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Report on SIG 2 - Organisational implementation and change management

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Abstract

This report describes the organisational and change management issues relevant to the successful implementation of telemedicine service from the patient's, healthcare professional's, and organisation's point of view. The results stem from the analysis of 26 responses to the Momentum questionnaire, and feedback given at two Momentum workshops. These initial results show that the current functioning telemedicine services rely on the initiative and enthusiasm of healthcare professionals. These services are not, however, on the whole, part of organisational top management or regional authority objectives. Both healthcare professionals and patients are satisfied with the telemedicine services concerned; they have no major concerns about specific training; and ethical issues are not obstacles to service provision.

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Key Word List

Change management; organisational implementation; patient flow; redistribution of personnel; satisfaction with telemedicine; stakeholders; strategy; task shifting; telemedicine training, technical infrastructure; work processes.

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| 09 | Review by Diane Whitehouse basically focusing on titling, structure, literature review, and sections and sub-sections which are lean or not well populated with text. Ultimately, some materials from the Executive Summary and Introduction may be taken up in other deliverables. The writing of "Guidelines for implementation" and |

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 - 12 Identification of figures to be removed and of some element of relevant literature.
 - 13 Highlights of the findings by questions
 - 14 Additional literature review extracted from e.g., work by Luis Lapão and Diane Whitehouse; spelling and quality checking; formatting.

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Glossary: Definitions and Abbreviations

This is terminology relevant to the work of SIG 2.

| Concept | Definition |
|----------------|---------------------------|
| CNS | central nervous system |
| EMR | electronic medical record |
| IT | information technology |
| SIG | special interest group |

Executive summary

This report analyses deployment of telemedicine services from the organisational implementation and change management point of view, based on the Momentum questionnaire, stakeholders feedback, and literature review.

The Momentum survey results reveal that both healthcare professionals and patients are ready to use telemedicine services; usually, they do not need more training of the equipment than was planned. However, healthcare professionals accept to use the telemedicine service only when it does not increase their daily workload. They prefer the telemedicine service to be provided through a separate service or different provider. This service/provider, in turn, competes for the same funding as conventional healthcare services and risks reducing the healthcare professionals' income. This complex situation increases the importance of decisions made by the top management team of healthcare organisations/regional health authorities.

The reimbursement scheme of the healthcare system plays an important role in understanding the incentives of the top management team. Two main trends are evident. When healthcare services are reimbursed on a contractual basis by the healthcare provider, the decision to implement the telemedicine service usually lies with the regional health authority. If a telemedicine service is not on the list of reimbursed services, there is no incentive for the hospital or general practitioner to implement a new service. However, when healthcare services are reimbursed on the basis of a larger health plan and distributed among healthcare providers, the decision to introduce telemedicine service deployment is made by the healthcare institution's top management team. The transition of a telemedicine service from a pilot that scales up into routine care thus needs the endorsement and commitment of large healthcare organisations, which must have a strategic plan in place that is further endorsed by an "operational institutional plan".

This report does not analyse the role of electronic medical and health records and health information exchange platform; however, the existence of these information ecosystems seems to be a prerequisite for telemedicine services in most cases. Health information systems provide a basic infrastructure that underpins telemedicine services (RTF 2012c).

For the time being, this special interest group 2 (SIG 2) report includes a number of general observations on good implementation of telemedicine services with regard to organisational implementation and change management. These observations are summarised at the start of the analysis of each separate question and, in more general terms, immediately below. As a result, these observations are not yet "guidelines". They currently have as many implications for the SIG 1 report on strategy and management as they do for the SIG 2 report. Eventually, it will be feasible to draw further more specific observations, and guidelines, out of the analysis undertaken by SIG 2.

First, the successful implementation of telemedicine services needs more active involvement of top management. Second, telemedicine services should be included in the healthcare services "list" that is financed through either health insurance or social taxation. Telemedicine services should be considered to be on a par with outpatient, hospital, and home care services. Third, the focus should be more on the maturity of the service, and its integration into the whole health information chain, including electronic health records. Fourth, from the healthcare professionals' and patients' perspectives, there seem to be no major objections to the implementation of telemedicine services so long as, on the one hand, proper training is provided and, on the other hand, new services do not increase the daily workload of the professionals.

