support.
The mentors and mentees are new to tele-mentoring tools and the concepts that lead to the basic education of tools and terminology of concepts but time constraints (staff shortages), not being able to give the mentees/ mentors enough time leads to mistakes and frustration.

2.2.4. Participants Perspective

All the mentors and mentees were new to tele-mentoring and distance learning. All the participants thought that tele-mentoring is useful because one doesn't have to leave the practice, it is convenient and new connections will be made. The mentees also brought out the positive thing of having a mentor to whom you can turn to when necessary, this opportunity gives confidence and reassurance that one is not alone with his/her problems. In Estonia there are many single practices, especially in the rural areas and our mentees said that it is more likely that they would go to work in the rural areas if they know that they have support. It was however stated that this is not the only reason.

Our participants were especially pleased with the idea of e-courses. Participating in an e-course one can do the exercises when it is suitable for them during the time schedule that was given. It

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was also mentioned that the time schedule is important, because otherwise you will postpone doing the work. All the participants said that the time schedule for our e-course was quite intense and they would have liked to have a bit more time, because it is quite hard to find extra time from aside daily job, but they would all participate again, especially when the theme and context is interesting. The participants also said that it was great that there was a supervisor who gave individual feedback and helped with the technical issues. One thing that was negative about the e-course was the design of the environment. The younger participants were able to orientate in MOODLE after the first session, but they said that it would be much better if it was easier and there were not so many clicks. Maybe in the future the older participants have to be introduced to the terminology and how to get around in the web environment so that it would be easier for them to take part in e-course and to concentrate on the topics of the course and not on how to get about in MOODLE. Having technical support available when necessary is important, otherwise the motivation will decrease. One participant also said that it was fantastic to see how she was able to use the knowledge that she had gained from the course on treating a patient who received better care thanks to the course. It was also said that the e-course was interesting, challenging and had practical value and all the participants agreed that they would take part in e-courses in the future.

E-Learning environment Svoog is also something that he participants are pleased with. There are quite a lot of lectures and doctors can look at the slides and listen to the lectures when it is suitable for them. And again time and money will be saved from not having to travel. There are many different topics and when someone needs to look something up this is one database where Estonian family doctors can find info. The members of our pilot said also that the forum that was tested in our pilot, is not only good because one can ask questions and get answers, but also because all this information will stay there and later in the future when someone has the same problem or question, it can be looked up from there. The participants also said that at the moment when someone has a question it will be sent to the e-mail list of family doctors and the mailbox is always full of questions and answers, but using a forum instead, would solve that problem. And it was also said, that again forum is better than mailing list, because you can find the information later in the future as well more easily, rather than going through your mailbox. The issue with Svoog and Forum was that the design should be simple so that everything is found easily. The division of topics in the Forum and also the fact how to ensure that the

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information that is changed in the Forum can be trusted and that it is evidence based was seen as a problem. One mentee said that it is fantastic that you can log in to the environment with your ID card because your ID card is anyway used during daily job and one doesn't have to remember new passwords.

Skype and chat were not used in our pilot very much, because while working the mentors don't have time to chat online and when the quality is bad, it will decrease the motivation to use these tools. But when the meetings are scheduled it is a good way to communicate because you don't have to travel, the participant thought.

Members of our pilot said that the factors influencing professional isolation are motivation to educate yourself, but also working in a single practice and not having the opportunity to participate in conferences and to communicate with colleagues.

Our pilot' participants thought that money is the most important thing influencing brain drain, but also the fact that young people don't have anything to do in the rural areas and their partner might not have work in the rural areas.

Our pilot members didn't think that tele-mentoring could counteract brain drain, but it would be helpful getting young medical personnel to work in the rural areas. Our participants did think that tele-mentoring could counteract professional isolation if the person is willing and motivated to use this technology. Our mentees thought that having a mentor is reassuring and the network of connections is also necessary. All the participants thought that participating in e-courses is very good for continuing education and web based environment SVOOG great for watching lectures where one could not participate.

The member of our pilot said that in the future the design could be made better, especially the design of the e-course and there should be technical support available when necessary.

2.2.4.1. Mentors/ mentees experiences and attitudes

The pilot members agreed that tele-mentoring is innovative way of learning and sharing the knowledge and new networking opportunities and professional support.
Tele-consultation and tele-mentoring can be done in the office or in a conference room via PC. This enables for the mentors and mentees to spend less time on travelling. In addition, it is easy to implement, and money will be saved on travelling cost.

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Table 9: Pilot#2 Tele-mentoring tech usage and technical situation

Demographics N=8

Tele-mentoring tech usage	yes	no
Experience in Instant Messaging?	7	1
Experience in discussion Boards?	4	4
Experience in Webinars/ conferences?	2	6
Experience in Moodle seminars?	3	5
Technical situation		
Do you have access to the Internet?	8	
Do you have a computer?	8	

In this section, please rate the following questions	seldom or never	once a month	2-3 times a month	once a week	every day
	1	2	3	4	5
How often do you have the possibility to be mentored by an experienced colleague?		1	1	4	2
How often do you have the possibility to participate in educational lectures, classes (or such)?		6	2		
What are the obstacles for attending educational lectures, classes (or such)?	a) Distance = 2 answers b) Time constraints in work environment =8 answers c) Low quality in seminars = 1 answers d) Too specialized = 0 answers e) Too expensive = 2 answers f) Other reason = 1 answers				

There were 8 participants in our pilot, 4 mentees and 4 mentors. All of them were family doctors. 7 out of 8 where female and 1 male. Three of our mentees where 25 – 30 years old, one was 31-40 years old. All of our 4 mentors were over 41 years old and one of them was over 50 years old. All the participants were Estonians. 3 of our mentees have been working for 2 years, one of the mentees for 3 years. All the mentors had worked over 15 years and one of them even 40 years. All of them have experience in working with a computer and they all have a computer and

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access to the internet. Only one of our pilot participants didn't have an experience in instant messaging, four people (50%) of our participants didn't have experience in discussion boards. Six members hadn't participated in webinars and 5 members hadn't participated in Moodle seminars. When we asked the participants what are the obstacles for attending educational lectures or classes, all 8 pilot members said that time constraints in work environment, two of them also said that distance is a problem and two of them said that it is too expensive to take part in lectures/conferences. Only one of the participants said that the quality of the seminars is low.

Table 10. Pilot #2 Pre-test

6.1.2013 / N=4 mentors; N = 4 mentees

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
I feel self-confident when making decisions at work.			2	5	1
I have experience and knowhow for solving everyday cases.				7	1
I have experience and knowhow for solving rare conditions.	1	2	2	3	
I am willing to work in remote areas (e.g. in my current workplace).			4	2	2
I feel professionally isolated.	2	2	4		
I feel tele-mentoring can be used as a tool to support my professional development.			2	4	2
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.			1	4	3
I like to use ICT-technology while communicating with my colleagues.				5	3

Table 11. Pilot#2 Post-test

23.10.2013 / N=4 mentors; N = 4 mentees

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	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
I feel self-confident when making decisions at work.			4	3	1
I have experience and knowhow for solving everyday cases.			3	4	1
I have experience and knowhow for solving rare conditions.		2	4	2	
I am willing to work in remote areas (e.g. in my current workplace).		2	3	3	
I feel professionally isolated.	1	4	1	2	
I feel tele-mentoring can be used as a tool to support my professional development.			1	6	1
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.			1	6	1
I like to use ICT-technology while communicating with my colleagues.			1	7	

When comparing how the participants rated their self-confidence when making decisions at work before the pilot and after the pilot had ended, 3 out of 4 mentees gave themselves one point higher grade, one mentor gave herself a lower grade, but the rest rated themselves the same way as before the pilot.

Results for the question “I have experience and knowhow for solving everyday cases“ 3 out of 4 mentees gave themselves one point higher grade in the post-test, they agreed with this, but the rest rated their experience the same way as in the pre-test.

Two of the participants rated their knowledge to solve rare cases one point higher in the post-test. Two of the participants rated their knowledge lower in the post-test than in the pre-test.

Before the pilot 2 of our participants disagreed working in the remote areas, 3 were neutral and 3 agreed, but in the post-test 4 were neutral, 2 agreed and 2 participants strongly agreed. As a result of the pilot the willingness to work in the remote areas was higher.

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In the pre-test only one of the participants strongly disagreed with the statement that I feel professionally isolated, 4 of the participants (50%) disagreed with this sentence, one was neutral and two agreed, that they feel isolated professionally. In the post-test 2 participants strongly disagreed with this, two disagreed and 4 (50%) were neutral.

In the pre-test 6 participants thought that tele-mentoring can be used as a tool to support his professional development, one was neutral and one participant strongly agreed with this. In the post-test 2 participants strongly agreed, 4 agreed and 2 were neutral.

6 pilot members thought in the pre-test that tele-devices are suitable for mentoring, one of them was neutral and one of them strongly agreed. In the post-test 3 members strongly agreed, 4 agreed and one was neutral.

In the pre-test 7 out of 8 agreed that they like to use ICT technology while communicating with colleagues and one was neutral, but in the post-test 3 strongly agreed and 5 agreed.

2.2.5. Organisational Perspective

Estonian family doctors can have training without leaving practice. Today, it guarantees to all of the family doctors who are registered in the program, an opportunity to follow the lectures being broadcasted live or watch at the recordings whenever they want to. All the conferences and seminars organized by ESFD, follow-up schooling that is organized every month by the Tallinn Association of Family Doctors and the morning conferences that take place in Tartu are being broadcasted in the program. Doctors can put together their own training plan that considers everyone's individual training needs. Doctors can follow their own continuing professional development plan, where they develop vocational knowledge. Schedule of training is put together by family doctors themselves, it means that the Estonian Association of Family Doctors and department of family medicine know best, which topics doctors need the most. There is also the possibility to get follow-up schooling points. Svoog allows for every doctor to start his/her follow-up schooling points account that can be later used in re-certification.

Figure 9. Pilot#2 Comprehensive e-learning solution

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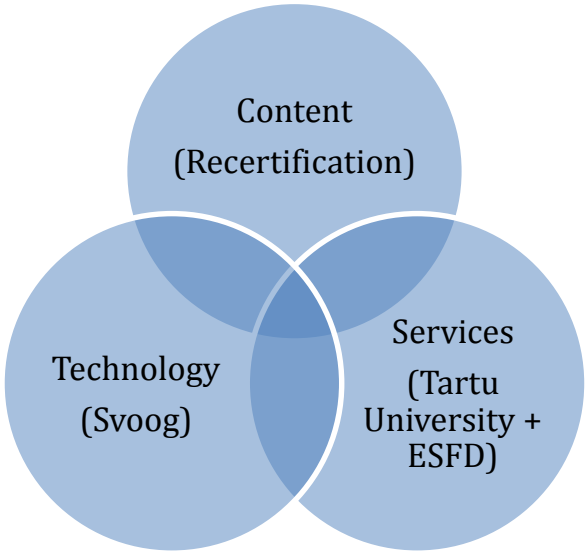

There are many different components of what might be called a comprehensive e-learning solution. Which of these is need the greatest? Which are the highest priority? ESFD found three positives aspects that make e-learning attractive but most importantly management support is crucial:

1. Quality assessment of the organisation
2. Recertification for ESFD members
3. Video-conference solution

Constraints is that ESFD still has to find the solution for technical infrastructure that would be comprehensive e-learning solution e.g. pilot participants described Moodle LMS difficult – too many clicks. Designing of the overall implementation is crucial for good end-user experience.

Another important issue - how to keep content current? How to invest time, resource and money to integrate e-learning in the organisation? However some people have insisted that the main problem is in the old mentality, due to the lack of computer skills.

2.2.5.1. Supporting factors

- Management support (commitment in elevating the technology)
- Learn new things wherever you are (no room or time constraints);

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- No travel needed, saving time and finances;
- Additional learning from the high quality specialist, mentor or mentee;
- Knowledge faster and more spread;
- Bigger auditorium compared to conventional learning;
- Mentors can follow the evolution of the mentees;

2.2.5.2. Limiting factors

- No social contact;
- Lack of technical infrastructure;
- Cost for the software;
- No preparation, old mentality and lack of computer skills;
- Too much work for the mentors to get use to new environment: (too many things to be put online and digitalise);

2.2.6. Financial Perspective

Financial budget model compare the conventional learning like in classroom in training centre to e-learning solution that is situated. In Estonia the medical training centre is situated in Tartu University and pilot participants would need to travel for the conventional seminar an averagely 291 kilometres. The conventional seminar would take the pilot participants off the work an average 5 hours. An hour of working for family doctor is 8 euro per hour.

Budget calculation on the situation in which the mentor would be travelling from one distant health centre to training centre, the calculation is save of the costs in the 45 pilot sessions:

- Time for travel and loss on wedges:
- 5 hours x 8 € salary/ hour = 32€/ per person x 45 pilot sessions = 1440€
- Spent for travel:
- 45 pilot sessions x 35€ travel cost per session € = 1575 €/ per person

TOTAL BUDGET: 3015€ / saving per person in pilot average on 45 sessions

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2.2.7. Tele-mentoring Potential Effects

Tele-mentoring is bringing new resources to more efficient education and time/ cost saving. It makes it possible for teachers/ mentors to join their students/ mentees as learners through internet.

2.2.7.1. Professional isolation

The main challenges and aim in the project PrimCareIT was how counteracting brain drain and professional isolation of health professionals in remote primary health care through tele-consultation and tele-mentoring to strengthen social conditions in remote areas of Baltic Sea Region.

Pilot participants have expressed that they do not feel professional isolation but admitted that some degree of isolation can lead to brain drain. In Estonia the biggest problem is the brain drain to foreign countries. The number of certificates that are being issued to affirm the profession of the doctors, who want to go to work abroad, is known. Since joining the European Union (in 2004) the quantity of the certificates that have been given out is not equivalent to the actual number of the health care workers who have gone to work abroad. In reality about 55-60% of these people go to work in a foreign country. Since 2004 till 2013 the Health Board has issued 1013 certificates to doctors, wherefrom 124 have been given to family doctors and 359 certificates to general practitioners (including the doctors who have just graduated).

Regardless of the fact that only about half of them leave Estonia, this is a significant number. Brain drain is a problem in Estonia.

2.2.7.2. Staff expertise

Existing mentors' network consists of Estonian Society of Family Doctors (ESFD) and University of Tartu, Faculty of Medicine that take responsibility on services and content of e-learning environment. Technology administration of e-learning environment was responsibility of ESFD IT-administration.

Staff felt that the pilot participants still had "old" mentality, lack of motivation and limited

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computer skills. Family doctors time constraints make the learning of new computer skills difficult.

2.2.7.3. Knowledge exchange

Pilot participants were receiving instruction from mentors and tutors form University of Tartu and got access to new information through:

- Skype was used for group meetings/ discussions and in general it good tool with on-demand functionality;
- Forum (group mentoring) is important tool as mentor had time to prepare the answer and other people in the group could learn from it;
- SVOOG (group mentoring) is important tool for facilitating specialists online video presentations for mentees;
- Moodle (individual mentoring) the important tool for mentors creating effective online learning courses;

2.2.7.4. Time gains

Pilot participants who attended 45 pilot session gained on average 180 hours travel time. Tele-mentoring saved also petrol cost for traveling.

2.2.8. Conclusions about Pilot

In conclusion most of the results in the pilot were better in the post-test: the participants of the pilot had a better attitude towards using tele-devises, tele-mentoring and working in the remote areas and they felt a bit less isolated. The self-confidence of making decisions and solving rare cases was higher among mentees in the post-test.

