Guidelines for implementing tele-consultation and tele-mentoring

Experiences from the PrimCareIT project

Output No. 4.5 and 5.5

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Content

1. Abstract

The project PrimCareIT has employed pilot implementations as a mean to study, test, apply and reflect upon the objectives of the project. Twelve pilots have been deployed, seven in tele-consultation and five in tele-mentoring. Data was gathered from all pilots by questionnaires, interviews and analysis of documents. A qualitative content analysis of the data was performed and the following factors were identified as indicators for success.

Preparation - Initially when planning to implement eHealth, the organisation at glance and the users in mind need to get on-board. This is more easily obtained by embedding visions of why the implementation should be carried out and the plans on how this should be done.

Involvement - An identified factor for success of deployment of eHealth is the involvement of stakeholders at different levels. Decision-makers involvement might incite organisations to initiate eHealth projects. Involvement of doers can facilitate the implementation as well as the endurance of the implemented solutions. It was also found that the involvement of responsible IT-departments as early as possible was beneficial.

Communication - To assure the involvement of stakeholders, communication was found vital. Involved organisations and stakeholders have different goals and visions and all need to be communicated to all partners in order to gain an understanding of each other but also to create a common ground in a project.

Technology - When it comes to success of an eHealth deployment the choice of suitable technology is of utterly importance. Experiences from the pilots showed that a thorough needs assessment prior to procurement of technical solutions or software is beneficial, both for the pilot as well as for the organisation and the users. The main identified obstacle in pilots was non-functional technology. This causes setbacks in deployment and irritation amongst workers and hence a lower level of satisfaction.

Implementation - During a phase of implementing solutions for eHealth, involvement and communication were key activities since the sharing of ideas, plans and actions were found to be aspects important for success.

Training - With technology in place, the users need to adapt not only to these new tools but also a new way of work with these tools. A proper training, or education, will help them in doing so. The design of new, or the use of existing, manuals or handbooks for selected technology was found to be important as was it that these were provided and readily at hand available to the end-users and new or adapted routines or processes supports the end-users in their daily activity.

Assessment - Evaluation of both the deployment and the effects of the implemented eHealth were found to be useful. A formative evaluation during the deployment could reduce the risk of obstacles and assessment of the effects could raise awareness and facilitate endurance of implemented eHealth.

Health economy - An obvious question when planning for or executing deployment of eHealth was the financial aspect. There are several methods to calculate a return of investment and with the experiences from the project at hand health economy analysis is suggested to be taken into consideration at an early stage of planning:

2. Introduction

As our population ages, society faces new challenges. Demands for primary health care services are rising: with the retirement of older professionals and unwillingness amongst younger professionals to re-locate to remote areas, there is a shortage of health professionals, especially in rural areas.

It was 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 Baltic Sea Region " was initiated.

The overall aim of PrimCareIT was to raise the attractiveness of remote primary health care for health professionals by the means of tele-consultation and tele-mentoring. Thereby the project counteracts brain drain and professional isolation in sparsely populated areas for more equal access to primary health care.

The objectives have been:
- To assess the regional needs and strategic opportunities of tele-consultation and tele-mentoring in order to avoid professional isolation of health professionals in remote primary care
- To assess current barriers for large scale deployment of tele-consultations and tele-mentoring in the Baltic Sea Region (BSR) such as technology acceptance, investment decisions, work flows and legal uncertainties
- To implement and validate transnationally developed tele-consultation solutions in remote primary care in pilot sites
- To implement tele-mentoring as innovative solution for career development of younger health professionals in remote primary care
- To prepare the durability and large scale implementation of the piloted solutions in the partner regions and
- To raise the political awareness via NDPHS, Political Board "eHealth for Regions" how to attract health professionals to remote primary care through joint political discussions with ImPrim.

2.1. Professional isolation and brain-drain

The main question for the project was the influence of so called "professional isolation" of health professionals working in remote primary health care (PHC) and the subsequent effect on the attractiveness of their jobs and working conditions in rural settings compared to urban areas. Professional isolation refers to the circumstance that health professionals such as family doctors, specialized doctors, health workers or nurses are to some extent isolated from their professional peers. Professional isolation is considered a main factor involved in brain drain of health professionals from rural to urban areas and even between Baltic Sea regions. The increasing lack of specialized workforce leads to an on-going centralization of medical infrastructure and staff in urban areas.