1 Introduction

Implementation of a new service in any public service area, including healthcare, is usually a challenging task because it involves making changes in everyday routines, requires the training of personnel, and often demands the re-engineering of workflow. Telemedicine services are no exception. They too tend to change traditional healthcare settings, reshape care pathways, and compete with existing care services for the financing (RTF 2012c). Therefore, the successful deployment of telemedicine service needs careful exploration of the opinions and behaviour of the stakeholders to whom the service is targeted, and satisfactory incentives for every party involved need to be found so that they support the changes (Lindsköld 2012).

There are three main groups of stakeholders in healthcare: citizens including patients; healthcare providers; and society involving e.g., financing institutions (Saluse *et al.* 2010; Hailey 2005). The diversity of these three groups makes finding common incentives for every party involved in the deployment process a complex task. It emphasises the importance of defining a telemedicine service's target customers.

From the organisational implementation and change management point of view, it is worthwhile looking at telemedicine service implementation from a variety of different organisational levels – i.e., the services inside a single healthcare institution, services between healthcare institutions (e.g., hospital-general practitioner) whether inside one country or across borders, and services that take place between a healthcare provider and a citizen/patient.

It is also important to recognise that innovation and information technology evolution are taking place constantly in healthcare institutions: this can sometimes make the distinction between telemedicine and routine healthcare service difficult. For instance, the remote monitoring of cardiac pacemakers is now becoming a part of routine care; it is the continuation of the development of pacemaker technology (Müller *et al.* 2013).

Telemedicine is considered to be an instrument that can be used to shorten waiting lists, optimise the use of resources, and enable productivity gains (European Commission 2008). The major beneficiaries are the patient and society (Hailey 2005). This analysis of the rationale and benefits of telemedicine is supported by several qualitative research papers (Ekeland *et al.* 2012; Saluse *et al.* 2010). However, the scientific literature lacks evidence-based results from the quantitative perspective (Catwell and Sheikh 2009; Wootton and Zanaboni 2012). For instance Ekeland *et al.* (2012) conclude that:

“larger and more rigorous controlled studies, including standardisation of methodological aspects are recommended to produce evidence for the effectiveness of unambiguous telemedicine services on pre defined outcome measures”.

To make the situation even more complex, it is necessary to look at the implementation of telemedicine services from the healthcare providers' perspective. There are two groups of stakeholders in the healthcare institution: healthcare professionals and administrators (or the top management team). From the administrators' point of view, the effectiveness and efficacy of the organisation are the major aims underpinning telemedicine services, in addition to clinical quality and patient safety. Financial pressures prompt top management to seek to increase the productivity of the healthcare system, through both higher patient output and the implementation of new technology. Healthcare professionals can usually cope with the increasing number of patients that result, because this is often combined with their increased income, but this is achieved at the price of deploying new technology. Unfortunately, the

implementation of new technology almost always requires the application of additional resources for the initial deployment phase, including the training of patients and personnel. Therefore, it is of utmost importance that the implementation of new technology (such as telemedicine) should not increase the workload of healthcare professionals, and that top-level management understands the importance of the engagement of physicians, nurses and other specialists in the new service design and provision.

Lack of involvement in change management can have many implications. A number of researchers have concentrated on issues relating to resistance to change in relation to telemedicine. For example, Field (1997) explains that resistance to change is reasonable since telemedicine introduces new aspects into healthcare services. New technologies and new working methods need time to be learnt. To overcome this resistance, the benefits and the real impact on a population's health should be shown. The human factors involved in telemedicine are related with the equipment/hardware (learning requirements and time issues), difficulties in adopting telemedicine (such as timetables, support, finances, registration, coordination among sites, standards), and service optimisation or customisation (such as the target population, goals, and interaction with other organisations). The economic factors are those relating to professional image (impact on social recognition, use of innovation, and patient response), written benefits (a fair relationship between effort and return, an understanding of costs, reduction in paper, fewer medical errors, better reports), service billing (clear rules for service payment) and the healthcare organisation itself (impact on the interaction of system actors).