During the interview pilot member didn't think that tele-mentoring could counteract brain drain, but it would be helpful getting young medical personnel to work in the rural areas. Our participants did think that tele-mentoring could counteract professional isolation if the person is willing and motivated to use this technology.

The member of our pilot said that in the future the design could be made better, especially the design of the e-course and there should be technical support available when necessary.

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2.2.8.1. SWOT-analysis

STRENGTHS	WEAKNESSES
- Management support (commitment in elevating the technology) - Additional learning from the high quality specialist, mentor or mentee; - Mentors can follow the evolution of the mentees; - Long term teamwork and networking in IT-project - Existing mentors network	- No social contact - No preparation, old mentality and lack of computer skills; - No support from tutors from technical stuff
OPPORTUNITIES	**THREATS**
- No travel needed, saving time and finances; - Learn new things wherever you are (no room or time constraints); - Bigger auditorium compared to conventional learning; - Knowledge faster and more spread;	- Time constraints (staff shortages), not being able to give the mentees enough time; - Lack of technical infrastructure; - Cost for the software; - Too much work for the mentors to get used to new environment: (too many things to be put online and digitalise);

2.2.8.2. Lessons learned

Time constraints because of the staff shortages that family doctors' work demands – it will leave the mentors and the mentees enough time to commit for continues medical education. Complicated technical e-learning infrastructure that make mentor and mentees to make too many clicks. Too much work for the mentors to get used of new environment and too many things to be put online and digitalize.

2.2.9. Maintenance and Further Development

ESFD pilot e-learning technology will be continued to be developed by the society's IT administration, editors and members of ESFD for continuous medical education.

2.2.9.1. Actions for Sustainability of Pilot

Management support and commitment to the continuous medical education is up most important in developing the e-learning technology to keep the content, technology and services running.

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- Services/ Content: continues development of e-learning from the high quality specialist with the existing mentor's network that would add to quality content.
- Technology: continues development and administration of e-learning environment with IT-project team.

2.2.9.2. Future

Internet technology trends development like *cloud storage* media and other data or *Industrial Internet* for communication infrastructure will influence the e-learning technologies integration. It raises questions about the cost for the software development for management and sustainability to offer a combination of the best possible functionality, customizability and cost-effectiveness.

Time constraints and staff shortages will be challenging for family doctors and the e-learning environment becomes serious alternative for saving time and money in continuous medical education.

2.2.10. Case description

Svoog - Estonian Association of Family Doctors e -learning environment/
Web-based e-learning training course
Date: 27.03.2013

- Course Audience: Family Doctors
- Lector: Kristo Kask, PERH, orthopaedic
- Course duration : 1 hour
- The course aims to: "Wrist and hand troubles"
- Event: The Family Doctors Society Conference

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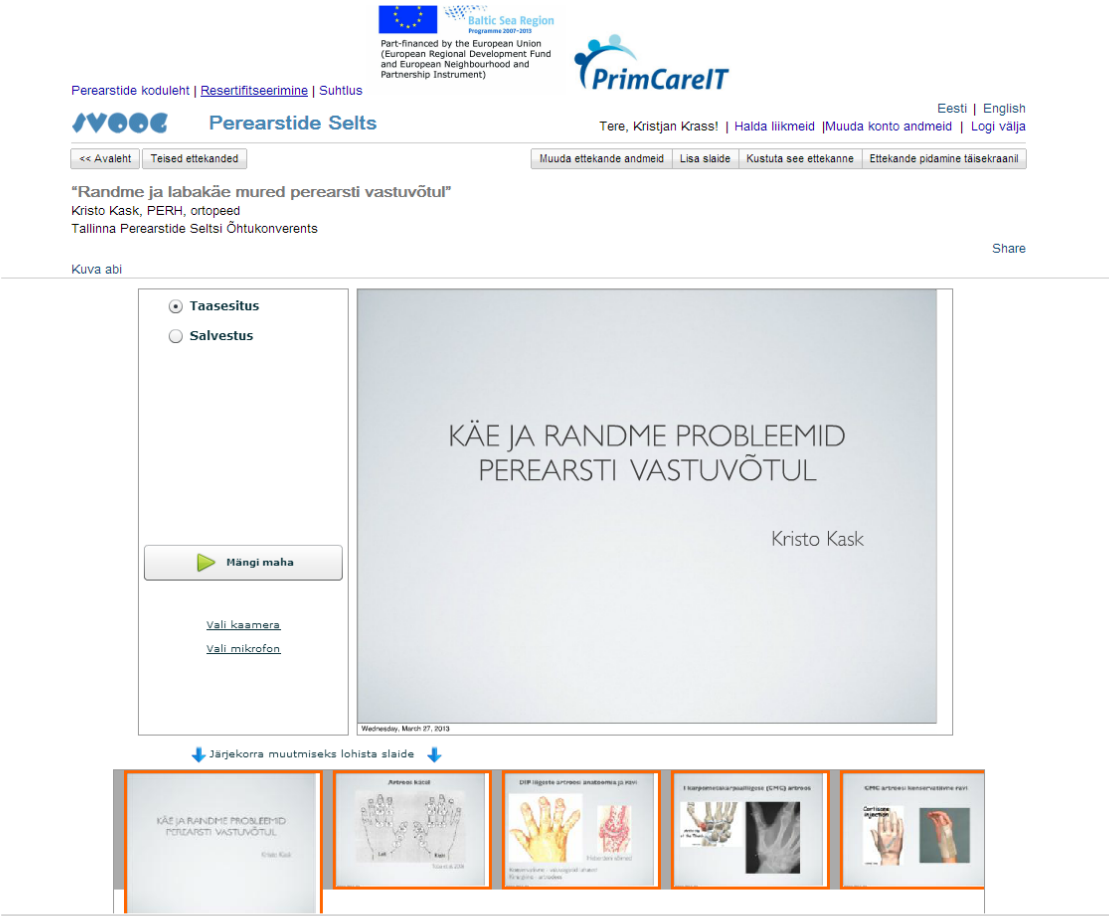
Figure 10. Pilot#2 Web-based e-learning training course: "Wrist and hand troubles"



2.3. Pilot #3: KPHCD; Finland

By: Raimo Rintala, KPHCD

2.3.1. Pilot Background

2.3.1.1. Pilot Research Context

Pilot # 4, KPHCD, Seinäjoki UAS, SOHCD, Finland

The first part of the pilot was a joint pilot of three Finnish PrimCareIT project partners, Kauhava Primary Health Care District (KPHCD), Seinäjoki University of Applied Sciences (Seamk) and South Ostrobothnia Health Care District (SOHCD). Partners implemented tele-mentoring to support communication, mentoring and continuing education of hygiene nurses in South

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Ostrobothnia region. Mentees were from Kauhava Primary Health Care District from its primary health care centers.

Pilot # 3, KPHCD, Finland

The second part of the tele-mentoring pilot was implemented between Health Care Units and their nurse professionals within the Kauhava Primary Health Care District, KPHCD. Tele-mentoring is not very common in the medical field and where it exists, it is usually from learning institutions or university hospitals to specialist hospitals and down to young professionals, who are in training.

We wanted to arrange the tele-mentoring pilot inside the Primary Health Care among our own professionals and mainly by our own mentors as well. We felt that we have the mentor capacity to do it. According to the literature tele-mentoring is not done in this format anywhere.
In our district lack of permanent doctors has continued several years and recently we have had difficulties to employ nurses at least for temporary positions. We have developed our mentoring and support systems to be more attractive as an employer. We have 3 mentor-trained doctors, 3 nurses and one pharmacist. Mentees were professionals from different units.
There have been numerous separate tele-mentoring sessions. Topics were arising e.g. from changing legal issues, demands regarding improvements in patient safety and service quality, meeting customers' complaints, and from regular monthly meetings among the staff. Review of common clinical guidelines and their practical and local implementation in the units is very important procedure.
The defined pilot included 5 sessions with the same nursing staff. Not all tele-mentoring sessions were included in the pilot. It is not always possible to differentiate between tele-mentoring and tele-consultation because in a dialogue both may exist. Since the PrimCareIT project separated tele-mentoring and tele-consultation, we did the same. Doctors formed tele-consultation group.

Pilot was approved by the management group and the political board and it had small steering group.

Technical support was provided by the IT-staff of the organisation.

Pilot documentation and evaluation was done according to the guidelines within the

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organisation.

2.3.1.2. Purpose and Objectives of Pilot

By implementing this innovative tele-mentoring pilot in Kauhava Primary Health Care District our main aim was to support professional development and continuing education of the staff and in that way counteract professional isolation by creating a functional network between the health care units and their professionals, doctors, nurses and others. With the help of tele-mentoring we hope to attract professionals to work in remote areas and prevent additional brain drain.

Before the implementation of the tele-mentoring pilot, the mentoring and continuing education was based either on face-to-face sessions or on class-room lecturing either in the central hospital or in our main health center or visits by the mentor to different health centers. Mentoring was effective but time consuming both for the mentor and the mentees due to long distances between health care units. It was not cost-effective to spend twice or trice the time on road for one hour effective session or meeting. Distances are between 15 and 50 km. The whole circle being 160 km. With the tele-mentoring, it would be possible to have effective short 1-2 hour sessions with all necessary centers and professionals at the same time. It could enable a new kind of work routine and interaction among the participants. Also time and cost savings would be a benefit.

Goals:

- Implement tele-mentoring as a tool to support professional development and continuous nursing education in the Primary Health Care.
- Counteract professional isolation.
- To attract professionals to work in remote areas.

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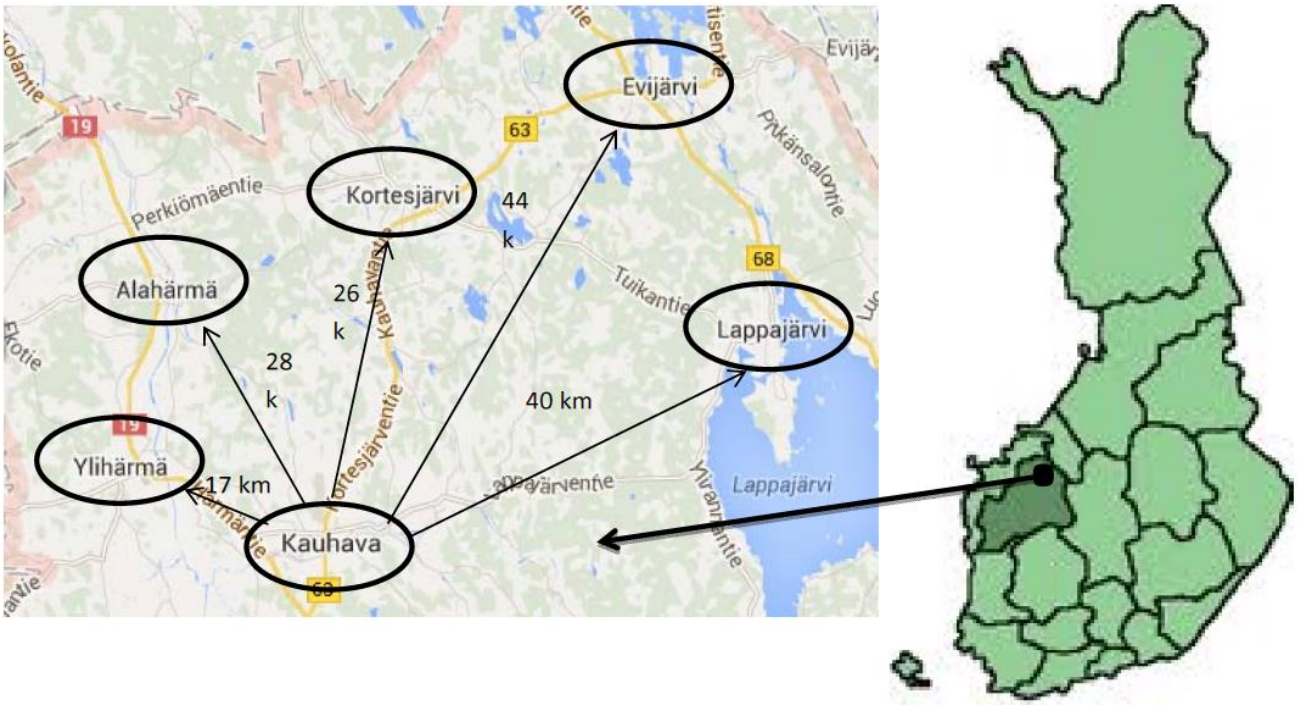
Figure 11. Pilot # 3 Kauhava Primary Health Care District, geographical area and distances



2.3.1.3. Timeline of Pilot

The pilot was originally planned to start in late 2012. There were delays in the administrative approval process and delays in acquisition of the equipment. It was installed during the first part of 2013 and staff was trained and operational connections were tested by May 2013. Tele-mentoring sessions began in May 2013 and continued the whole year. During this period 5 tele-mentoring sessions with the group of nurses formed the pilot. Originally piloting was planned for all professionals, but due to the delay in implementation and the fact that doctors formed another group for tele-consultation, only one group of nurses formed the pilot group. Tele-mentoring went on simultaneously with other professionals as well, mainly inside our own organisation but some from Central Hospital to our health centers.

Initial pilot session was held in June 2013, but discontinued during the holiday period and then continued on a monthly basis up to the end of November 2013.

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The pilot kick off meeting was held in June 2013. All pilot participants were beforehand shortly instructed on the PrimCareIT project, piloting, tele-mentoring and evaluation processes. Participants profile questionnaire and pre-test questionnaire were carried out. Feelings among the participants toward the tele-mentoring were largely positive from the beginning. After the last pilot session post-test questionnaire and modified focus group interview based on the respective questionnaires were carried out and pilot data was collected.

2.3.1.4. Pilot Participants

The pilot participants were 1 mentor +12 departmental in-charge nurses working in our primary health care centers, who were responsible for a certain unit.

Head nurse acted as a mentor. She has a long career as nurse specialist, she has a master's degree in public health and she majored in gerontology.

The participants were more experienced than the average nursing staff. Audience profile is described in table.

Table 12. Pilot #3 Audience Profile

Demographics N =13

Individual				
Mentor or Mentee	Mentor	1	Mentee	12
Profession	Head nurse			1
	Master in Nursing			2
	Registered Nurse			7
	Public health nurse			3
Age:	< 25			0
	25—30			1
	31—40			0
	41—50			2
	> 50			10
Gender:	Female	13		13
Experience:	Less than a year from diploma			
	3-years from diploma			
	6-years from diploma			1
	10-years and more experience			12

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2.3.1.5. Evaluation methods

2.3.1.5.1. Questionnaire

Questionnaire forms were the same as in other participating pilots and are seen in appendix. They were translated into Finnish and are presented here in English.

During the first session information about the pilot procedure was provided, the demographic audience-profile and pre-test were carried out. Each pilot session was evaluated with questionnaire and verbal feedback. In the end of the pilot the post-test was carried out. Qualitative questionnaire was carried out after the pilot on 25.11.2013.

Since the number of participants was small and differences minimal, statistical conclusion was not relevant. Results are presented as impressions and trends.

2.3.1.5.2. Interview

With the qualitative questionnaire we received plenty of information from pilot participants about their experiences in the tele-mentoring pilot and of the factors which can affect professional isolation and brain drain in the primary health care. Based on these questionnaires modified focus group discussion was held to further elaborate views on tele-mentoring, professional isolation and brain drain.