2.2. Tele-consultation and tele-mentoring

The project partners explored how to overcome professional isolation in the PHC sector in remote areas by elaborating, implementing and testing methods and tools that support tele-consultation and tele-mentoring.

Tele-consultation accounts for a substantial part of tele-medicine. It can be generally defined as a (audio-) visual communication link between health professionals. Tele-consultation enables distant communication between health professionals of different disciplines or specialists in other health care institutions such as hospitals. As more and more health professionals in PHC perform consultations along with the increased request for inter-professional collaboration, the need for technical and methodological support for communication and consultations is high within PHC.

Tele-mentoring is a form of distant mentoring that could be included in existing medical e-learning or traditional medical programs. Tele-mentoring enhances medical education programs and provides better opportunities for continuing education and professional development for health workers and GPs in remote areas. Therefore, it is a very suitable tool to counteract professional isolation.

2.3.   Pilots

The project has employed pilot implementations as a mean to study, test, apply and reflect upon the objectives of the project. 12 pilots have been deployed, 7 in tele-consultation and 5 in tele-mentoring.

Pilots on tele-consultation

#1   Sweden: Blekinge Wound Care Centre and primary care actors (Municipality and County Councils)

#2   Belarus: State Educational Institution Belarusian Medical Academy of Post-Graduate Education – Professional support of general practitioners from remote areas

#3   Finland: Kauhava Primary Health Care District – Central hospital to home care units

#4   Sweden: County Council of Västerbotten – Psychogeriatric in distant rural area

#5   Lithuania: Vilnius University Hospital Santariškių Klinikos – Remote general practitioner

#6   Estonia: Estonia Vormsi Primary Health Care Centre – General practitioner support

#7   Latvia: National Health Service – Supporting general practitioners from remote areas

Pilots on tele-mentoring

#1   Belarus: State Educational Institution Belarusian Medical Academy of Post-Graduate Education – Professional support of general practitioners from remote areas

#2   Estonia: The Estonian Society of Family Doctors – General practitioner mentors support young general practitioners in rural areas

#3   Finland: Kauhava Primary Health Care District – Central hospital to home care units

#4   Finland: South Ostrobothnia Health Care District, Seinäjoki University of Applied Sciences, Kauhava Primary Health Care District – Tele-mentoring between hygiene nurses

#5   Lithuania: Vilnius University Hospital Santariškių Klinikos – Mentoring between experienced health care professionals and specialist doctors and younger, less experienced physicians and nurses working in remote primary health care clinics

3. Experiences from the PrimCareIT pilots

Technologies for eHealth are available off-the-shelf. However, there are several obstacles and problems that prevent the implementation and routine use of eHealth technology. A survey of the project participating Baltic Sea countries on challenges for implementation of tele-consultation and tele-mentoring in remote PHC revealed that a reserved attitude of health workers and GPs towards eHealth, with tele-consultation and tele-mentoring, inhibit its use. Until now, tele-consultations or tele-mentoring are not part of the daily working routines of GPs and health workers. There are no processes implemented on which level this could take place. Furthermore, a missing reimbursement scheme for tele-consultation between institutions of primary and secondary health

care makes an implementation and use of tele-consultation difficult.

Implementing tele-mentoring and tele-consultation in PHC by applying software for professional development and consultation processes does improve overall service quality and is helpful for medical personnel in rural areas and allows access to peer network for specialist's advice. Through information technology knowledge is gained faster and data is spread more widely. It helps users to be self-confident in making difficult decisions and solving cases.
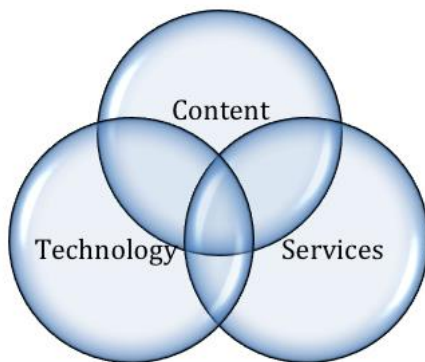

Figure 1: Three parts of eHealth; the system and its content with the service provided.