There are other organisational matters of importance, e.g., financing; regulation; cost-effectiveness; and challenges with regard to evaluation and project assessment. Some researchers (e.g., Lapão and Lopes, 2012 and Werner and Karnieli, 2003) argue that telemedicine is no longer a technical issue but a business matter: i.e. in initiatives where the funding has been withdrawn, projects have ended and organisational interest in them has declined. Other factors, which continue to affect the spread of telemedicine, and therefore have an impact on the timing of the evaluation of deployment, are the threat of litigation and financial issues such as reimbursement (Field, 1997). Overall, historically – at least in Scandinavia – telemedicine initiatives have generally been run in sparsely populated areas, which – when examining cost effectiveness – tended to result in insufficient patient contacts to provide statistically valid data (Hakansson and Gavelin, 2000).

Although the matters mentioned here can be considered to be partly organisational, they are also regulatory and economic/financial issues. These have been covered in more detail by some of the Momentum-based special interest groups, such as specialist interest groups (SIGs) 1, 3 and 4. This indicates the importance of examining strategic, organisational, legal and regulatory, and business and technical issues as a coherent whole, rather than treating them as solitary, individual “silo’ised” items.

2 Involvement in process [Question 13]

The importance of the involvement of the department management team in the development and planning and actual carrying out of a telemedicine service is rated highly or very highly in the majority of cases. At the same time, the importance of the top-level management team involvement concerning the same issues was highest only in eight cases out of the whole 26. The questionnaire did not reveal any explanation as to why top-level organisational management teams were less involved in the process. Further investigation will be conducted by the members of the SIG to find out if more intensive engagement of the top management team leads to higher uptake of telemedicine services.

2.1 Synthesis of the answers to the questionnaire

This section describes the involvement of the department management team in the development, planning, and carrying out of the particular telemedicine service. The sub-questions on which the analysis is based are listed immediately below:

Q13.1 On a scale from 1-5 how involved was the department management team in the development and planning of the telemedicine service [5 being the highest score]?

Q13.2 On a scale from 1-5 how involved was the department management team in the actual carrying out of the telemedicine service?

The results show that in all aspects the department management was very well involved: a large number of respondents indicated that the department management was involved in both the development, planning and actual carrying out of the telemedicine service. Only one service had the lowest level of interest of the department management team in the development and planning of the service (this particular service was the teleinterpreting provided to non-Danish speaking patients in Denmark). High interest from the departmental level also applies to the services that have been discontinued or of which the status is not known. The results of those services were 4, 5 or “don’t know”.

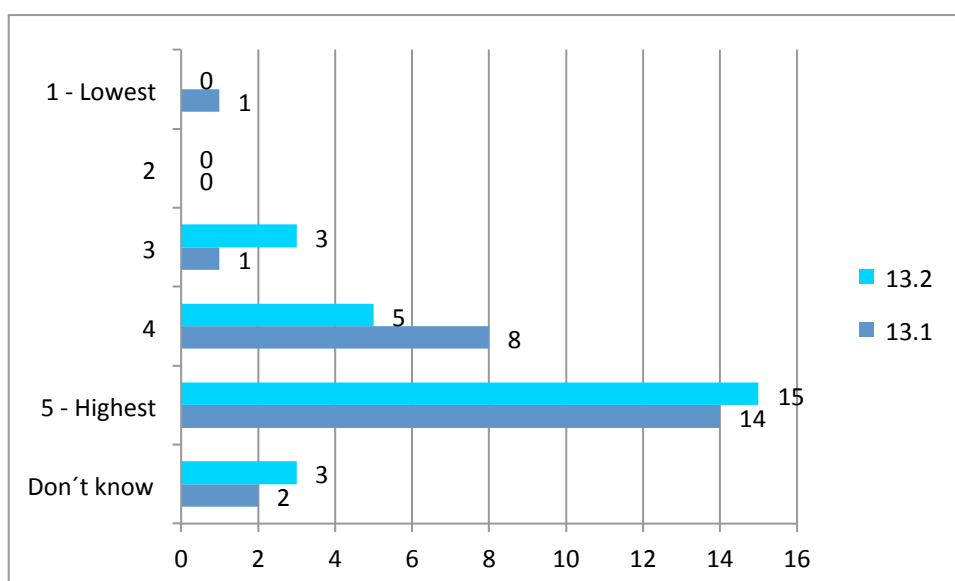


Figure 1: Responses to question 13.1 and 13.2

Two further elements of the same question (Q13) relate to how the top-level organisational management team was involved in the telemedicine service. The sub-questions on which the analysis is based are listed immediately below:

13.3 On a scale from 1-5 how involved was the top-level organisational management team in the development and planning of the telemedicine service?