2.3.1.6. Tele-mentoring A (in dialogue) -, B (in a lecture) –, D /combined) -framework

We selected videoconferencing as the method of tele-mentoring. Five tele-mentoring sessions were carried out between June and November 2013 using videoconferencing equipment. Videoconferencing created almost natural “room-like” presence as stated in evaluations. This contributed to good and positive environment for dialogue during the sessions. In each health center one or more participants were able to participate in the dialogue. Additional digital information data, PowerPoint presentations and other internet resources were possible to be delivered via laptop linked to the videoconferencing unit. Other material for archive purposes could be sent via e-mail.

In medical and nursing field it is sometimes difficult to distinguish between mentoring and consultation because they often are intervened. The same was in our case with the type of tele-mentoring. In our pilot tele-mentoring sessions were combination of dialogue and lecture.

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Generally dialogue was more appreciated according to the interviews but lecture was more suitable for presenting new facts. The session duration was 1½-2 hours and it included usually short brief of current affairs in the beginning and feed-back and questions in the end.

The content of five pilot sessions were:

- Session 1: Health gain model and the current situation
- Session 2: Allergen immunotherapy
- Session 3: Quality review
- Session 4: ePRS and EP-Potti (common electronic patient record)
- Session 5: Influenza vaccinations

All sessions reviewed together gave the following on average results on scale 1-5

The topic was interesting to me	4.46
The general goals of the session were fulfilled	4.41
I was able to achieve my own goals for this session	4.22
Overall I am satisfied with the functionality of used technology in this session	4.02
Overall I am satisfied with the functionality of used equipment in this session	4.12

2.3.1.7. Pilot Technology

Videoconferencing technology was chosen for the tele-mentoring pilot. It transports synchronous voice and image media between the participants. On each site we used Polycom conferencing unit and Samsung monitors maintained by Videra and operated by regional tele-service provider. Equipment was on lease based on the nationwide contract between municipalities and service provider. Through videoconferencing equipment simultaneous connections could be arranged between all health centers of the organisation. It made on-line dialogue possible and could be used for delivering voice, images and data. Additional data, PowerPoint-presentation and other Internet resources were available via laptop connected to the videoconferencing unit. It means that also asynchronous and synchronous electronic message method was used. For this pilot videoconferencing equipment was available in 7 different locations (6 HCs and separate occupational health unit), but not all were in use simultaneously.

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2.3.2. Technology and Technical Equipment Assessment

After the decision to acquire videoconferencing equipment, we had to map the available spaces for that purpose in each health center and make necessary arrangements in the rooms. The equipment was installed by the service provider with the help of our technical staff. We trained 2 people on each site to assist to operate the equipment, mostly office personnel. Our aim was that mentors and mentees and other staff, who uses the videoconferencing, must be able to do it by themselves. Having a support person permanently on sessions requires more personnel and increases the costs. In the beginning there were simple problems with the operation of the technical equipment; handling the joystick and cameras, selecting the correct conference room and connecting laptop information. Later setting up the Polycom videoconferencing equipment was unproblematic and participants mastered videoconferencing sessions easily. IT-staff was responsible for staff training and provided technical support for the pilot sessions if needed e.g. when connection was outside from our organisation and there were firewall problems. In one occasion the videoconference was not providing good quality because the service provider had limited the capacity by mistake. We tested laptop connectivity to the videoconferencing. Cisco program was installed on the laptop and connection was easily made. Quality was as in laptop. iPad version was not available. Laptop and iPad connection was tried successfully via mobile 3G.

Generally the pilot participants were very satisfied with the technology and equipment when functioning. In the beginning participants had some minor problems operating the system, which related to unfamiliarity. In fact later operating the equipment was very simple and easy and was managed later by the participants without any support from outside. These problems were presented in feedback as a limiting factor. After the sessions it was one of the discussion topic and possible problems during the videoconferencing influenced the whole perception in a negative way. Functionality was the only topic, which casted doubts and uncertainty if videoconferencing is viable. Our conclusion is that equipment functions well and can easily be managed by the participants after initial training and some practical sessions. When familiar with the videoconferencing, no outside support is needed for the sessions. On each site 2 people were trained as support people in case needed.

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2.3.3. Communication type Assessment

Tele-mentoring was combined with dialogue and lecturing. In post-test all but one participant agreed that tele-mentoring provides a simple and practical way to support professional development both in rural areas and especially when working alone. All felt that tele-devices (such as iPads, PCs) are suitable in tele-mentoring. Short meetings are easier to arrange even during the busy days and costs are minimal in comparison of lost time and money for traveling. Dialogue is possible with every participant almost as naturally as around the same table. It forms a network for participants and enables also distant tele-mentoring by the sources, which otherwise were not possible e.g. experts from other institutions.

2.3.4. Participants Perspective; Mentor (1) and Mentee (12)

Five pilot sessions were held during May and November 2013. The demographic audience profile and pre-test were carried out in the first session and each pilot session was evaluated partly with questionnaires and partly via dialogue. At the end of the piloting a post-test and qualitative questionnaire was carried out. Based on the answers additionally short modified focus group discussion was held. Qualitative questionnaire and modified focus group together gave a very good insight of the whole. Due to vacations and other duties, number and composition of participants varies in sessions.

Participants all had computer and internet access. They were quite experienced in technical usage. They had good possibilities to be mentored, 5 every day, 4once a week, 3 once a month and one didn't have an equally experienced colleague. All had the possibility to participate in educational activities at least once a month. Obstacles were; time constraint in work 9, distance 4, too expensive 1.

Table 13. Pilot # 3 Tele-mentoring tech usage and technical situation

Demographics N = 13

Tele-mentoring tech usage	yes	no
Experience in Instant Messaging?	5	8
Experience in discussion Boards?	7	6
Experience in Webinars/ conferences?	5	9
Experience in Moodle seminars?	12	1

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Technical situation				yes	no
Do you have access to the Internet?				13	
Do you have a computer?				13	
In this section, please rate the following questions	seldom or never	once a month	2-3 times a month	once a week	every day
	1	2	3	4	5
How often do you have the possibility to be mentored by an experienced colleague?	1	3		4	5
How often do you have the possibility to participate in educational lectures, classes (or such)?		12			1
What are the obstacles for attending educational lectures, classes (or such)?	a) Distance = 4 answers b) Time constraints in work = 9 answers c) Low quality in seminars = 0 answers d) Too specialized = 0 answers e) Too expensive = 1 answers f) Other reason = 1 answers				

2.3.5. Mentors/mentees experiences and attitudes

The same test regarding the experience in work, willingness to work in remote areas, feeling of professional isolation, if tele-mentoring is able to support professional development and use of tele-devices was done prior the pilot and after the pilot.

Table 14. Pilot # 3 Pre-test Participants experience and feelings

In this section, please rate the following statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
	1	2	3	4	5	-/ +
I feel self-confident when making decisions at work.		3		9	1	3 / 10
I have experience and knowhow for solving everyday cases.				11	2	0 / 13
I have experience and knowhow for solving rare conditions.		2	4	6	1	2 / 7

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I am willing to work in remote areas (e.g. in my current workplace).		1	3	5	4	1 / 9
I feel professionally isolated.	5	6	2			11 / 0
I feel tele-mentoring can be used as a tool to support my professional development.		1	1	8	3	1 / 11
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.			5	7	1	0 / 8
I like to use ICT-technology while communicating with my colleagues.			1	11	1	0 / 13

The test contained questions about professional isolation and about using tele-devices.

In the pre-test and post-test the last column shows negative (strongly disagree, disagree) and positive (strongly agree, agree) answers. Neutral is left out for the sake of clarification.

Since the participants were quite experienced, there were only minimal changes during the pilot, but those changes were positive and supported the use of tele-mentoring method. Decision making, solving every day cases, feeling of isolation didn't change. There was slight positive change regarding the tele-devices suitability for mentoring and tele-mentoring as a tool to support professional development.

Table 15. Pilot # 3 Post-test Participants experience and feelings

In this section, please rate the following statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
	1	2	3	4	5	-/ +
I feel self-confident when making decisions at work.		3		9	1	3 / 10
I have experience and knowhow for solving everyday cases.				11	2	0 / 13
I have experience and knowhow for solving rare conditions.		2	3	7	1	2 / 8
I am willing to work in remote areas (e.g. in my current workplace).		1	3	5	4	1 / 9

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I feel professionally isolated.	5	6	2			11 / 0
I feel tele-mentoring can be used as a tool to support my professional development.		1		9	3	1 / 12
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.				10	3	0 / 13
I like to use ICT-technology while communicating with my colleagues.			1	11	1	0 / 13

Other qualitative information was gathered through qualitative questionnaire and interview. This type of tele-mentoring session was first time for 3 participants and all felt it was useful. Strengths were; it is a dialogue and all hear and see everybody as being in the same room, possibility to participate (criticize, disagree, focus), saves time, no need to travel, easy to participate, multi-participatory session easier to arrange also across organisational borders. Dialogue and participatory nature was very much appreciated in the interviews.

It was considered useful in; most in mentoring/training, lecturing, consulting, when multiple actors, information distribution, short meetings, networking, change of ideas, communication between different HCs.

One was uncertain about the usefulness and felt that one should carefully consider using it if customer/patient is present. It is not always possible since all don't have the equipment.

Some participants were doubtful because of the suspected weaknesses, technical reliability, not working, connection not possible, not user-friendly, no knowledge and skills to use but also that communication is thinner than face-to-face.

None of the participants felt that they are professionally isolated. They recognized situations which may cause professional isolation; working alone in one place but also feeling alone when one's own work is highly specialized, being far away, when difficult to participate in continuous education due to workload or cost, when a person is not motivated. Poor working atmosphere and lack of support by colleagues has strong influence on the feeling of isolation.

The brain drain was influenced by; lack of support, poor working atmosphere, high workload, salary and other benefits, no time to do work properly, no employment for the spouse and at the same time there are other very attractive positions available.

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Participants felt that tele-mentoring could prevent brain drain because it indirectly supports joint efforts to improve the services and management. It supports positive development in the working community, good working atmosphere and collegiality. Those qualities make staff deep-rooted. One negative answer meant the same; tele-mentoring is not so meaningful that it alone could replace good atmosphere and it doesn't bring any change in salary or workload nor employ the spouse.

Tele-mentoring can prevent professional isolation in the same ways as brain drain. It enables person to have access easily and quickly to better continuous education, consultation and current information. But more important, it enables easier communication, interaction and participation in dialogue of current affairs as if one is present.

One participant again stated that salary and workload doesn't change. And without own motivation and activity, tele-mentoring doesn't have influence.

2.3.6. Organisational perspective

2.3.6.1. Supporting factors

In KPHCD we have in daily use e-learning platforms and portal for current treatment guidelines, articles and e-learning modules in "Terveysportti". There is a strong political and leadership support for tele-mentoring. It is seen as easy and cost-effective way to enable continuous education to the staff. But it is important management structure and networking tool as well. Exceptionally KPHCD wants to use its own mentor-experts as a resource. That is not generally the case in the PHC. We have experienced mentors and believe that knowing the local environment and resources and working in the organisation, mentor is able to help transform e.g. national guidelines to adequate local actions.

2.3.6.2. Limiting factors

The method has continuous costs for the equipment and service but benefits and savings are seen bigger. Today we have mentors, who are willing and capable to do the tele-mentoring and related activities. If that was not the case, tele-mentoring couldn't be possible in our system. Sessions from outside are rare and transmitted only to Kauhava HC.

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2.3.7. Financial perspective

In KPHCD the 6 HCs are ca 20-50 km apart from the central HC. Conventional seminar could be in Seinäjoki specialist hospital or in central HC in Kauhava.

In case the mentor goes to each HC, one has to travel minimum 150 km (if in one day) or 200 km in two days. Mentor has e.g. the same one hour mentoring/lecturing session 6 times. Totally it requires minimum 2 days, of which one day is just for traveling.

If mentor is coming from Seinäjoki, one has to add 100 km and the only possible location is Kauhava, where other participants have to travel.
Costs: Traveling 200 km x 0.45€ = 90€. Lost working time 2 days.

If participants are coming to Kauhava, one from each HC, traveling distance is altogether ca 150 km, but the traveling time and non-active time before and after the session is 8 hours, on average 1,2 working days. If there are more participants e.g. 2 or 3 from each, it will double or triple the lost time. Costs: Traveling 150 km x 0.45€ =67.50€. Lost working time is 1,2-3 days depending on the number of the participants.

If the lecture is in Seinäjoki, one needs to add 6x100 km more = 270€ more and minimum 1 hour extra time x 6, which makes one day. Total for two participants from each HC lost time for traveling is 4.5 days.

Tele-mentoring enables more participants to attend even for longer trainings. Depending on the nature of tele-communication e.g. important information and management meeting, easily 5 people from each HC attend. Savings are remarkable in form of lost time.

2.3.8. Tele-mentoring potential

2.3.8.1. Professional isolation

One goal of the tele-mentoring pilot was to counteract professional isolation. In our interviews none of the participants felt that they are professionally isolated. They recognized situations which may cause professional isolation and can cause brain drain; being only professional in one place but also feeling alone when one's own work is highly specialized/isolated, being far away, participation in continuous education due to workload or cost is impossible or difficult, when person is not motivated. Our participants felt that poor working atmosphere and lack of

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support from colleagues has heavy influence on the feeling of isolation and can cause brain drain.

Good tele-mentoring practices can counteract these feelings.

2.3.8.2. Staff expertise

KPHCD has periodically medical students and nursing students in training. All doctors under specialization can do their general training period in our HC and those specializing in General medicine/Family medicine, Geriatrics and Occupational Health even more. They all have their own standards to fulfil regarding the mentoring and mentoring staff. We have several nurses and doctors, who are experienced mentors, but this was the first time when it was done as tele-mentoring and the target was our own staff. Mentoring is extra activity to all mentors and preparing the sessions and topics requires motivation and commitment.

2.3.8.3. Knowledge exchange

Knowledge exchange was mainly via videoconferencing unit linked with laptop so that data, Powerpoint presentations and other internet sources were available. Archive material was sent via e-mail. Participants felt that most important way of the knowledge exchange was the on-line dialogue, which was close to the real face-to-face situation.

2.3.8.4. Time gains

For the pilot group, assuming that 3 participants have to travel each time, saved time was three working days.

During the period May-December 2013 we had close to 400 professionals participating in more than 40 different type of tele-mentoring and tele-consultation sessions and if at least 150 of them had to travel the saved time has been 30 working days.

2.3.9. Conclusion

2.3.9.1. Swot-analysis.

SWOT-analysis and lessons learned are based on quantitative and qualitative questionnaires and interviews and other feed-back during the pilot.

STRENGTHS: The tele-mentoring method was well accepted and it was seen easy and cost-effective way to participate. Combined structure of dialogue and lecture created a feeling of

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participatory approach and a feeling of being actually present. Dialogue was highly appreciated. This type of on-line learning method is well suitable for adult learning and known to excel the traditional lecturing method. It forms a network for mentors and mentees. Savings in time and costs are remarkable.

WEAKNESSES: Some doubts were casts that technically the method was too complicated and difficult to master and not user-friendly and requires support staff permanently present. This assumption was due to the first experiences, where the unfamiliarity and poor skills to operate the system were apparent.

OPPORTUNITIES: The method is not only suitable for tele-consultation and tele-mentoring, but in KPHCD it has the potential for regular management meetings, staff meetings, information distribution and distant working group. It is useful when there is need to hear and see somebody from other organisation and either due to distance or timely availability face-to-face meeting is not cost-effective nor possible and the telephone communication not enough.