3.1.   Preparing

Initially when planning to implement eHealth, the organisation at glance and the users in mind need to get on-board. This is more easily obtained by embedding visions of why the implementation should be carried out and the plans on how this should be done.

To obtain good conditions for testing it is of importance to find out and solve any obstacles or problems as soon as possible even if they are outside the project, as they potentially hinder set up, testing or sessions and thus influence negatively on the project progress.

Research of State of the Art solutions through literature or exploratory studies has proven beneficiary for project pilots. This have provided a potential understanding of the task ahead and a way of not inventing what is already there.

To clearly define evaluation criteria early in the process together with designing a model for evaluation facilitated the pilots in assuring goals were reached and effects measured.

Involving end users, bringing them to the table for a participative approach has proven a success. When the users' needs and requirements are taken into consideration, along with their understanding of their profession a better needs analysis is the result.

"Involving users in process speeds up deployment, and also brings new solutions to the table."

Contact and inform potentially affected health care politicians and managers early in the project to ensure fundamental understanding of the project as well as opening for further implementation discussions.

Legislation
For tele-consultation, the national frameworks concerning the health care system, existing connections between health care provides as well as data protection and legal security have to be taken into account. Legal uncertainties regarding tele-consultations and documentation of health data should be clarified.

3.2. Involvement

An identified factor for success of deployment of eHealth is the involvement of stakeholders at different levels. Decision-makers involvement might incite organisations to initiate eHealth projects. Involvement of doers can facilitate the implementation as well as the endurance of the implemented solutions. It was also found that the involvement of responsible IT-department as early on as possible was beneficial.

"It is a myth that health personnel are uninterested in new technology. They are!"

User attitudes and perceptions
The main factor for the success of pilot implementation was a high level of motivation and interest in using tele-mentoring and tele-consultations in medicine amongst participants.

User perceptions and attitudes in eHealth project are often directly linked to the user experiences.
- Lack of time due to the intense workload in health service has a negative influence. Physical contacts are more preferred than distant but collegial networking improves dialogue in making professional decisions.

- Lack of motivation to participate in projects influences negatively on the success of implementing eHealth. Selection of users in project initiation should focus on the motivated specialists.

Low level of motivation was mentioned as an obstacle in two pilots, but this can be overthrown by well-trained staff that is familiar with the technology and that realises the advantages of using it. Problems include the time factor as well. It was regarded useful that answers should be given as quickly as possible in cases where for example forums are used. A well-chosen functional design is important in order to create the handling for users as easy and self-explanatory as possible, which is very important considering the large work load of the target group, not providing extra time for complicated software processes.

3.3.   Communication

To assure the involvement of stakeholders, communication was found vital. Involved organisations and stakeholders have different goals and visions and all needs to be communicated to all partners to gain an understanding of each other but also to create a common ground in a project.

3.4.   Technology

When it comes to success of an eHealth deployment, the choice of suitable technology is of utterly importance. Experiences from the pilots revealed that a thorough needs assessment prior to procurement of technical solutions or software is beneficial, both for the pilot as well as for the organisation and the users.

The main identified obstacle in pilots was non-functional technology. This causes setbacks in deployment and irritation amongst workers and hence a lower level of satisfaction.

> *"The tolerance with tele-equipment can be quite low. If there are any technical problems, the feedback is more critical."*

Since the tolerance with malfunctioning technology, occurring mistakes or waiting times are rather low, it was proved in the pilots that video and audio quality should be of very high standard in order to keep the participants satisfied and using the equipment.

To get user-friendly solutions, it is important to involve the health personnel as active participants in the development or procurement process with follow ups of their needs and suggestions for improvements. Health care personnel, managers as well as nurses and nurse assistants are very positive to use new technical methods and solutions as long as they understand the benefits and how to handle the new technology. The key points when creating a new environment involving eHealth are easy access and user friendliness. Participants from the pilots expressed that there should always be technical support available at both ends in the beginning and also during the sessions.

The IT department is an important organisational factor and actor that can support or limit tests and use of new technology. IT-policy documents can facilitate this, but lack of such policy documents can limit or hinder tests and use. This seems as a paradox; there is need for policy documents, but formulation of policy documents need tests and evidence to be supportive.