13.4. On a scale from 1-5 how involved was the top-level organisational management team in the actual carrying out of the telemedicine service?

Regarding involvement of the top-level organisational management team in the development, planning, and actual carrying out of the telemedicine service, the distribution of the involvement was not as straightforward as shown in the responses relating to the department management team.

The involvement the top-level organisational management team was relatively equally distributed, although the numbers tended to be higher in the development and planning of the service and lower in terms of the actual execution of the service.

Among the services that have been discontinued or had an unclear status, the involvement of the top-level team was similar to the running services. The involvement was inclined towards higher numbers (between 3 to 5) in development and planning, while in terms of actual execution the numbers were 3 and 2 (i.e., towards the middle). Thus, it seems that top-level organisational management teams were more involved in development and planning even than in those services that are either not functional any more or have an unclear status.

In summary, with regard to the questions 13.1-13.4, it can be concluded that departmental management teams have been more involved in the development, planning, and carrying out of the telemedicine service than have top-level organisational management teams. The questionnaire did not reveal any explanation as to why top-level organisational management teams were less involved. There is no clear distinction in the findings between the running services and services that have been discontinued or are without a clear status.

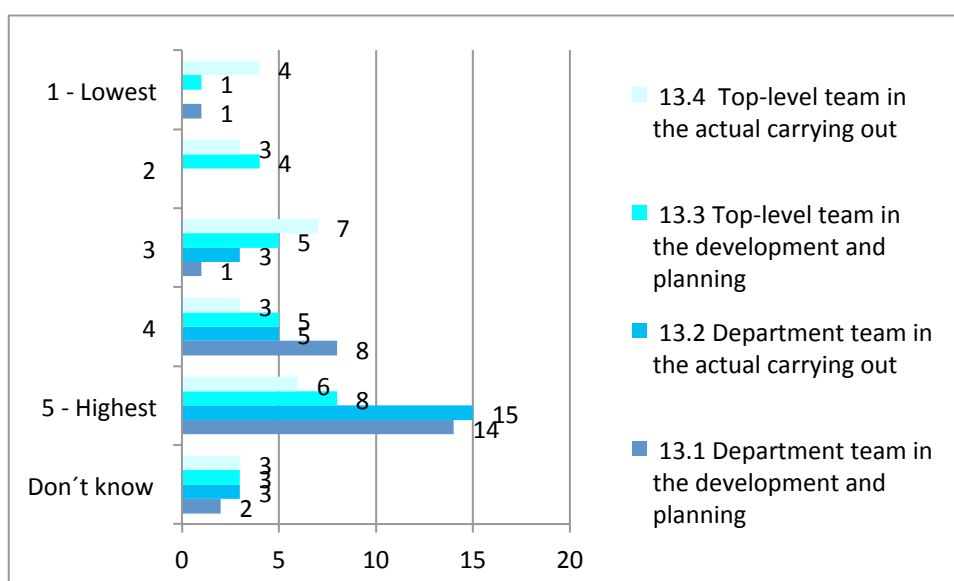


Figure 2: Summary of the results of questions 13.1 to 13.4

2.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013 in Berlin, the feedback received from stakeholders was that, from the leadership point of view, it can be argued that the successful deployment of a telemedicine service relies mainly on the involvement of innovative and motivated or interested specialists rather than that of a top-level team. This shows that implementation is dependent mainly on local champions, and that these telemedicine services are not yet mainstream solutions.

Additional feedback from the stakeholders showed, however, that one of the main success factors in implementing telemedicine service on a large scale is strong support from a number of entities. These can include the organisational (or even regional) top management, as well as national health insurance agencies or health systems which are responsible for the reimbursement of healthcare services.

2.3 Synthesis of the literature review

The volume and coverage of evaluation studies and scientific literature about the decision process on how to use information technology in healthcare is limited; evaluation and decision-making are also difficult to appreciate due to poor reporting practices (Talmon *et al.* 2009; Rigby 2006). The variety of telemedicine applications and different outcome measures are limiting factors (Talmon *et al.* 2009). There is, on the one hand, some evidence that, when eHealth services are deployed and implemented successfully, the motivated people are in a central position (Hage *et al.* 2013; RTF 2012c). On the other hand, having an understanding of local issues is also a promoting factor (Hage *et al.* 2013). This is in accordance with the findings of the responses of the questionnaire which show that the departmental management team is in a central role in terms of the planning, development, and carrying out of telemedicine services.