THREATS: Tele-mentoring requires that mentors are available and abled to do their work financially and timely and that there is access to support database e.g. updated common guidelines and literature online. Lack of own motivation and lack of management support could be threat. It creates continuous costs and could be critical if during current financial limitations it is not seen cost-effective.

2.3.9.2. Lessons learned

Project management requires more resources than was periodically available.
In the beginning there is need for more comprehensive training in operation technology and on each site few people should be more capable to assist in case needed.
Implementation can be demanding but also rewarding. Tele-mentoring effect was much wider than assumed in the beginning e.g. dialogue can counteract professional isolation and brain drain even the participants don't feel isolated.
Transnational project widened the horizon and gave important inputs.

2.3.9.3. Maintenance and further development of ICT in PHC

Actions for sustainability of pilot

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KPHCD has informed politicians and public about the tele-mentoring pilot and its achievements. Leadership has guaranteed continuous support and financing to the system. One new mentor is currently in training.

Tele-mentoring and tele-consultation pilots have opened new possibilities with ICT in PHC. During May-December 2013 in KPHCD there has been 41 different type of tele-sessions and 341 participants. Doctors have short bi-weekly morning meetings and monthly departmental meetings, nurses have bi-weekly dialogue about current issues and monthly administrative meetings, public health department has monthly meetings, outpatient department bi-monthly. Different working groups are having meetings across organisational borders and single meetings involving families and social and health officers.
As experience increases, demand for tele-services is growing and the feeling is that it is permanent and growing method in KPHCD.

2.3.9.4. Future

Tele-mentoring has become a routine part of continuous education, but it is gaining wider applications. Technology and access and operation of internet are all becoming more cost-effective and new solutions are emerging to share resources.

Feedback gave us impression that our goals were achieved. Tele-mentoring prevents professional isolation and it has a definitive role to counteract brain drain at least indirectly. It supports positive atmosphere, which makes one rooted to the current workplace.

2.3.10. Case description

Tele-mentoring session 19.8.2013, duration 2 hours

Title: Allergen specific immunotherapy

- Allergy
- Different methods and effectiveness
- Patient selection
- Patient information and follow-up
- Practical procedures in the KPHCD, common agreement
- Side effects

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- Specific roles for doctors and nurses
- Case and questions
- Evaluation

Table 16. Pilot # 3 Tele-mentoring session # 2

Tele-mentoring session # 2, N=11

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
The topic was interesting to me.				5	6
The general goals of the session were fulfilled.				3	8
I was able to achieve my own goals for this session.				10	1
Overall I am satisfied with the functionality of used connection in this session.			1	5	5
Overall I am satisfied with the functionality of used equipment in this session.				6	5

2.4. Pilot #4: KPHCD, SOHCD, SEAMK; Finland

By: Marja-Kristiina Vaahtera and Katriina Kuhalampi, Seinäjoki UAS; Minna Kamula, SOHCD

2.4.1. Pilot Background

2.4.1.1. Pilot Research Context

The joint pilot of three Finnish PrimCareIT project partners, Kauhava Primary Health Care

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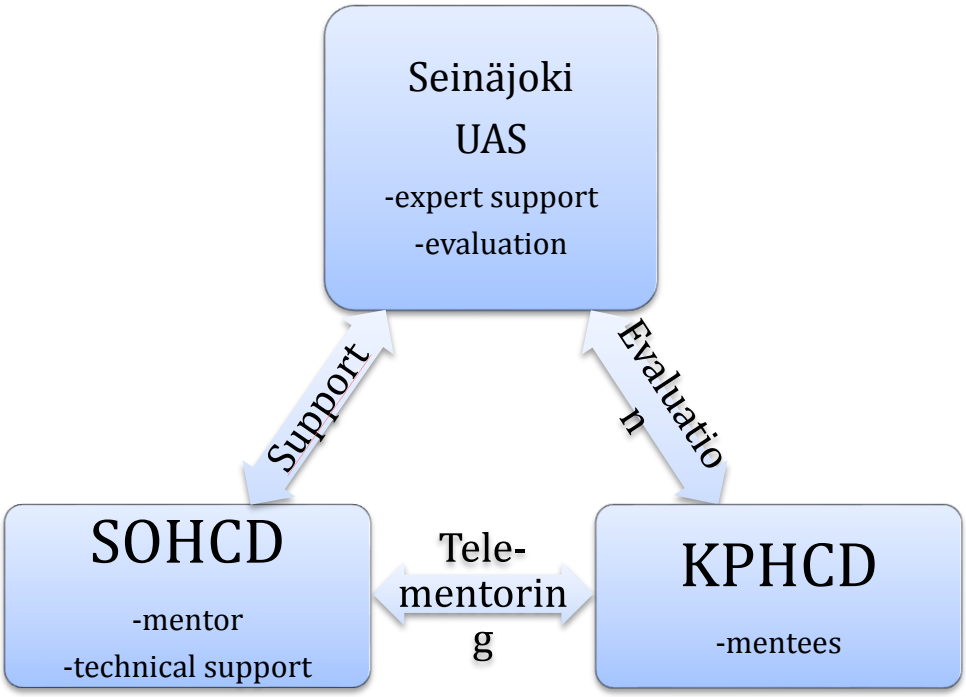
District (KPHCD), Seinäjoki University of Applied Sciences (Seamk) and South Ostrobothnia Health Care District (SOHCD) implements tele-mentoring to support communication, mentoring and continuing education of hygiene nurses in South Ostrobothnia region. The roles of the three involved organisations are following:

- South Ostrobothnia Health Care District provides technical support for the pilot, and the mentor nurse from the Seinäjoki Central Hospital
- Kauhava Primary Health Care District provides the mentees from its primary health care centres
- Seinäjoki University of Applied Sciences as an educational institution provides expert support to tele-mentoring and takes care of the evaluation process and documentation of the pilot.

Following figure demonstrates the roles of these three pilot partners.



2.4.1.2. Purpose and Objectives of Pilot

By implementing the tele-mentoring pilot in the South Ostrobothnia region, we aimed to support

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professional development of the mentees and to counteract professional isolation by creating a functional network of contact persons between the participating health care units.

Furthermore, tele-mentoring was considered to bring benefits to the participating organisations. Before the implementation of the tele-mentoring pilot, the mentoring and continuing education of hygiene nurses was organized by regular visits of the regional hygiene nurse from Seinäjoki Central Hospital to the regional primary health care centers. This process was working, but was seen as time consuming due to long distances between health care units. A notable part of mentor's daily work hours was spent travelling between the health care centres (distances ranging between 55 - 75 km).

Tele-mentoring pilot was initiated to see if it could provide a tool for the nurses to ease their communication and meetings by saving travel time but still allowing regular "face-to-face" meetings. With tele-mentoring, it would be possible to have connection with all centres in the same day, which enables a new kind of work routine to the mentor. Also financial savings would be a benefit.

2.4.1.3. Timeline of Pilot

The pilot was planned between autumn 2012 and January 2013 by the work group consisting of participants from all three involved organisations. As described in the previous outputs, piloting was planned to take place mainly via videoconferencing between South Ostrobothnia Health Care District (namely: Seinäjoki Central Hospital) and Kauhava Primary Health Care District. Seinäjoki University of Applied Sciences as an educational institution was to provide expert support to the tele-mentoring.

Initial pilot test session was held in December 2012. Connection between Seinäjoki Central Hospital and Kauhava Primary Health Care Centre was tested with existing older equipment. Regional hygiene nurse, i.e. the mentor nurse in the pilot, was present in the meeting and was instructed on the technical aspects of tele-mentoring. During autumn 2012, also Moodle environment for the pilot group was created.

Once the actual pilot equipment was obtained at South Ostrobothnia Health Care District in the beginning of January 2013, it was decided that the pilot would be started. Kauhava Primary Health Care District was able to use older equipment in the beginning of the piloting, until the

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actual pilot equipment was received. Partially due to the equipment issues, it was decided to restrict the piloting at first phase to Kauhava primary health care center, and not yet to the more distant health centres.

The pilot kick off meeting was held in February 2013. All pilot participants were instructed on the PrimCareIT project, piloting, tele-mentoring and evaluation processes. Pre-questionnaire was carried out, and videoconferencing between the units was presented. Feelings among the participants toward the tele-mentoring were largely positive. Further pilot sessions were decided to be held on a monthly basis between the mentor nurse and several mentees simultaneously.

Last pilot session was held in May 2013. After this, end questionnaire was carried out and pilot data analyzed. Interviews were carried out during autumn 2013.

So far, the network formed in the pilot has stayed functional, and it seems that it benefits the participants.

2.4.1.4. Pilot Participants

The pilot participants were one mentor nurse (a regional hygiene nurse who works in the hygiene unit of Seinäjoki Central Hospital) and approximately 10 mentee nurses (regular nurses working in primary health centers, and responsible for hygiene issues at their units). Audience profile is described in the table.

Table 17. Pilot #4 Audience Profile

Demographics N =14

Individual				
Mentor or Mentee	Mentor	1	Mentee	13
Profession:	Head nurse			1
	Registered nurse			7
	Public health care nurse			2
	Practical Nurse			5
Age:	< 25			0
	25—30			0
	31—40			3
	41—50			4

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	> 50	7
Gender:	Female	13
	Male	1
Nationality:	Finnish 14	
Experience:	Less than a year from diploma	
	3-years from diploma	1
	6-years from diploma	1
	10-years and more experience	12

2.4.1.5. Evaluation Methods

Four pilot sessions were carried out between February and May 2013. During the first session information about the pilot procedure was provided, and the demographic audience-profile and pre-test were carried out. At the end of the piloting a post-test was carried out, and each pilot session was also evaluated with questionnaire.

We also carried out a qualitative questionnaire in the end of piloting, receiving answers from four pilot participants about their experiences of the pilot and of the factors which can affect professional isolation and brain drain in the primary health care. All the answers were confidentially processed. The purpose of this questionnaire was to increase the understanding of good tele-mentoring practices and of its possibilities to prevent professional isolation and brain drain.

2.4.1.6. Tele-mentoring A (in dialogue) - and B (in a lecture) - framework

To support the four tele-mentoring sessions carried out between February and May 2013 through videoconferencing, a Moodle environment was created for the pilot group. It was used for delivering learning materials and other relevant information between the pilot participants.

The name of the Moodle course was ”Professional skills and hygiene in nursing”.

The content of Moodle platform and four pilot-sessions were

Session 1.

- Kick off meeting of pilot in Kauhava 6.2.2013

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- Common information about PrimCareIT project and piloting
- Introduction of Moodle platform
- First questionnaires' of mentees (audience profile, pre-test of mentees and evaluation of pilot-session 1.)

Session 2.

- The general precautions of hygiene; by tele-connection 22.3.2013
- How to prevent infections in nursing
- Instructions of working clothes and hygiene in nursing
- Hand hygiene in nursing
- Disinfection on speck secretion
- SOHCD`s recommendation: How to use safety gloves
- Personnel's use of safety / protective equipment
- Evaluation of pilot-session 2.

Session 3.

- The special precautions of hygiene; by tele-connection 25.4.2013
- Problems of gamma resistant bacteria (ESBS and MRSA)
- Evaluation of pilot-session 3.

Session 4.

- The isolation of the patient in hospital; by tele-connections 23.5.2013
- Air isolation
- Drop isolation
- Touch isolation
- Post-tests of mentees and evaluation of pilot-session 4.

2.4.1.7. Pilot Technology

Videoconferencing technology was chosen for the pilot, as through videoconferencing equipment simultaneous connections could be arranged between two or more locations, and it could be used for delivering voice, images and data. For this pilot, LifeSize and Polycom videoconferencing equipment were used.

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Also iPads were planned to be used in the pilot for tele-mentoring between individual participants. An application called “Helppo Nappi”, provided by the regional tele-service provider was planned to be adapted.

Additionally, a Moodle environment was created for the pilot group. It was used for delivering materials and other relevant information between the pilot participants.

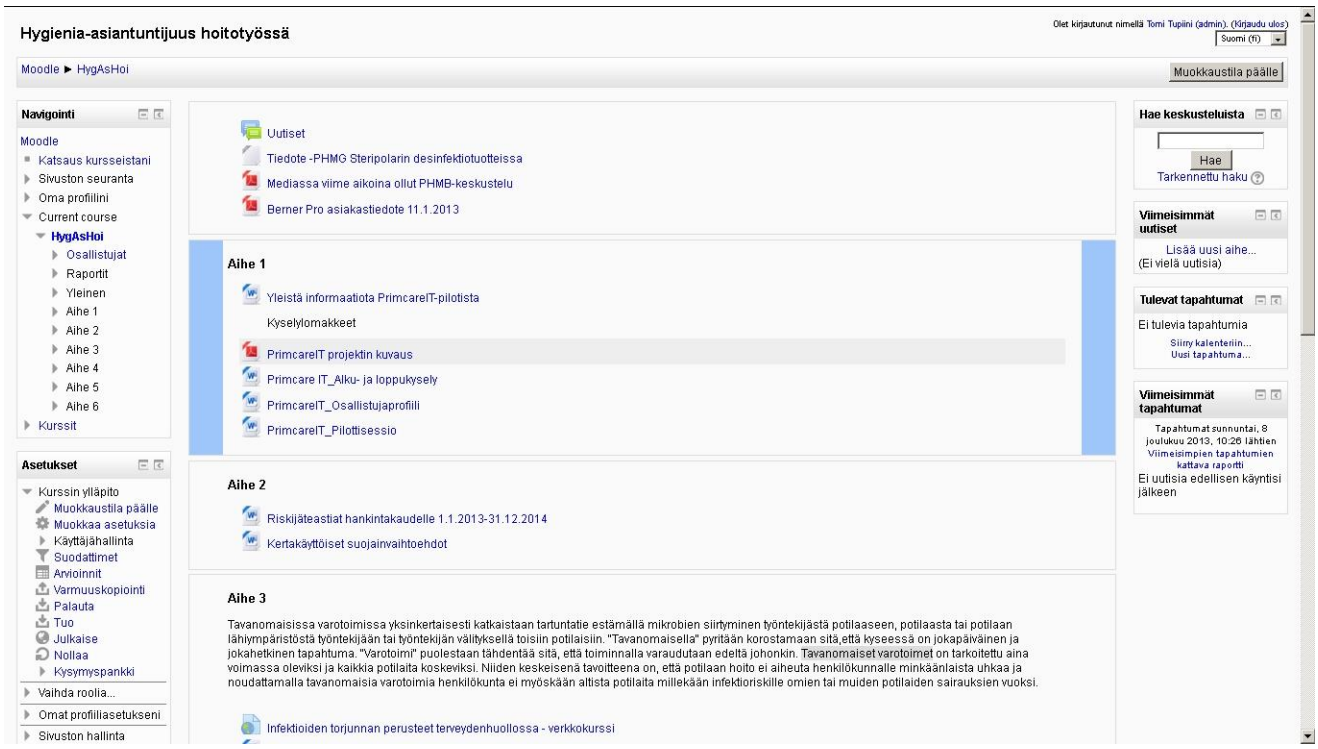

Figure 12: Pilot #4 Moodle environment.

2.4.2. Technology and Technical Equipment Assessment

Set up of the technical equipment (LifeSize and Polycom videoconferencing equipment) was unproblematic as videoconferencing is a familiar method for the pilot work group members. South Ostrobothnia Health Care District provided technical support for the pilot sessions.

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Figure 13: Pilot #4 Tele-mentoring session in SOHCD: LifeSize videoconferencing equipment.

"Helppo Nappi" programme couldn't be adapted properly due to the regional tele-service provider being unable to offer a ready iPad version of the application in time for piloting. Therefore only its primary version was tested shortly. PC version instead has been tried and works well.