To get a good quality support for tele-consultation and tele-mentoring, installation, access and use, the health care IT department should be involved in the project as an active responsible part from the beginning with agreements and routines for support.

> *"A heavy workload is initially needed from technical support staff. For testing and support, their expertise is needed."*

Technical barriers between organisations can be a hindering factor for successful implementation and use of IT between caregivers. Legislations and routines on how to handle this vary between participating countries but it has been raised as an important factor to focus at in an early stage of all pilots.

3.5.   Implementation

During a phase of implementing solutions for eHealth involvement and communication were key activities since the sharing of ideas, plans and actions were found to be aspects important for success.

"Implementation of technology for tele-consultation in ordinary work needs routines and templates for installation and access and educated IT-support."
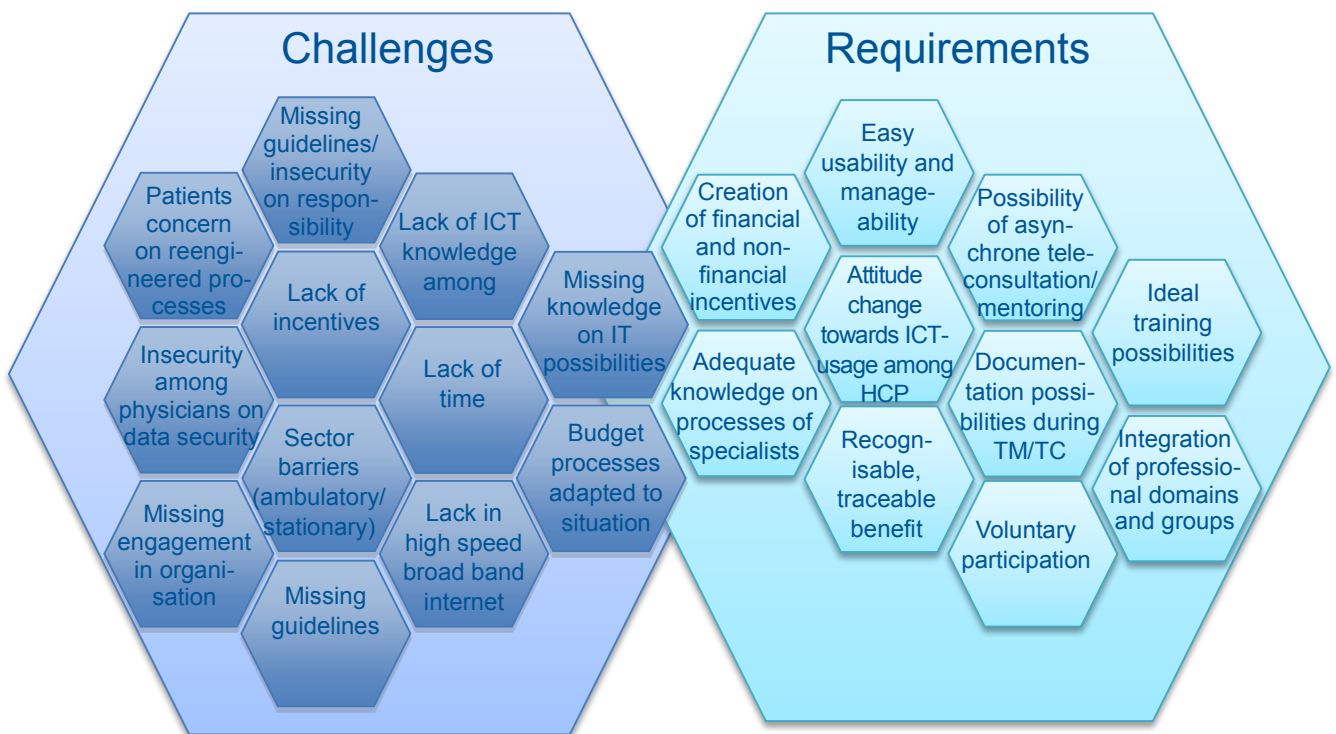

Figure 2: Identified important aspect for successful planning and early stage implementation.