More active involvement on the part of top-level decision makers is emphasised in the political recommendations that support a multidisciplinary approach, the linkage of clinical and economic levels throughout the process of telemedicine service development, and the creation of a political leadership so as to implement eHealth and telemedicine services (RTF 2012a, 2012c; EU Task Force 2012).

3 Patient flow and work processes [Question 14]

This question revealed that the patient flow was partly or directly affected in 23 cases out of 26, and different groups of healthcare professionals were involved. The professions that were most affected by these shifts in tasks were doctors (19 cases) and nurses (16 cases). The most frequent changes in patient flow were the replacement of face-to-face visits with virtual visits and the use of teleconsultation. The new service affected the work processes mainly by shifting tasks among personnel groups in 12 cases, and between departments within an organisation in eight cases.

3.1 Synthesis of the answers to the questionnaire

This section describes both the changes that affected the patient flow and also the work processes involved in telemedicine deployment. Patient flow can be directly affected by the telemedicine service, the effects on work processes, and the redistribution of personnel. The various questions and sub-questions that dealt with patient flow and work processes are treated separately below.

Q14.1 Was the patient flow directly affected by the telemedicine service?

Patient flow and work processes were partly or completely affected in the majority of cases (23). (The questionnaire uses the terminology of '100% affected'.)

There were only two services which did not influence patient flow directly. Those services were the remote intraoperative neuromonitoring deployed in Netherlands and the radiology reporting brokering service deployed in Sweden. Both of these two services are dedicated professional-to-professional services.

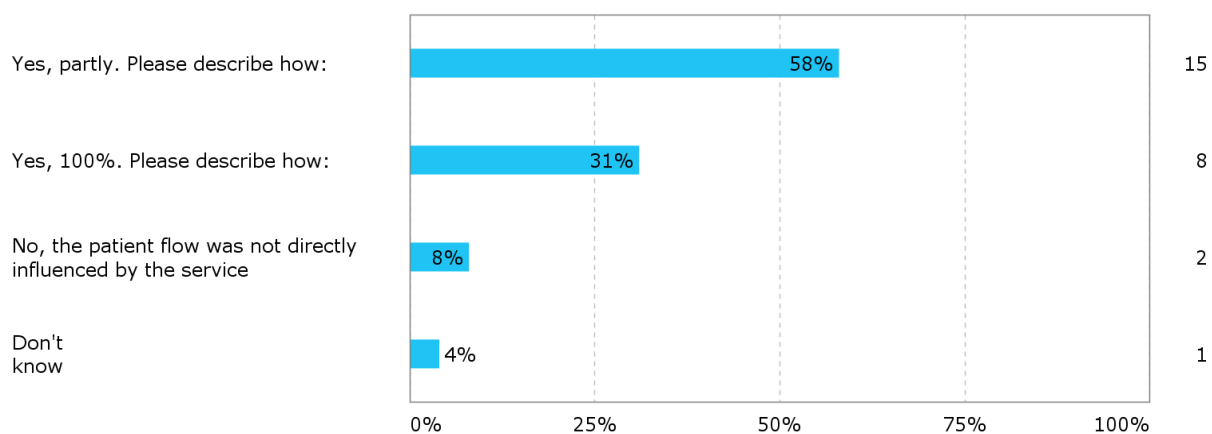


Figure 3: Responses to question 14.1 (effect on patient flow)

The ways in which the telemedicine service affected patient flow and work processes were different, although they are similar in several cases.

Most often, the respondents mentioned a decrease in the number of ambulatory and hospital visits due to the virtual visits, home monitoring, and use of shared electronic records. This was implied in seven of the services described. In an almost equal number of cases (on six occasions) the implementation of virtual consultations was reported. Other changes in patient flow and work processes were the implementation of electronic rounds, telemedicine triage, primary healthcare physicians supported by specialists, a more active

role of the patients, and an interactive involvement of patients into the disease management.