Generally the pilot participants were satisfied with the technology and equipment. However, we noticed that the tolerance with tele-equipment can be quite low. If there are any technical problems, the feedback is more critical (see session 3 review). This means that special attention should be paid to the equipment, technical functionality and technical support.

2.4.3. Communication type Assessment

After piloting sessions there was a common agreement about the result that tele-mentoring provides new opportunities and professional support to primary health care professionals, especially in rural areas. Except that there was a supporting relationship between the mentor and the mentees, the mentees built up a network between themselves, so everybody was learning from each other.

As mentioned above, special attention should be paid to the technical functionality and technical support. In order to guarantee the functionality of tele-mentoring, there should always be technical support available at both ends in the beginning and also during the session.

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2.4.4. Participants Perspective; Mentor (1) and Mentee (13)

There were four pilot sessions during February and May 2013. The demographic audience profile and pre-test were carried out in the first session. At the end of the piloting a post-test was carried out, and each pilot session was evaluated.

Table 18. Pilot#4 Tele-mentoring tech usage and technical situation

Demographics N = 14

Tele-mentoring tech usage				yes	no
Experience in Instant Messaging?				5	9
Experience in discussion Boards?				4	10
Experience in Webinars/ conferences?				5	9
Experience in Moodle seminars?				4	10
Technical situation				**yes**	**no**
Do you have access to the Internet?				14	
Do you have a computer?				14	
In this section, please rate the following questions	seldom or never	once a month	2-3 times a month	once a week	every day
	1	2	3	4	5
How often do you have the possibility to be mentored by an experienced colleague?				1	13
How often do you have the possibility to participate in educational lectures, classes (or such)?	7	11	1		
What are the obstacles for attending educational lectures, classes (or such)?	a) Distance = 4 answers b) Time constraints in work environment =8 answers c) Low quality in seminars = 0 answers d) Too specialized = 0 answers e) Too expensive = 0 answers f) Other reason = 5 answers				

The pre-test contained questions about professional isolation and about using tele-devices.

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Table 19: Pilot #4 Pre-test

6.2.2013 / mentees; N = 13 mentees

In this section, please rate the following statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
	1	2	3	4	5	N
I feel self-confident when making decisions at work.	1	1		9	2	13
I have experience and knowhow for solving everyday cases.		2	1	10		13
I have experience and knowhow for solving rare conditions.	1	3	5	4		13
I am willing to work in remote areas (e.g. in my current workplace).	2		3	5	3	13
I feel professionally isolated.	6	5	0	1		12
I feel tele-mentoring can be used as a tool to support my professional development.			1	10	2	13
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.			4	6	3	13
I like to use ICT-technology while communicating with my colleagues.		1	5	6	1	13

Table 20. Pilot #4 Post-test

23.5.2013 /mentees; N=11 mentees

In this section, please rate the following statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
	1	2	3	4	5	N
I feel self-confident when making decisions at work.	1			7	3	11
I have experience and knowhow for solving everyday cases.				9	2	11
I have experience and knowhow for solving rare conditions.		2	4	5		11

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I am willing to work in remote areas (e.g. in my current workplace).	2		2	5	2	11
I feel professionally isolated.	4	6	1			11
I feel tele-mentoring can be used as a tool to support my professional development.				8	3	11
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.				7	4	11
I like to use ICT-technology while communicating with my colleagues.			3	6	2	11

.

Table 21.: Pilot #4 session 1. Review

N=13/ 6.2.2013

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N
	1	2	3	4	5	
The topic was interesting to me		1		9	3	13
The general goals of the session were fulfilled			7	3	3	13
I was able to achieve my own goals for this session			7	4	2	13
Overall I am satisfied with the functionality of used technology in this session				8	5	13
Overall I am satisfied with the functionality of used equipment in this session				8	5	13

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Table 22; Pilot #4 session 2. Review

N=12/ 22.3.2013

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N
	1	2	3	4	5	
The topic was interesting to me		1		4	7	12
The general goals of the session were fulfilled			1	4	7	12
I was able to achieve my own goals for this session				4	7	12
Overall I am satisfied with the functionality of used technology in this session				3	9	12
Overall I am satisfied with the functionality of used equipment in this session				3	9	12

Table 23.: Pilot #4 session 3. review

N=10/ 25.4.2013

Rate questions on a scale of 1 to 5.	Strongly disagre	Disagre e	Neutral	Agree	Strongly agree	N
	1	2	3	4	5	
The topic was interesting to me.				7	3	10
The general goals of the session were fulfilled.				6	4	10
I was able to achieve my own goals for this session.			1	5	4	10
Overall I am satisfied with the functionality of used technology in this session.	2	2	1	5		10
Overall I am satisfied with the functionality of used equipment in this session.	2	3	2	3		10

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Table 24.: Pilot #4 session 4. review

N=11/ 23.5.2013

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N
	1	2	3	4	5	
The topic was interesting to me.				6	5	11
The general goals of the session were fulfilled.				6	5	11
I was able to achieve my own goals for this session.				7	4	11
Overall I am satisfied with the functionality of used technology in this session.		1		7	3	11
Overall I am satisfied with the functionality of used equipment in this session.		2	1	5	3	11

We also carried out a qualitative questionnaire and received answers from four pilot participants about their experiences of the pilot and of the factors which can affect professional isolation and brain drain in the primary health care. All the answers were confidentially processed. The purpose of this questionnaire was to increase the understanding of good tele-mentoring practices and of its possibilities to prevent professional isolation and brain drain.
Two of the participants said that this piloting was the first time when they participated in this kind of distance education or tele-mentoring process. Other two participants felt that distance education was familiar for them.

Three participants said that it would be useful to use this kind of distance education or tele-mentoring. One could not answer. Those three, who said it would be useful, justified their opinion on the question “Why would the approach be useful?” in the following way: One does not need to go far from his/her own workplace, therefore the time and travel compensations are saved. The picture connection and voice connection make the division of a near contact and material possible. Even own questions can be asked. In transmission of the information they stated speed and scope as advantages. It saves working hours, delivers real-time information

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and offers a dialogical connection to the exchange information and experiences.
The participants answered that tele-mentoring is useful especially in short educations which last only a few hours, but also in consultation. For example it is beneficial in a case when many resistant microbes are found from a patient, as the information can be brought effectively forward and quick decisions in the practical work can be made as a result of tele-mentoring. Also it will deliver information as one means e.g. in the superiors' meetings and lecture occasions, and a dialogical connection can also offer solutions to the problem situations in the workday when the other person is geographically in a separate location.

2.4.5. Organisational Perspective

The participants also explained what makes them to doubt the usability of tele-mentoring even if the attitudes from pilot were mainly positive. They said that the technique is the only factor that may cause failure. For example, the devices may be inoperative or the tele-mentoring opportunity can be occasionally interrupted because of technical reasons. Sometimes the real physical presence is necessary. We cannot always use tele-systems.
The real weaknesses of the working method are possible technical problems and lack of the technical support. The strengths of the working method are better opportunities to benefit from continuous learning, lectures or mentoring compared to the situation in which one should move geographically from one place to another. Another benefit is that more than only one person can participate a tele-mentoring session, which is easy and quick.
Next questions were about professional isolation and brain drain in primary health care. Participants answered the question about the reasons of professional isolation in primary health care in the following way; continuously changing staff, professional's motivation for learning / for doing and the geographical distances between the offices. Furthermore, in remote locations the assignment is usually individual/lonely work and the networking opportunities are missing, which means that it's rare to be able to share or learn from each other's experiences without tele-connections.
Pilot participants also mentioned some reasons for brain drain in primary health care: Ageing of the staff and retirements. They mentioned that there often isn't enough time to share with other colleagues. It is sometimes difficult to get information or collegial support. Working in small units

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does not necessarily persuade the professionals. They want more/different types of challenges than the small units can offer. Small units often fail to transmit learned information due to lack of staff. One's own information is not considered so important or sufficient that it would compensate for a work community. One participant said that one's own knowledge is not considered so important that it would be valuably itself in a work community. I.e. peer support and group knowledge is missed.

2.4.6. Financial Perspective

Tele-mentoring in the Finnish pilot site brought significant benefits to the participating organisations. As the distances between the participating health care units and the central hospital of Seinäjoki range from 55 - 75 km, tele-mentoring was able to bring notable time and cost savings to participating units. Compared to the traditional method in which the mentoring nurse travelled from Seinäjoki to the health care units in rural area, tele-mentoring enabled her to connect with all mentees together during one session, without needing to leave her workplace.

Compared to a situation in which the mentor would be travelling (to one distant health centre), the save of the costs in the four pilot sessions were:

- save of time of travelling: 4X 2 hours x salary about 35,00 € / hour = 280,00 €
- save of costs of travelling: (distance 2x 55 kilometres x 4 pilot sessions x 0,45 € = 198,00 €.

Compared to a situation, in which the mentees (about 11 persons) would be travelling, the save of the cost in the four pilot sessions were:

- save of time of travelling: 11 x 4 x 2 hours x salary about 35,00 € / hour = 3080,00 €
- save of costs of travelling: 2 x 55 kilometres x 4 pilot sessions x 4 cars x 0,45 € = 792 €.

With these figures, it is economically justifiable to develop this kind of way of working. As in reality the nurses who need mentoring are located in more than one health centre, cost and time saving will be even more notable.

We also asked what else the participants want to say. They told that we are just in the beginning to utilize tele-mentoring. The economic savings will be well obtained through this kind of a technology when it is properly learned to use in every day work life. Because the organisation is big, the savings are seen to be remarkable.

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2.4.7. Tele-mentoring Potential Effects

Three participants thought that tele-mentoring could prevent brain drain in primary health care. Tele-mentoring offers a possibility to get a quick connection to receive necessary information, to connect with the colleagues, to consult in real time and in problem situations. Tele-mentoring can be a tool for everyday work. One participant said that there should be more information available and more practical tele-mentoring pilots implemented.

Problems with tele-mentoring are inadequacy of and how to find suitable time. Strengths of tele-mentoring are quick reaction to delivered information and utilization of modern communication means.

Participants had also ideas how tele-mentoring should be developed so that it'd be better suitable for primary health care. The participants mentioned that connection has to be active and quick, the information has to be obtained fast and technical support has to be quickly and easily available. For example, you can use tele-mentoring for consulting of a doctor with serious wounds. The participation on a bigger group could be possible at the same time. The information at the Moodle platform is a good matter, as all current material is easy to find there. For nurses who are on duty it is possible to consult the doctor easily and flexibly, likewise to home care and nursing units. One participant said that tele-mentoring provides splendid opportunities to connect professionals.

2.4.8. Conclusions about Pilot

After piloting sessions there was a common agreement about the result that this kind of a way of working provides new opportunities and professional support to primary health care professionals, especially in rural areas. Except that there was a supporting relationship between the mentor and the mentees, the mentees built up a network between themselves, so everybody is learning from each other.

We noticed that the tolerance with tele-equipment can be quite low. If there are any technical problems, the feedback is more critical. This means that special attention should be paid to the equipment, technical functionality and technical support. In order to guarantee the functionality of tele-mentoring sessions, there should always be technical support available at both ends in the beginning and also during the session.

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The attitudes for the piloting were mainly positive. The participants saw various possibilities how to use tele-mentoring. They also saw that we are just in the beginning of the process, and more research and piloting is needed.

Time and cost saving was proven, as people participating in tele-mentoring had to travel less during their work days. Cost of tele-mentoring equipment can be quickly gained back by smaller transportation costs.

2.4.9. Maintenance and Further Development

2.4.9.1. Actions for Sustainability of Pilot

The network created in the pilot remains functional also after the pilot project. Now after the pilot, tele-mentoring can continue between units and in future, could be widened to other units as well. Also wider reaching hygiene days have been arranged via videoconferencing regionally between several health care units.

South Ostrobothnia Health Care District has used videoconferencing technologies since 1998 to follow lectures from different universities and university hospitals. As the result of the pilot and new equipment, Kauhava Primary Health Care District has also been able to follow general lectures sent by Seinäjoki Central Hospital. Before that professionals from KPHCD had to travel to Seinäjoki to participate these lectures (distance 45km).

2.4.9.2. Future

Working in a transnational project showed different possibilities and solutions to use tele-mentoring. We noticed through our project that the reasons of brain drain and professional isolation are more complicated: the (un)attractiveness of rural area, challenges of professional development, family context and other possibilities to life style. This tele-mentoring pilot is just one tool to try to prevent brain drain and professional isolation. More long term research and pilots are still needed. However, the direction with tele-mentoring is right.

2.4.10. Case-example

WP5 Pilot #4 session 2. review 22.3.2013

Session 2. Main topics with tele-mentoring were:

The general hygiene precautions; by tele-connection 22.3.2013

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- How to prevent infections in nursing
- Instructions of working clothes and hygiene in nursing
- Hand hygiene in nursing
- Disinfection on speck secretion
- SOHCD`s recommendation: How to use safety gloves
- Personnel's use of safety / protective equipment

Evaluation of pilot-session 2

Material was available on Moodle-platform.

WP5 Pilot #4 session 2. review 22.3.2013
N=12

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N
	1	2	3	4	5	
The topic was interesting to me		1		4	7	12
The general goals of the session were fulfilled			1	4	7	12
I was able to achieve my own goals for this session				4	7	12
Overall I am satisfied with the functionality of used technology in this session				3	9	12
Overall I am satisfied with the functionality of used equipment in this session				3	9	12

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2.5. Pilot #5: VUHSK, LUHS; Lithuania

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2.5.1. Background

2.5.1.1. Context

The general objective of WP5 Pilot #5 was to create a web-based learning environment where up-to-date content for continuous medical education was available and carry out tele-mentoring sessions, specifically prepared for primary doctors.

Due to the fact that tele-mentoring and tele-consultation often complement each other the close cooperation with WP4 tele-consultation Pilot #5 was foreseen. The aim of such type of cooperation was to explore and choose the best available tele-mentoring and tele-consulting solutions in terms of software, hardware and human resource.

2.5.1.2. Purpose and objectives

The newly developed web-based learning platform served as a tool of continuous medical education for general practitioners working in remotely located PHC, thus diminishing their possible professional isolation.

The prospective quantitative study, which was carried out during the pilot period allowed us to measure:

- acceptance of distance education solutions (Moodle-environment-based distant education program for general practitioners together with web-based tele-mentoring by experienced professionals),
- level of self-efficacy and self-confidence using tele-mentoring to achieve self-learning tasks,
- needs formulated by young and presumably less experienced medical professionals working in remote/rural areas.

2.5.1.3. Timeline

The pilot implementation phase had started with some delay due to misleading initial understanding that two VUHSK pilots, both tele-mentoring (WP5) and tele-consultation (WP4) were to run simultaneously. The uncertainty of the role and expectations of Lithuanian University of Health Sciences (LUHS) in WP5 Pilot #5 implementation also influenced rather late initiation

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of activities.

During February – March 2013 – the detailed pilot concept was re-discussed and further elaborated during the PSC and WP meeting in Minsk, as well as by e-mail communication after LUHS expressed their refusal to take part in WP5 Pilot #5. The questionnaires formulated in WP5 O5.2 output were translated into Lithuanian, transferred to digital version and made available online for pilot study participants. The cooperation with Electronic Learning and Examination Centre of Vilnius University was established.

On the 22nd of March the specifically designed Moodle based platform was created and the first compiled video lecture was uploaded to virtual learning environment.

During April-May video lectures in the specified format were being filmed and compiled.