In order to successfully implement tele-consultation and tele-mentoring the aspects in above figure should be considered thoroughly in the planning and implementation process.

3.6.   Training

With technology in place, the users need to adapt not only to the new tools but also to a new way of work with these tools. A proper training, or education, will help them in doing so. The design of new, or the use of existing, manuals or handbooks for selected technology was found to be important as was it that these were provided and readily at hand available to the end-users. New or adapted routines or processes support the end-users in their daily activity.

> *"Service administration as well as education and motivation have to*
> *be high level for an application software and hardware to work well."*

The lack of experience in tele-mentoring was mentioned as a problem in four pilots. The mentors and mentees were new to tele-mentoring tools as well as to the concepts that lead to the basic education of tools and terminology of concepts. This underlines the importance of well suited training possibilities.

3.7.   Support

Infrastructure support is required to successfully run eHealth projects. It is important to realise the change of mind-set for participants and service administrators in the situation when new technology system is implemented e.g. approving implementation of the project in daily work routine or legal acts and guidelines.

3.8.   Assessment

Evaluation of both the deployment and the effects of the implemented eHealth were found to be useful. A formative evaluation during the deployment could reduce the risk of obstacles and assessment of the effects could raise awareness and facilitate endurance of implemented eHealth.

3.9.   Health economy

An obvious question when planning for or executing deployment of eHealth was the financial aspect. There are several methods to calculate a return of investment and with the experiences from the project at hand and health economy analysis is suggested to be taken into consideration at an early stage of planning.

With experiences from the project and partner expertise a short paper on the concept of health economy was produced. The aim of this is to further support future projects in implementing eHealth. See appendix A.

> *"Time and cost saving of tele-mentoring was proven, as people*
> *participating had to travel less during their work days."*

4. Appendix A: Health economy

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Health economics evaluations compare the costs and effects of different treatments, methods, and work methods. The aim is to determine which treatment, work method or approach is the most cost effective. Cost-effectiveness is thus a relative concept.

Health economics evaluations are conducted from a societal perspective. This means that all costs and effects should be considered regardless of where in the community they arise. It is also relevant to describe the costs and effects between the various stakeholders, such as for patients, relatives, municipality, county, state, insurance companies etc.

Costs are expressed in monetary terms. Costs incurred when resources are consumed. If a method has a positive effect in terms of improved quality of life and survival for the patient, this may also mean future savings. From a societal perspective, all relevant costs associated with the method are identified, quantified and valued. In health economics analysis the opportunity cost is the relevant cost concept, i.e. the value of what was achieved by the resources in the best alternative use of it. Usually, market prices or costs derived from health care cost statements in the analysis.

Revenues can also be expressed in monetary terms, but the description and evaluation of effects in health care is often not straightforward. Several methods therefore compare the costs for methods that produce the same effect.

In the health economy different types of evaluations is used. All different evaluations include costs but differ in terms of description and valuation of effects.

Type of Evaluation	Effectiveness Measure	Potential Use
Cost consequences analysis (CCA)	Different specific measures, e.g. avoided relapses or doctor visits	Description of cost and outcomes
Cost minimisation analysis (CMA)	(no endpoint when the effects are assumed to be equal)	Comparison of treatment within the same disease
Cost Effectiveness Analysis (CEA)	Physical devices, such as year of life	Comparison of treatment within the same disease
Cost Utility Analysis (CUA)	Utility Index	Comparison of treatment for different disease
Cost Benefit Analysis (CBA)	Money, example for the valuation of life in monetary terms	Comparison of investment in health care with investment in other sectors (e.g. education, road safety)

A Cost- Consequences Analysis (CCA) does not indicate the relative importance of list components, instead it leaving it to the decision maker to choose the decision situation most relevant data.

Cost- Consequences Analysis (CCA), Cost minimization analysis (CMA), Cost Effectiveness Analysis (CEA), and Cost Utility Analysis (CUA) measures not the effects in monetary terms. The Cost minimization analysis (CMA) is assumed to be equivalent effects and alternatives is therefore only in relation to their costs. A Cost Effectiveness Analysis (CEA) used a one-dimensional endpoints, such as the number healed, number of symptom-free days, number of survivors, and Cost Utility Analysis (CUA) means that the costs related to a utility index, usually constructed as a weighted average of the survival and quality of life; e.g. the number of missing quality of life - adjusted life years ("quality adjusted Life years", QALY).