In particular, the findings showed that the patients now measure their own blood pressure, pulse, or weight, and so on. There is a very significant shift towards virtual consultations and away from physical consultations. Virtual consultations took place instead of physical ones. For example, patients first have a telemedicine consultation before they visit the emergency room in the case of a potential emergency. Several patients received their treatment at home instead of going to the particular hospital's out-patient clinic for either treatment or maybe even hospitalisation. Due to regular specialists' electronic rounds, it became easier to discover a possible problem quickly and send the patients to hospital at once whenever this was needed. The patients undertook a more active role in their healthcare and had a more interactive disease management relationship with their doctor.

Q14.2 How did the service affect the work processes?

The new service affected the work processes mainly by shifting tasks between the personnel groups in 12 cases (46%) and between the departments within own organisation in eight cases (31%). Task-shifting across sectors, and with external providers, was mentioned less often, in seven (27%) and in six (23%) cases.

Additional comments described the changes in the workflow, education of home care personnel and patients, quality improvement of the existing service, increase of the patient/clinician ratio and providing external surgeons with the telemedicine service (neuromonitoring).

It was pointed out that patients no longer travel as frequently as before from the primary care office to the hospital or to the specialist's office. The consultation is now done initially between a general practitioner and specialist. There was one statement made that the flow of work is totally different today, since the telemedicine service acts as a proactive service that sends different types of messaging or text to the patients. Thus, the patients are informed directly about the severity/non severity of their illness, and how far they are following (or not following) the established clinical protocol.

In addition, it was stated that the measurements are stored, analysed and viewed in a digital environment, so the healthcare professionals can follow their patients' condition on a regular basis, and send them appropriate instructions. In one case, evidence was provided that the result was that physicians could meet their patients more often.

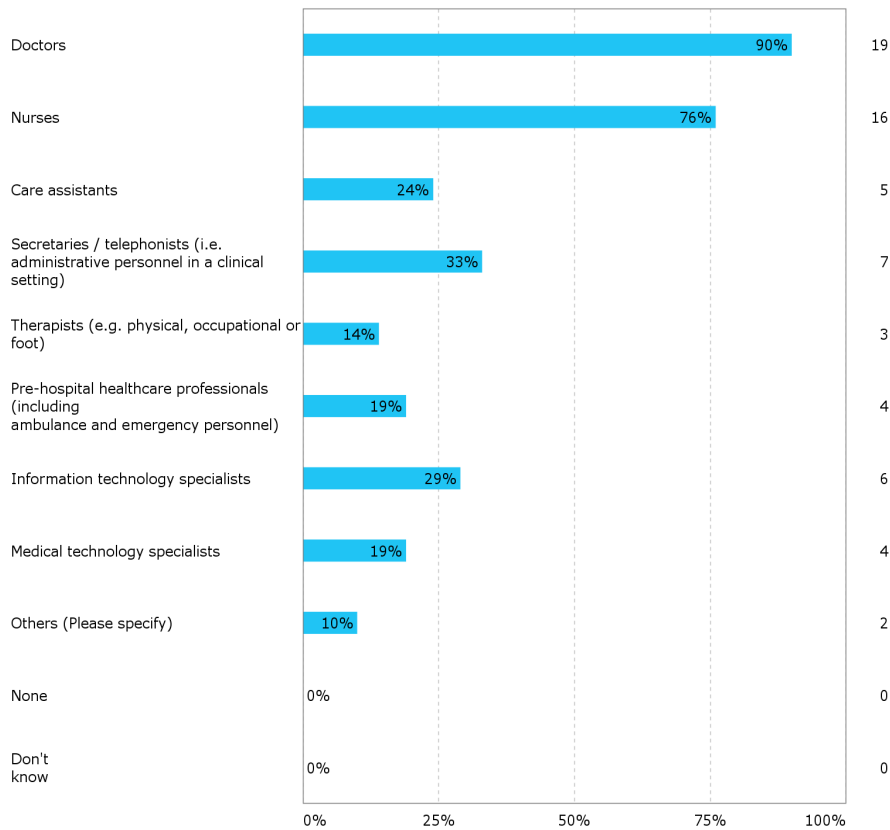


Figure 4: Responses to subquestion 14.2 Which personnel groups were affected by these shifts in tasks? (effect on personnel)

Q14.3 How did the service affect the resource distribution of personnel?

Among the personnel groups, the professions that were most affected by these shifts in tasks were doctors and nurses, followed by secretaries and IT specialists. (Respondents could name more than one group of personnel.)