Until the 30th of May all filmed and compiled video lectures were uploaded to Moodle platform. The list of mentees working in three remotely located PHC was collected. All mentees were enrolled.

On the 1st of June the 6-month-follow-up study had started, which was to be running until the 30th of November. However on multiple requests of active mentees the follow-up study was extended until the 16th of December

On the 18th of December the statistical data from Moodle learning environment was collected and analysis of the data was initiated.

Until the 23rd of December the participants of the study were interviewed following the translated and customized WP5 Interview Protocol.

2.5.1.4. Participants

Experienced health care professionals and specialist doctors working at Vilnius University Hospital Santariškių Klinikos (VUHSK) (Mentor centre) and younger and presumably less experienced family doctors (mentees) were enrolled in the study:

- the lectures in the form of video presentation and the interactive asynchronous question-answer sessions (forums) were prepared by a team of experienced doctors who were both practicing medical professionals and/or lectors of The Medical Faculty of Vilnius University: 7 family physicians and 11 specialized medical professionals (cardiologists,

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gastroenterologists, pulmonologists, psychiatrists);

- all mentees worked in geographically remote primary healthcare centres (PHC): Anykščiai PHC (100 km from Vilnius), Druskininkai PHC (140 km from Vilnius) and Neringa PHC (350 km from Vilnius).

Neringa PHC specialists opted out during the follow-up period due to lack of overall interest in the study.

During the beginning of the follow-up period (June 2013) 26 users of Moodle learning environment were created. At the end of the study, due to the increased interest among family doctors from Anykščiai and Druskininkai, the number of participants increased up to 37.

Of those 37 participants 23 completed O5.2 Pilot Audience profile and Pre-test questionnaires, 14 participants completed O5.2 Post-test and Interview Protocol questionnaires.

Demographic data of study participants:

- 19 mentees and 4 mentor profiles;
- 19 mentees were 18 family doctors and 1 nurse working in Anykščiai PHC and Druskininkai PHC: 2 them also have license to practice internal medicine and 4 of them also work as Head of Ambulatory or PHC;
- 4 participants have different license than family medicine: 1 pulmonologist, 2 psychiatrists and 1 nurse;
- Male : female ratio – 15:8;
- The main age group of respondents was >50 years (n=13);
- The majority of study participants practice medicine >10 years after licence accreditation (n=21).

2.5.1.5. Evaluation methods

The information required for quantitative study evaluation was collected with the help of standardized questionnaires, which were formulated in WP5 O5.2 (Pilot Audience Profile, Pre-test & Post-test questionnaires and Pilot session review). They were translated into Lithuanian, transferred to the digital version and were available online for pilot study participants. Study participants were requested to fill in the questionnaires before and after the study. Mentees were asked to provide their feedback after each tele-mentoring lecture by completing an online

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session evaluation form.

The authors of the lectures were asked to prepare a short online multiple choice test on the specific subject as Vilnius University requested to carry out specific knowledge evaluation tests in order to grant the mentee with CME credits for having attended the course.

WP5 Interview Protocol was translated, minimally adapted and conducted on the phone for the final evaluation of tele-mentoring pilot.

Some added-value comments were also noted from occasional face-to-face meetings, e-mail communications and phone calls.

2.5.1.6. Tele-mentoring framework.

Type and number of sessions (Type A – tele-mentoring in dialogue; Type B – tele-mentoring in a lecture; Type C - tele-mentoring case study; Type D - tele-mentoring combined).

The pilot was carried out in co-operation between VUH Santariškių Klinikos, Vilnius University and Electronic Learning and Examination Centre of Vilnius University. Moodle service, a free open-source PHP web application for producing modular internet-based courses that support modern social constructionist pedagogy was chosen for hosting continuous medical education course for family doctors. Virtual learning environment platform was developed by the specialists of Electronic Learning and Examination Centre of Vilnius University (Tele-mentoring technical centre). Tele-mentoring technical centre also provided all the necessary technical support during the pilot phase.

20 web lectures comprised the tele-mentoring program for family physicians, which could be accessed online at http://vma.esec.vu.lt/vma/course/category.php?id=65 .

The topics of the lectures:

1. Anaemia in the practice of family doctor
2. Arterial hypertension: classification, diagnosis and management
3. Bronchial asthma
4. Depression: diagnosis and treatment
5. Headache
6. Deep vein thrombosis and anticoagulation therapy

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7. Chronic obstructive pulmonary disease
8. Metabolic syndrome
9. Non-steroid anti-inflammatory drugs
10. Osteoporosis
11. Pulmonary hypertension
12. Atrial fibrillation
13. Nicotine dependency
14. Family planning
15. Chronic heart failure: diagnosis and management
16. Chest pain: differential diagnosis of acute coronary syndrome
17. Gastroesophageal disease
18. Childhood immunisation
19. The management of obstipation in elderly
20. Community-acquired pneumonia: diagnosis and management

Additionally, Moodle Forum section was created after each lecture which allowed establishing asynchronous interaction between mentor-mentee in the Moodle environment.

128 lecture-type tele-mentoring sessions (Type B) were carried out during the pilot study follow-up period.

During the initiation of the follow-up period no particular hardware was needed for tele-mentoring pilot study since mentee centres already had internet access and were equipped with at least basic IT hardware (desktop PC and monitor), which was necessary to take part in the specified tele-mentoring course.

2.5.2. Technology and Technical equipment assessment

Of those 37 participants 23 completed O5.2 Pilot Audience profile and Pre-test questionnaires:

- 10 users claimed their computer literacy being good (usage time >5 years), the rest of the respondents had basic knowledge of computer literacy;
- 15 of them used SMS and instant messages services;
- 10 of them had experience in discussion boards;

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- 5 of them had experience in webinars / conferences;
- 1 had experience in Moodle seminars;

All of the participants had computer and Internet access at home/work.

Analysis of WP5 Interview Protocol questionnaire showed that 10 users used tele-mentoring or distant education for the first time. All 14 respondents of WP5 Interview Protocol questionnaire had a feeling that tele-mentoring could be useful in their practice.

2.5.2.1. What worked and what didn't and why?

Most of mentees liked to attend online course and watch filmed lectures. 5 of them found login and Moodle service being complicated. None of the users used Moodle forum during the follow–up period.

2.5.2.2. Need of time/support/development

According to responses of WP5 Interview Protocol questionnaire the login procedure was complicated. Therefore an easier user enrolment procedure and information access should be offered. Some of users also described technology being too "modern", as majority of the study group was >50 years of age.

2.5.3. Communication type assessment

As mentees of the pilot study were asked to pass a short online knowledge evaluation multiple choice test on the lecture-specific subject after each lecture, 128 knowledge evaluation tests were submitted to Moodle learning environment. This allowed us to make the presumption that altogether there were at least 128 lecture-type tele-mentoring sessions (Type B) carried out.

Specialist of Electronic Learning and Examination Centre of Vilnius University who created our Moodle learning environment also logged a number of additional attempts to watch the online lectures. Some of these attempts were carried out in early initiation phase of the pilot for testing purposes. Other attempts were initiated out of participants' curiosity on the specific subject of the lecture and the overall method of information delivery. Generally such attempts to watch the lectures were very short in duration and lasted for 2-5 minutes. Therefore we decided not to include such attempts while evaluating the pilot study as there is no feedback available.

37 mentees working in 2 geographically remote primary healthcare centres were enrolled in the

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pilot: 12 mentees from Druskininkai PHC and 25 mentees from Anykščiai PHC. Based on data of knowledge evaluation tests out of those 37 mentees 14 were active study participants.

Altogether 38 completed WP5 Pilot Session review questionnaires were submitted to Moodle learning environment. All respondents were family doctors and they answered the requested questions as mentees of tele-mentoring course (see Table).

Table 25. Pilot#5 Session review questionnaire questions rating on the scale of 1 to 5.

Questions to be rated on the scale of 1 to 5	**The topic was interesting to me**	**The general goals of the session were fulfilled**	**I was able to achieve my own goals for this session**	**Overall I am satisfied with the functionality of used technology in this session**	**Overall I am satisfied with the functionality of used equipment in this session**	**Number of answers received**
Rating scale: **Title of the lecture**	**1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree**					
Anaemia in the practice of family doctor	5,0	4,6	4,8	4,2	4,6	5
Arterial hypertension: classification, diagnosis and management	5,0	4,7	4,7	5,0	5,0	3
Bronchial asthma	5,0	5,0	5,0	5,0	5,0	2
Depression: diagnosis and treatment	5,0	5,0	5,0	5,0	5,0	1
Headache	5,0	5,0	5,0	5,0	5,0	1
Deep vein thrombosis and anticoagulation therapy	5,0	5,0	5,0	5,0	5,0	1
Chronic obstructive pulmonary disease	5,0	4,5	4,5	4,5	4,5	2
Metabolic syndrome	4,3	4,3	4,0	4,0	4,0	3
Non-steroid anti-inflammatory drugs	4,7	4,3	4,3	4,3	4,3	3
Osteoporosis	5,0	5,0	5,0	5,0	5,0	2
Pulmonary hypertension	N/N	N/N	N/N	N/N	N/N	2
Atrial fibrillation	5,0	4,7	4,7	4,7	4,7	3
Nicotine dependency	5,0	5,0	5,0	5,0	5,0	1
Family planning	5,0	5,0	5,0	5,0	5,0	1

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Chronic heart failure: diagnosis and management	5,0	4,5	5,0	4,5	4,5	2
Chest pain: differential diagnosis of acute coronary syndrome	3,0	4,0	3,0	4,0	4,0	1
Gastroesophageal disease	4,0	4,0	4,0	5,0	4,0	1
Childhood immunisation	4,0	4,0	4,0	4,0	3,0	1
The management of obstipation in elderly	5,0	4,5	4,0	4,0	4,0	2
Community-acquired pneumonia: diagnosis and management	N/N	N/N	N/N	N/N	N/N	1
Overall	**4,72**	**4,62**	**4,55**	**4,62**	**4,53**	**38**

2.5.3.1. What worked and what didn't and why?

Based on the answers to WP5 Interview Protocol questionnaire most mentees liked the approach of the filmed lecture and having a possibility to pause/stop/repeat a lecture at any time. They also liked the content of the lectures. However, some found the content being detailed, while others wanted to have even more specific information provided.

We presume that participants didn't found interesting and / or useful Moodle Forum as no submitted posts were logged. There were attempts though.

2.5.3.2. Need of time/support/development

Most users said they were happy to take part in such online education due to various reasons (updated content, on site availability, no need to travel, etc.). Lecture topics should be wider as there were requests to have some additional specific medical fields and conditions addressed.

2.5.4. Participants perspective

O5.2 Pre-test and Post-test questionnaires (n=14) revealed that mentees are feeling self-confident at work (scored 4 out of 5), have experience while working with common cases (4,07). However, they were not so confident while working with patients who have rare conditions (2,43).

At the end of the study self confidence level at work increased (4,14), experience while working with common cases was rated lower (3,86), experience while working with rare cases had also decreased (2,29).

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The study revealed that most of the participants are happy to work in remote regions (4,36), they don't agree that they are professionally isolated (1,78). Interestingly, the isolation perception increased after follow-up period (2,36).

Most of participants think that tele-mentoring is a good tool to support professional development (4,86 and 4,71 pre- and post- test respectively). They also think that the usage of ICT devices is a right choice (4,71 and 4,5).

2.5.5. Organisational perspective

2.5.5.1. Supporting factors

In terms of mentoring at work study participants stated that they are mentored by experienced colleague and have an opportunity to in educational activities at least once a month 2,43 and 2,26 out of 5 respectively (O5.2 Pilot Audience Profile, n=23).

2.5.5.2. Limiting factors

Obstacles to attend educational courses/seminars are rated by significance as follows (O5.2 Pilot Audience Profile, n=23): time constraints in working environment (18), distance (11), price of attendance (4), low quality of seminars (1).

2.5.6. Financial perspective (travelling / time)

Theoretically several scenarios of similar face-to-face education sessions could be implemented. The first scenario - mentor travelling to mentee centres (Anykščiai and Druskininkai) and the second one – mentees traveling to mentor centre (Vilnius). We consider 128 sessions carried out by 14 mentees: 82 of them were carried out by mentees from Druskininkai PHC and mentees from Anykščiai PHC attended 46 online lectures. The distance from Vilnius to Druskininkai is approximately 140 km and the distance to Anykščiai is approximately 100 km. While performing our calculation we assumed that it takes 2 hours to go one-way trip.

All online lectures were watched at least once by mentees from each mentee centre, except lecture No. 14 being watched by mentees from Druskininkai PHC only. If we make calculation presumed on Scenario 1, where mentor travels to mentee centres, this makes possibly 39 physical meetings despite the number of mentees in the room. If we presume that mentee's

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from both mentee centres gather for the same lecture in mentor centre (Scenario 2), then we should consider maximum 20 physical meetings held. In reality lectures most probably would be joined and several of them would be read during one meeting. Otherwise this would be both very expensive and time-consuming.

Tele-mentoring was able to bring notable travelling cost savings to study participants. Taking into account an average fuel price and estimation per both way travel by car (1,3Eur/L x 7,7L/100km), the travelling study participant would spend 28 Euro on average to take part in one lecture in Druskininkai and 20 Euro respectively to participate in the lecture held in Anykščiai.

Based on the intention to arrange 39 physical meetings in mentee centres according to Scenario 1, the travelling costs for mentor could reach 940 Eur.

If one lecture would be scheduled per meeting, travelling expenses according to Scenario 2 would possibly be higher as mentees of 20 physical meetings would leave their working places in 2 mentee centres and in some cases 2 or 3 vehicles or minivan might be employed in order to reach the mentor centre. In our particular case there were 7 lectures which were watched by 5 or more mentees during the whole follow-up period. Therefore, in that particular case tele-mentoring additionally allowed for study participants to save 180 Euro. One lecture read at a time would be very expensive in terms of travelling expenses. Therefore joining several lectures during the same physical meeting would be very reasonable. This approach (e.g. reading 5 different lectures per meeting during 8 physical meetings) would significantly allow decreasing travelling expenses.

The use of public transportation calculation is not carried out as this brings additional time loss and costs of working hours of mentor / mentee respectively.

The expenses of conference venue / equipment rent and catering were also diminished by tele-mentoring.

Pilot study participants also were able to save time while attending online lectures vs traditional lectures. Each both way journey would take at least 4 hours of travelling time not to mention the minimal 1 hour session duration. Overall time saving for 39 meetings was 195 hours (Scenario 1) and 100 hours (Scenario 2). The financial expression of working time saving was not

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calculated as the hourly rate varies among institutions and it might be considered confidential and not released due to company's policy.

2.5.7. Tele-mentoring potential effects

The analysis of WP5 Interview Protocol revealed that both professional isolation (n=7) and brain drain (n=6) may influence the choice either to work in remote regions or not.

Majority of the respondents (n=11) believe that tele-mentoring could counteract professional isolation and greater majority (n=13) participants think it could also reduce brain drain.

Ability to attend the educational courses at home/work at any convenient moment, the possibility to pause/stop/repeat the course, no need to travel, no need to adapt work schedule to particular training event, no time and financial losses for travelling were considered to be main successful potential effects of tele-mentoring.

2.5.8. Conclusion

SWOT-analysis and lessons learned are actually drawn out of the filled in questionnaires (WP5 O5.2 Pilot Audience Profile, Pre-test & Post-test questionnaires, Pilot session review and WP5 Interview Protocol). Some added-value comments were also noted from occasional face-to-face meetings, e-mail communications and phone calls.