Only in a Cost Benefit Analysis (CBA) the effects are measured in monetary terms. However, this type of analysis can be difficult to apply in the health care context because of the difficulty of assessing the impact of money.

The choice of method for the evaluation is determined by the current problem but also on the availability of relevant data. If the evaluation will be the basis for choosing between the two approaches with little or no differences in terms of impact on patient quality of life, so it is natural to settle for a cost minimisation analysis. Is it about alternative methods that affect quality of life, disease progression and possibly even mortality, it is natural to use a cost-effectiveness analysis. If it concerns the treatment of conditions that are not immediately life-threatening, such as chronic diseases, it is necessary to also consider the impact on quality of life, and then possibly a cost-benefit analysis may be an appropriate method.

To determine which of the two work methods is most cost-effective, data on both costs and effects are needed. If a new approach is less costly and more effective than the method used in conjunction so is the new method, the choice of method from a health economic point easily. However, most often efficient methods are more costly. In a decision matrix is (shown below) the nine alternatives that may arise from a comparison of methods:

New method in con-junction with the old	Less effect	Equal effect	Better effect
Lower costs	1 Situation unclear, investigate further	2 Ahead of the new method	3 Ahead of the new method
Equal costs	4 Keep the old method	5 The methods equivalent	6 Ahead of the new method
Higher costs	7 Keep the old method	8 Keep the old method	9 Situation unclear, investigate further

For options 2, 3 and 6 the new method is most cost effective and should be maintained. For option 4, 7 and 8 the old method is most cost effective. For option 5 is no difference, nothing speaks to the need to switch to a newer method. For option 1 and 9 further marginal analyses are needed.

Health economics evaluation should also include an impact assessment, which attempts to analyse the medical, economic, ethical and social implications of a shift from the current approach, a new approach

The analysis of the economic impact can be formulated as a variation of a cost analysis, where different kinds of direct and indirect costs (e.g. staffing, equipment, patient time, relatives time, transportation, medication, surgery, outpatient care, inpatient care, sick days, etc.) for the current working method is compared with the corresponding costs for a possible or desirable future approach.

Reliability of health economic evaluations depends on the quality of the data and the methodology used. The economic evaluation cannot be better than the input data.

A number of countries have incorporated an economic criterion into the decision making process in health care. One of the most widely recognized guidelines is Canadian Coordinating Office for Health Technology Assessment (CCOHTA) guidelines, which may be seen as a generic set of guidelines for those undertaking economic evaluations and is intended to be applicable to any health technology. Another more context specific set of guidelines is the UK's National Institute for Clinical Excellence (NICE). There are also internationally accepted checklists for structured assessment of health economic evaluations (Drummond el al 1997):

1. Is there a well-defined question that is possible to answer?
2. Is comparison options fully described?
3. Is there Available evidence on the impacts of the options?
4. Have all relevant costs and effects been identified?
5. Have the costs and effects been quantified in an appropriate manner?
6. Are the costs and effects credibly valued?
7. Where the costs and effects that arise at different times discounted?
8. Have margin analysis of costs and effects of alternatives performed?
9. Sensitivity analyses have been performed regarding the important variables?
10. Have all significant issues discussed?

Normally meets health economic analyses not all the checklist requirements. This means that the reader should be aware of the deficiencies in the interpretation of the results.

5. Conclusion

- Health economics evaluations compare the costs and effects of different work methods.
- Health economics evaluations are conducted from a societal perspective.
- All costs and effects are considered regardless of where and for whom in the community they arise.
- Different types of methods are used in health economics evaluations. All different evaluations include costs in monetary terms but differ in terms of description and valuation of effects.
- The choice of method for the evaluation is determined by the current problem and on the availability of relevant data.
- Health economics evaluation should include impact assessments, which analyse the medical, economic, ethical and social implications of a shift from the current approach, to a new approach.
- The reliability of health economic evaluations depends on the quality of the data used and the methodology used.
- The economic evaluation cannot be better than the input data.

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