Regarding the resource distribution of personnel in the telemedicine services that were operational, in eight cases there were no changes in resource demand.

This figure was a little different in the services that were either discontinued or had a “don’t know” status. In half of those cases, there was a need for resource change. In those services where resource change was needed, in only two (8%) cases was there a need for fewer personnel.

3.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013 in Berlin, the participants suggested that the involvement of healthcare professionals, particularly doctors and nurses, is a key factor in the deployment and provision of telemedicine services.

3.3 Synthesis of the literature review

The SIG did not find an extensive list of literature or of scientific papers addressing patient flow or the change of work processes. In 2005, Whitten and Mackert (2005) did, however, mention that the provider is the most important gatekeeper in the deployment of telemedicine services. Obstfelder *et al.* (2007) found from their literature review that telemedicine is adopted into routine practice when it is seen as a solution to political and

medical issues. In 2012, Wootton and Zanaboni (2012) argue that healthcare professionals on the ground play a highly important role in telemedicine adoption. The same article underlines that different parties in telemedicine have quite often different perspectives. The authors (Op. Cit. 2012) conclude that:

“Governments can provide health professionals with the technology, but the majority of potential users need to perceive compelling relative advantages of telemedicine over existing practices in order to adopt it”.

4 Collaboration with external institutions/organisations [Question 15]

Only a little more than half (14 out of 26) of the services surveyed, were dependent on the collaboration with healthcare and/or care institutions and organisations outside the organisation itself. In the event that the telemedicine service was dependent on such external collaboration, the most frequent partners were general practitioners and hospitals. The roles of those partners were largely to refer patients to consultation, to provide specialist consultation, and/or to execute the treatment.

4.1 Synthesis of the answers to the questionnaire

This sub-section deals with the type and degree of collaboration that takes place with external institutions and organisations. The precise question posed was:

Q15.1 Was delivery of the telemedicine service dependent on collaboration with healthcare and/or care institutions and organisations outside your own?

The delivery of the telemedicine services was dependent on the collaboration with healthcare and/or care institutions and organisations outside the organisation in 14 (54%) of cases and was not dependent in ten (38%) of cases.

In those cases where the telemedicine service was dependent on such collaboration, the most frequent partners were general practitioners and hospitals in eight cases for both types of professional. Other partners included specialist clinics, homecare and community care institutions.

The roles of the partners were to:

- Refer patients to consultation
- Provide specialist consultation, e.g., as a
 - Cardiologist
 - Dermatologist
 - Paediatrician
 - Vascular or orthopaedic surgeon
 - Internal medicine specialist
 - Endocrinologist
- Execute the treatment
- Use intraoperative teleneuromonitoring service
- Provide telecommunication services and home monitoring equipment
- Reimburse telemedicine services.

4.2 Synthesis of the stakeholder feedback process

There were no additional comments from the stakeholder feedback process on collaboration with external institutions/organisations.

4.3 Synthesis of the literature review

According the literature, the telemedicine service that has been exploited the most is teleradiology (Wootton and Zamboni 2012). In this SIG's report, teleradiology is not addressed precisely because this is the only telemedicine service that has reached full

adoption.

Other findings from the questionnaire are in line with data from the literature: the most common areas of telemedicine used are remote consultations with dermatologists and cardiologists, and the service is provided to help patients with chronic conditions (such as those with chronic heart failure, chronic pulmonary obstructive disease, and diabetes) (RTF 2012a; 2012b).

5 Training and education of professionals [Question 16]

This question revealed that the deployment of new telemedicine service always requires special training or education for the healthcare professionals involved. There were different types of training needed. These include technical training, personal training how to communicate and behave with patients or colleagues through video interface, and professional training concerning education to manage new tasks.

5.1 Synthesis of the answers to the questionnaire

This section describes the training and education of healthcare professionals. The question posed on which the analysis is based is outlined immediately below:

Q16.1 Did the solution require any specific training or education of the professionals involved?

All the operational telemedicine services required special training or education of professionals. A little training (i.e., a half-day training in the groups) was needed in 16 (62%) of cases and a lot of training (i.e., more than a half-day training or individual training) was required in 9 (35%) of cases. All the discontinued services or services without a clear status needed a lot of training (except one service which had a “don’t know” response). The type of training or education required for the healthcare professionals involved is listed in the figure below.