Strengths: the proposed tele-mentoring method of distant education in the form of filmed video lecture and presentation was well accepted by study participants. Most of them especially liked the fact that up-to-date information, prepared by professional lectors, was delivered in a simple manner to their homes/work places at any convenient time. It allowed them to save time/finance for travelling and adapt mentees' work schedule to educational sessions conveniently. The prerequisite conditions in terms of technical equipment (PC, headphones, broadband connection) and skills to take part in the lecture were rather simple.

Weaknesses: some of the participants expressed doubt in the suggested method as being too complicated for older medical professionals as they are more used to traditional lectures and conferences. Some participants also noted that in our particular pilot study it was complicated to login. Some also wanted changes (more details, more general, different topics, more topics, etc.) implemented in the educational content.

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It is important to note that such distant educational programme needs regular maintenance, information update and additional resources, as lecture preparation needs technical possibilities/equipment, scientific content as well as financial subsidies.

Opportunities: tele-mentoring is a modern approach and it might be a good tool to develop professional experience for younger medical specialists and it could also be one of the factors reducing potential professional isolation and brain drain while working in remote areas. Tele-mentoring (distant education) also boasts some unique features, such as time schedule flexibility, availability onsite, time gains and possibility to study on one's own pace.

Threats: Such method of tele-mentoring might be rather expensive as it needs technical and scientific resources in order to prepare and publish presentations online. It also needs to find the right audience, which is not afraid of using ICT in their everyday life. The content must be kept rather various and always up-to-date.

Another threat exists as there are competitive educational activities organized in the market by medical schools, universities and pharmaceutical companies among them.

2.5.9. Maintenance and further development of ICT in PHC

2.5.9.1. Actions for sustainability of pilot

Our Moodle learning environment was specifically developed for this short-term project pilot in cooperation of VUH Santariškių Klinikos, Vilnius University and Electronic Learning and Examination Centre of Vilnius University. The Moodle service was chosen as Electronic Learning and Examination Centre of Vilnius University is experienced at and maintains this service for Vilnius University students taking tests and participating in distant learning programmes.

As a support from Vilnius University, it was decided to motivate study participants by granting those CME credits for attendance. Programme prolongation and availability in the form of Vilnius University educational course was discussed in short with the Dean of Vilnius University. However no feasible decision was reached as there was no feedback available at that time.

We hope that more detailed summary and presentation of successful results / feedback will serve well and will let us keep this prototype of learning environment running and maintained.

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2.5.10. Case description

A family doctor A.T. working in Anykščiai PHC enrolled himself in the study by submitting responses to an online Pilot Audience Profile and Pre-test evaluation questionnaire (Table 3) on the 22nd of May 2013.

Table 26. Pilot #5 Responses to Audience Profile.

Questions	Answers
Gender	Male
Age	>50 years
Experience	>10 years
Employment history	1 working place
Computer usage history	Average
Experience in Instant Messaging	Yes
Experience in discussion Boards	No
Experience in Webinars/ conferences	No
Experience in Moodle seminars	No
Do you have access to the Internet	Yes
Do you have a computer	Yes
How often do you have the possibility to be mentored by an experienced colleague?	Once a month
How often do you have the possibility to participate in educational lectures, classes (or such)?	Once a month
What are the obstacles for attending educational lectures, classes (or such)?	Time constraints

Table 27. Pilot # 5 Responses to Pre- test evaluation questionnaire.

(1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree)

Questions	Rating
I feel self-confident when making decisions at work?	4
I have experience and knowhow for solving everyday cases?	4
I have experience and knowhow for solving rare conditions?	2
I am willing to work in remote areas (e.g. in my current workplace)?	4
I feel professionally isolated?	3
I feel tele-mentoring can be used as a tool to support my professional development?	5
Use of tele-devices (such as iPads, PCs) in mentoring is suitable?	5
I like to use ICT-technology while communicating with my colleagues?	3

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We assumed that during the pilot follow-up period the mentee watched at least 13 lectures as 13 knowledge evaluation tests were submitted to Moodle system. He scored 83 percent while taking knowledge evaluation tests.

As a particular example the lecture "Chest pain: differential diagnosis of acute coronary syndrome" was chosen for this case study. The mentee submitted knowledge evaluation test and Pilot Session Review on the 13th of December. He scored 60 out of 100 points on knowledge evaluation tests.

Responses to his Pilot Session Review are presented in Table.

Table 28. Pilot # 5 Responses to Session Review questionnaire.

Questions to be rated on the scale of 1 to 5	The topic was interesting to me	The general goals of the session were fulfilled	I was able to achieve my own goals for this session	Overall I am satisfied with the functionality of used technology in this session	Overall I am satisfied with the functionality of used equipment in this session
Rating scale: Title of the lecture	1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree				
Chest pain: differential diagnosis of acute coronary syndrome	3,0	4,0	3,0	4,0	4,0

The mentee also submitted responses to Post-test evaluation questionnaire (Table 5) and took part in the Interview

Table 29. Pilot # 5 Responses to Post- test evaluation questionnaire.

(1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree)

Questions	**Rating**
I feel self-confident when making decisions at work.	4
I have experience and knowhow for solving everyday cases.	4

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I have experience and knowhow for solving rare conditions.	3
I am willing to work in remote areas (e.g. in my current workplace).	5
I feel professionally isolated.	3
I feel tele-mentoring can be used as a tool to support my professional development.	5
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.	4
I like to use ICT-technology while communicating with my colleagues.	3

Table 30. Pilot # 5. Responses to Pilot Interview.

Questions	Answers
1. Is this your first experience using tele-mentoring or distance learning?	Yes
2. Do you feel it is useful for you to use tele-mentoring in your practice?	Yes
3. Thinking about your answer about usefulness, would you please explain:	Liked filmed content, too bored to read, feels like in a real lecture
4. What factors would you specifically identify as influencing?	Brain drain
5. Do you feel that tele-mentoring could counteract brain drain in family practice?	Yes
5.1 Thinking about your answer, would you please explain:	No need to go elsewhere, easy to reach content
6. Do you feel that tele-mentoring could counteract professional isolation in family practice?	Yes
6.1 Thinking about your answer, would you please explain:	Same as above
7. Ideas what should be improved in our tele-mentoring program?	Login problems, no option to change password, internet at home too slow
8. Anything else you would like to share?	Knowledge evaluation tests were tricky. Getting CME credits was not a major motive as I already have enough credits. Simply liked offered method very much.

3. ANALYSIS

By: Prof. Dr. Giedrius Vanagas; Lithuanian University of Health Sciences

3.1.1. Realisation

The tele-mentoring program in the framework of PrimCareIT project has been implemented at 5 pilot sites in 4 EU BSR countries: BLR; EST; FIN; LTU. Project duration 2 years and 6 months.

The current presentation will cover data analysis of primary care professionals' views and experiences from participation in tele-mentoring program.

3.1.2. Methods and processes

Mentees inclusion criteria: Primary care specialists (doctors and nurses); rural and/or remote workplace.

Mentoring methods: web-based lectures and seminars; chat rooms and forums; expert led discussions; online meeting; virtual classroom sessions, etc.).

Main technologies: Moodle; Skype; Oovoo.

Evaluation methods

Questionnaires:

- Pilot Audience Profile,
- Pre-test & Post-test questionnaires
- Pilot session review

Interview

Aimed to increase understanding on best practices in tele-mentoring use in primary care counteracting professional isolation and brain drain.

3.1.3. Results from implemented pilots

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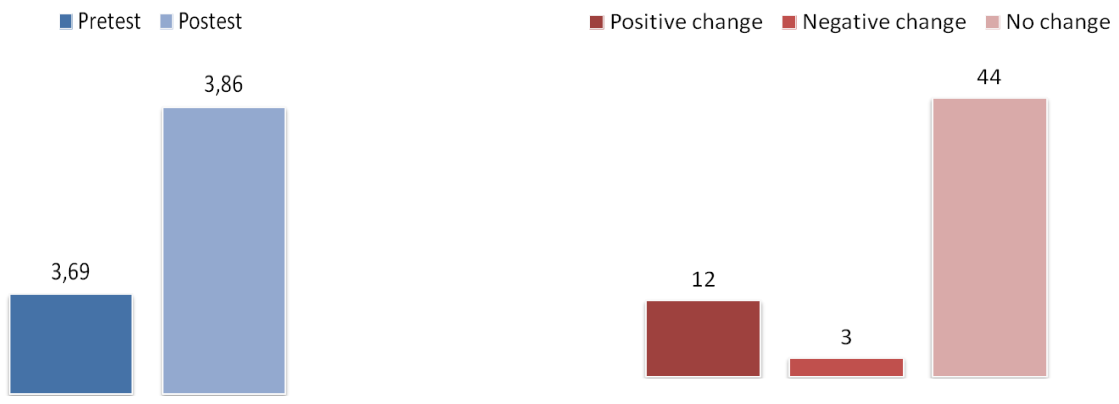
This analysis includes results from all pilot sites except pilot 3. From total 2/3 of participants were physicians and 1/3 nurses; by gender in mentoring programs participated more female mentees (Table 31).

Table 31 Pilots audience characteristics

Profile	BLR	EST	FIN*	LTU	Total
Physicians	26	8	0	18	**52**
Nurse	0	0	25	1	**26**
Male	10	1	1	13	**25**
Female	16	7	24	6	**53**
Age (>50 years)	13	1	17	13	**44**
Practice duration (>10 years)	22	4	24	19	**69**

* Data represented only from Pilot 4

Figure 14 Pilots response: I feel self-confident when making decisions at work



Wilcoxon: Z= -1.937; p=0.053

Our analysis showed statistically significant increase in participant confidence making decisions at work. Accordingly to the results there were 12 participants who had positive change after implemented tele-mentoring program.

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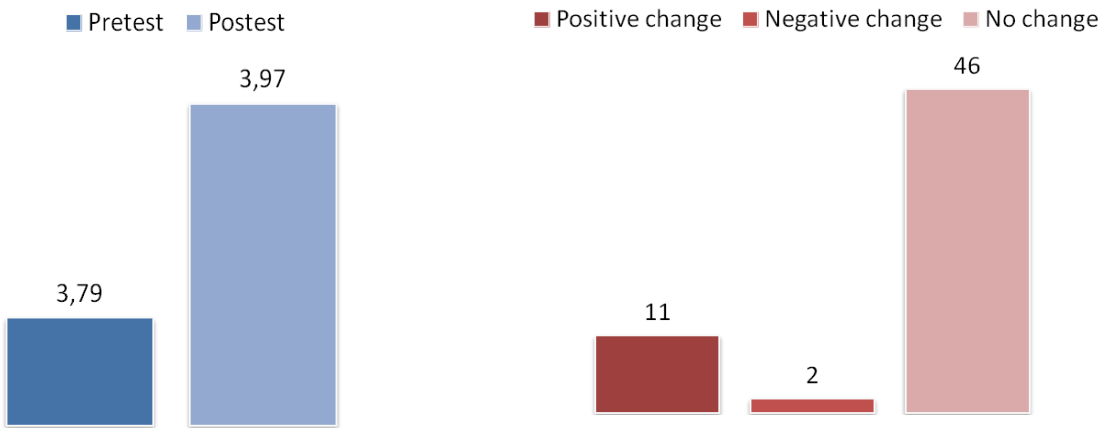
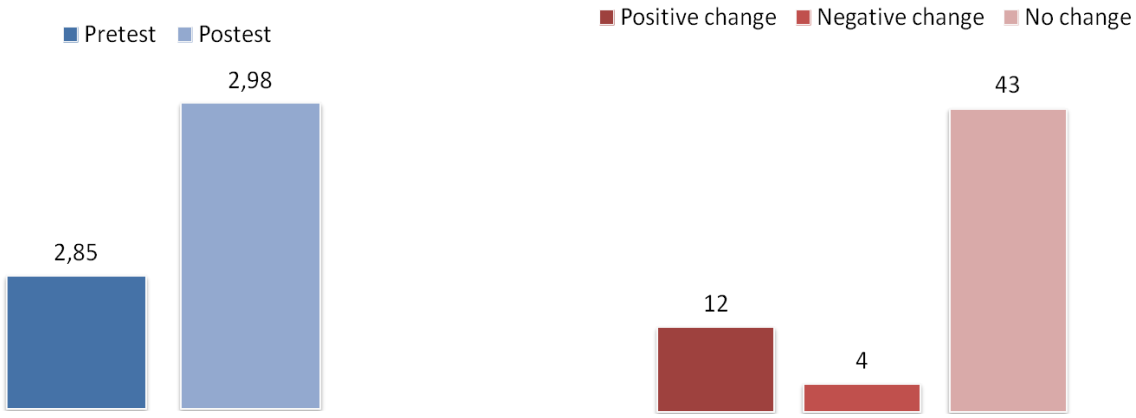
Figure 15 Pilots response: I have experience and knowhow for solving everyday cases



Wilcoxon: Z= -2.517; p=0.012

Our analysis showed statistically significant increase in participant experience and knowledge to solve everyday cases. Accordingly to the results there were 11 participants who had positive change after implemented tele-mentoring program.

Figure 16 Pilots response: I have experience and know how for solving rare conditions



Wilcoxon: Z= -1.767; p=0.077

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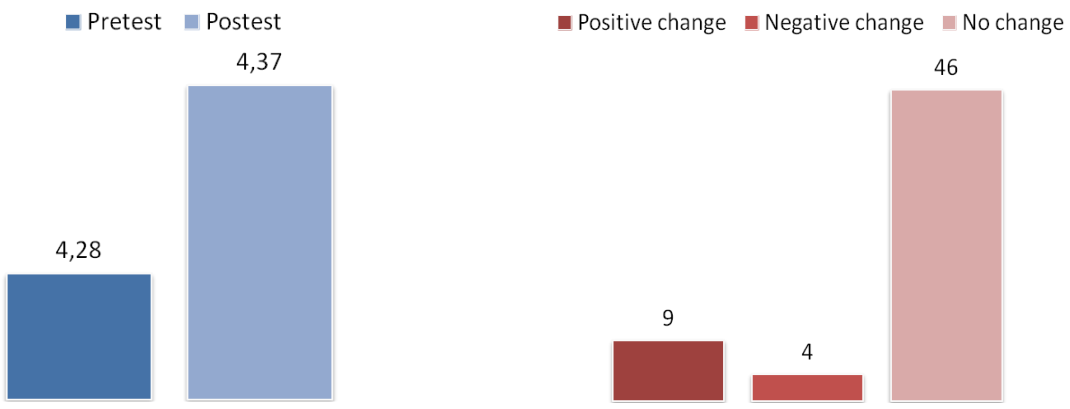
Our analysis showed statistically no significant increase in participant solving rare cases, but still there were 12 participants who had positive change after implemented tele-mentoring programme.

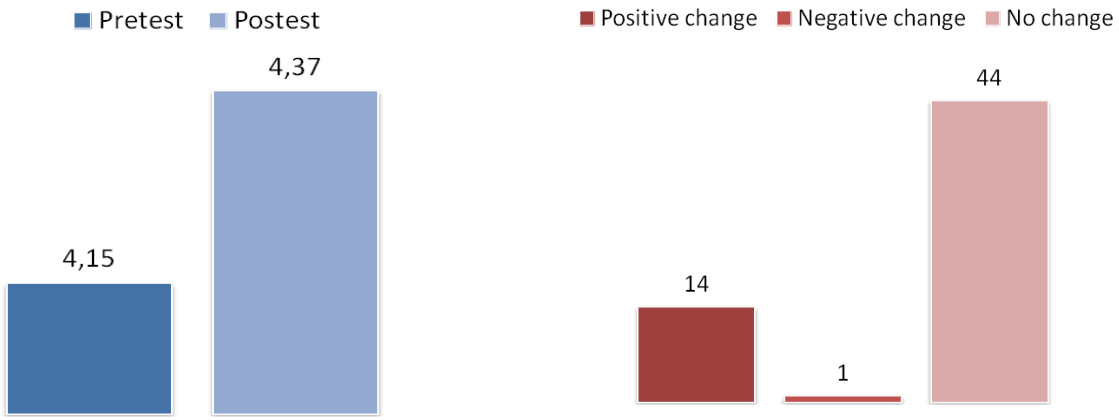
Figure 17 Pilots response: I feel tele-mentoring can be used as a tool to support my professional development



Wilcoxon: Z= -1.387; p=0.166

Our analysis showed statistically no significant change in opinion about possibilities to support professional development using tele-mentoring, there were 9 participants who had more positive opinion after implemented tele-mentoring programme.

Figure 18 Pilots response: Use of tele-devices in mentoring is suitable for me

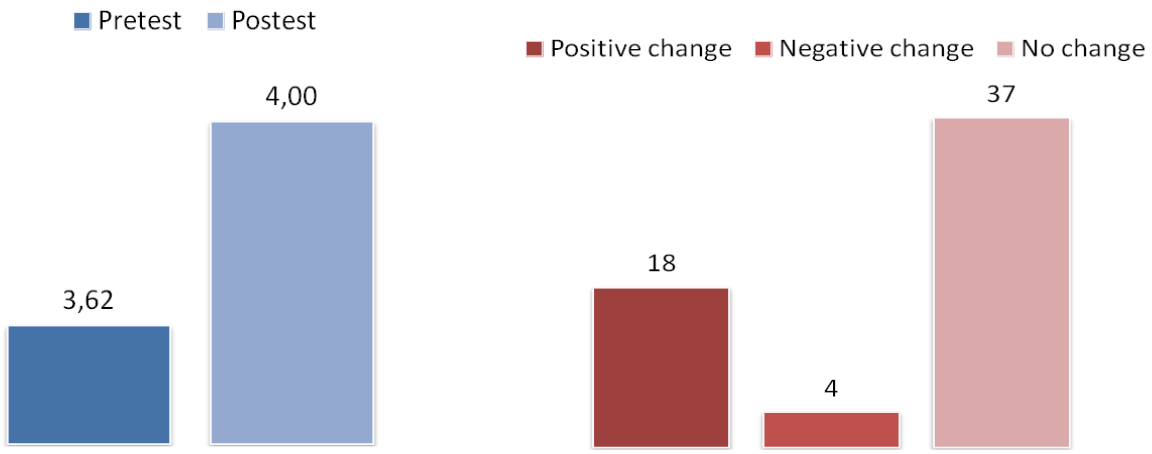


Wilcoxon: Z= -3.357; p=0.001

Part-financed by the European Union (European Regional Development Fund and European Neighbourhood and Partnership Instrument)

Our analysis showed statistically significant increase in acceptance of tele-devices use for mentoring purpose. Accordingly to the results there were 14 participants who higher acceptance after implemented tele-mentoring program.

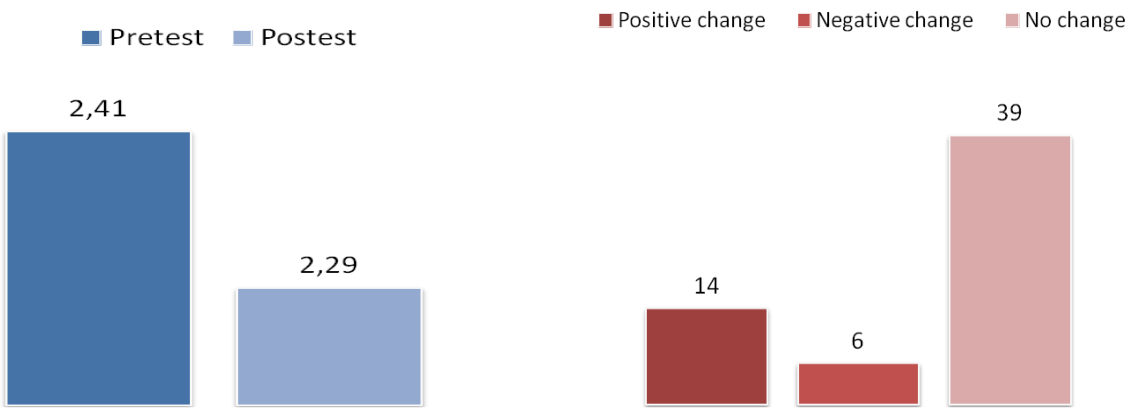
Figure 19 Pilots response: I like to use ICT-technology while communicating with my colleagues



Wilcoxon: Z= -3.201; p=0.001

Our analysis showed statistically significant increase in acceptance of ICT use for professional communication purpose. Accordingly to the results there were 18 participants who higher acceptance after implemented tele-mentoring program.

Figure 20 Pilots response: I feel professionally isolated



Wilcoxon: Z= -1.392; p=0.164

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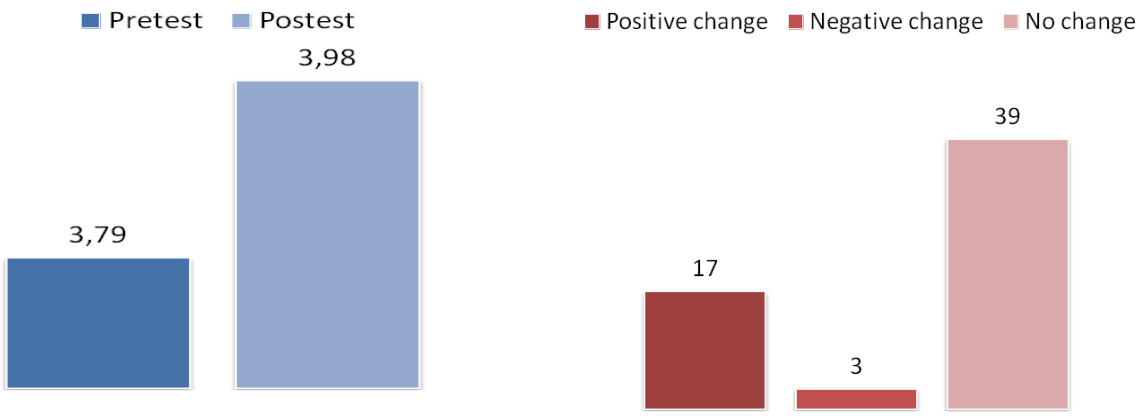
Our analysis showed statistically no significant decrease in professional isolation among participants, but there were 14 participants who reported lower professional isolation after implemented tele-mentoring program.

Figure 21 Pilots response: I am willing to work in remote areas (like my current workplace)



Wilcoxon: Z= -2.723; p=0.006

Our analysis showed statistically significant increase in willingness to work in remote areas (as current work place). Accordingly to the results there were 17 participants who had willingness to work in remote areas after implemented tele-mentoring program.

3.1.4. Sought possibilities and problems

Complicated technical e-learning infrastructure (Moodle) that make mentor and mentees to make too many clicks and there is need to make it more user friendly.

Too much work for the mentors and technical support staff to run the tele-mentoring system.

Some specialists lack of own motivation to participate. The participant selection should focus on motivated specialists.

Pilot participants have expressed that they do not feel high professional isolation in their practices but admitted that some degree of isolation can lead to brain drain.

Tele-mentoring don't counteract brain drain itself, but it would be helpful supporting young medical personnel to work in the rural areas.

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Participants think that tele-mentoring could counteract professional isolation only if the person is willing and motivated to use this technology.

Table 32 Pilots Lessons Learned – supporting factors and limiting factors

Lessons learned – supporting factors	Lessons learned – limiting factors
Learning at any convenient moment: No travel needed, saving time and finances; The possibility to pause/stop/repeat the course at any time; Knowledge gained faster and more widely spread; Available motivated staff and mentees;	Lack of technical infrastructure in PHC; Absence of legal acts on tele-mentoring in countries; Lack of time due to the working load of specialists; Lack of motivation to use e-learning systems; Physical contacts more preferred; Lack of computer skills; High workload required to run program

3.1.5. Future perspectives

Implemented tele-mentoring programs supported professional development for participants. Study results shows statistically significant increase of competences and confidence solving everyday cases and making professional decisions.

Among program participants statistically significantly increased acceptance of ICT technologies and tele-mentoring itself.

Despite problems and limitations we faced by implementing tele-mentoring programs study participants agreed that it could be useful tool counteracting professional isolation for ICT use motivated medical professionals.

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4. CONCLUSION

The tele-mentoring pilots are implemented by Belarusian Medical Academy of Post-Graduate Education (BelMAPO), Ostrovets Central Regional Hospital (OCRH), Kauhava Primary Health Care District (KPHCD), South Ostrobothnia Health Care District (SOHCD), Seinäjoki University of Applied Sciences (Seamk), Estonian Society of Family Doctors (ESFD), and Vilnius University Hospital Santariškių Klinikos (VUHSK).

The five pilots that have been implemented in 2013. All pilots did measure attitude and experience changes turning the tele-mentoring courses. Information was collected in each participating organisation with a simple questionnaire and interview. Pilots worked together in close cooperation and learned from the experiences of each other.

Pilots reported that tele-mentoring helped to improve professional capabilities in remote areas. Participants felt less professionally isolated and the self-confidence of making decisions and solving rare cases improved. Tele-mentoring as a tool for counteracting brain drain was irrelevant but would be helpful tool for young medical personnel to work in the rural areas.

The need for IT technical support turning the e-course is important because the tele-mentoring technologies were new to the mentees/ mentors. Achieving simplicity in structure and design in pilots was a difficult task and all the pilots mentioned the importance of it.

Financial and time benefits were proven in three pilots as people participating in tele-mentoring had to travel less during their work days. It allowed to save time and finances for travelling and adapt mentees' work schedule to educational sessions conveniently.

Tele-mentoring is a modern approach and good tool to develop professional experience for younger medical specialists and it could also be one of the factors reducing potential professional isolation and brain drain while working in remote areas.

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5. ANNEX

Appendix 1.: Interview Protocol

By: Prof. Giedrius Vanagas

Interview #_____

Date_____/_____/_____

Script

My name is _____ and I am _____. Thank you for participation in tele-mentoring program, and this follow-up interview will take about 30 minutes and will include 8 questions regarding your experiences and what might affect professional isolation and brain drain in family practice. I would like your permission to tape record this interview, so I may accurately document the information you convey. If at any time during the interview you wish to discontinue the use of the recorder or the interview itself, please feel free to let me know. All of your responses are confidential. Your responses will remain confidential and will be used to develop a better understanding of how you and your peers view affect professional isolation and brain drain in family practice and how it might be counteracted by tele-mentoring. The purpose of this study is to increase our understanding on best practices in tele-mentoring use in family medicine counteracting professional isolation and brain drain.

Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or return back to question, please let me know. Do you have any questions or concerns before we begin? Then with your permission we will begin the interview.

Composition of information package:

Ensure that WP5 pilot Survey: pre- and post-test filled-in.

Add and update demographic data from WP5 Pilot Audience Profile.

Attach it all together.

Use of tele-mentoring

1. Is this first your experience using tele-mentoring or distance learning? (check response):

❑ Yes

❑ No

2. Do you fill it is useful for you to use tele-mentoring in your practice? (fill in):

❑ Yes

❑ No

❑ I still don't know

3. Thinking about your answer about usefulness, would you please explain:

❑ If "Yes": Why and where in your practice it is useful?

❑ If "No": Why in your practice it is not useful?

❑ If "I still don't know" What makes you hesitate about the usefulness of tele-mentoring? Where you see strengths and weaknesses?

Brain drain and professional isolation in family practice

4. What factors would you specifically identify as influencing?

a.) Professional isolation in family practice?

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b.) Brain drain in family practice?

(**Note**: Ask **a** and **b** parts as separate questions. Look for responses, to assess if positive or negative influences, and reasons why):

5. Do you feel that tele-mentoring could counteract brain drain in family practice?

❑ Yes

❑ No

❑ I still don't know

5.1. Thinking about your answer, would you please explain:

❑ If "Yes": Why and how in your practice it could counteract brain drain?

❑ If "No": Why in your practice it will not counteract brain drain?

❑ If "I still don't know" What makes you hesitate about possibilities to counteract brain drain by tele-mentoring? Where you see strengths and weaknesses?

6. Do you feel that tele-mentoring could counteract professional isolation in family practice?

❑ Yes

❑ No

❑ I still don't know

6.1. Thinking about your answer, would you please explain:

❑ If "Yes": Why and how in your practice it could counteract professional isolation?

❑ If "No": Why in your practice it will not counteract professional isolation?

❑ If "I still don't know" What makes you hesitate about possibilities to counteract professional isolation by tele-mentoring? Where you see strengths and weaknesses?

7. Do you have ideas what should be improved in our tele-mentoring program to reflect more to your practice and needs in primary care (i.e. topics, organisation, technologies and others)?

8. Before we conclude this interview, is there anything else you would like to share?

***** If participant wishes to discontinue study, ask if they would be willing to share why:**

Thank the participant for his/her participation.

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Appendix 2: Pilot Audience Profile

WP5 Pilot no Individual Audience Profile	
Mentor or mentee?	☐ Mentor ☐ Mentee
Profession?	
Location:	
Gender:	☐ Male ☐ Female
Age:	☐ < 25 ☐ 25—30 ☐ 31—40 ☐ 41—50 ☐ > 50
Nationality:	
Experience:	☐ Less than a year from diploma ☐ 3-years from diploma ☐ 6-years from diploma ☐ 10-years and more experience
Employment history:	
Computer usage history:	
Tele-mentoring tech usage	
Experience in Instant Messaging?	☐ Yes ☐ No
Experience in discussion Boards?	☐ Yes ☐ No
Experience in Webinars/ conferences?	☐ Yes ☐ No
Experience in Moodle seminars?	☐ Yes ☐ No
Technical situation	
Do you have access to the Internet?	☐ Yes ☐ No
Do you have a computer?	☐ Yes ☐ No

Additional comments and suggestions are encouraged.

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Appendix 3: Pre- and post-test

Name: _____

Department: _____

Position: _____

In this section, please rate the following statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel self-confident when making decisions at work.	1	2	3	4	5
I have experience and knowhow for solving everyday cases.	1	2	3	4	5
I have experience and knowhow for solving rare conditions.	1	2	3	4	5
I am willing to work in remote areas (e.g. in my current workplace).	1	2	3	4	5
I feel professionally isolated.	1	2	3	4	5
I feel tele-mentoring can be used as a tool to support my professional development.	1	2	3	4	5
Use of tele-devices (such as iPads, PCs) in mentoring is suitable.	1	2	3	4	5
I like to use ICT-technology while communicating with my colleagues.	1	2	3	4	5

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Appendix 4: Pilot session review

Date: _____

Pilot Session no: _____

Name: _____

Department: _____

Position: _____

Mentor or mentee?	☐ Mentor ☐ Mentee
Tele-mentoring	☐ Yes ☐ No
Tele-consultation	☐ Yes ☐ No

Rate questions on a scale of 1 to 5.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The topic was interesting to me	1	2	3	4	5
The general goals of the session were fulfilled	1	2	3	4	5
I was able to achieve my own goals for this session	1	2	3	4	5
Overall I am satisfied with the functionality of used technology in this session	1	2	3	4	5
Overall I am satisfied with the functionality of used equipment in this session	1	2	3	4	5

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