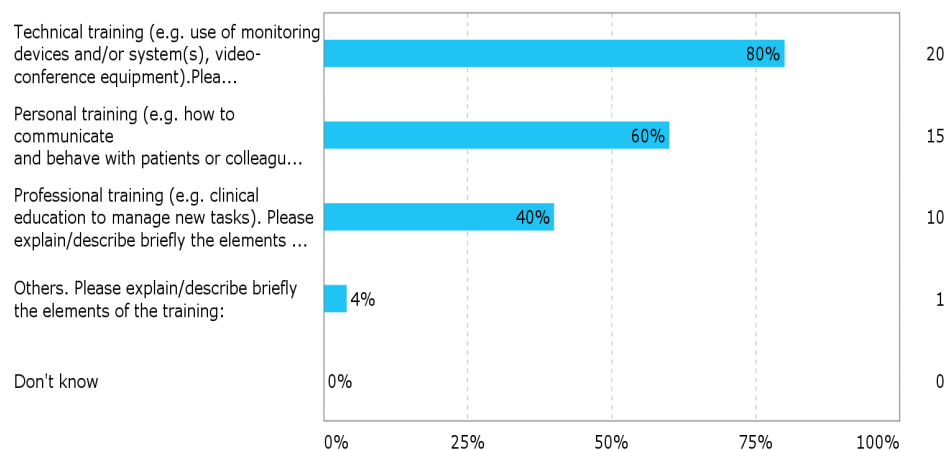


Figure 5: Responses to question 16.1 (professional training requirements)

The specific types of training were described by the service providers as follows:

- Technical training (e.g. use of monitoring devices and/or system(s), video-conference equipment).
 - Use of monitoring software, learning to use equipment, use of monitor devices and online electronic medical records (EMRs),
 - The call centre nurses received training in how to operate a telemedicine service including the computers, use video conferencing equipment, and how to understand the outputs of the monitoring devices,
 - Training in video conference,
 - Municipal health staff accompanied the patient to an (initial) consultation at the

- hospital and were trained there in how to use the system,
- Plenum teaching,
- New software for existing clinical software-based tasks was introduced,
- Training in use of the neuromonitoring device, setting up and starting the procedure.
- Personal training (e.g., how to communicate and behave with patients or colleagues through video interface).
 - Nurses and personnel who communicate with the patient by phone and video conference receive special training in how to communicate with patients using these modalities instead of face-to-face and still convey warmth and caring as well as to how to influence the behaviour of the patients and their caregivers,
 - Plenum teaching and guidelines,
 - Communication skills; training on the communication necessary to provide high quality monitoring; how to communicate and behave with patients or colleagues through remote interface,
 - Videoconferencing,
 - How to work in a collaboration system.
- Professional training (e.g., clinical education to manage new tasks).
 - There is basic training of the nurses in how to manage their new tasks in a telemedicine centre, work processes and workflows, basic clinical knowledge and specific clinical knowledge relating to the specific clinical problems of the target populations including the use of clinical protocols,
 - A specialist nurse was required,
 - Use of common medical record,
 - Training in the important principles of neuromonitoring, especially motor-evoked potentials; surgeons had to get used to having an extra team interfere with their surgery, giving important information about the patient's condition concerning the central nervous system (CNS) function,
 - Electronic health record.
- Others.
 - Just a very short introduction about how to create, participate in the fora and make documental contributions.

On the one hand, all the respondents who described operational telemedicine services (with one exception) reported that no more training or education than had been expected or planned was needed at any point. On the other hand, one of the discontinued services reported that more training was needed because of the involvement of new personnel groups, the lack of routine in using the service, and the introduction of new technologies as part of the service.

5.2 Synthesis of the stakeholder feedback process

The feedback from stakeholders vis-à-vis education and training was that, even though the questionnaire revealed that more training than expected was not needed, the importance of patients' and healthcare professionals' training is hard to overestimate.

5.3 Synthesis of the literature review

There is extensive evidence in the literature that the training of professionals and patients is essential prior to the deployment of telemedicine services (Wootton *et al.* 2012; Mulvenna *et al.* 2010). Dobrev *et al.* (2008) argue that the most important part of eHealth investment is the eHealth skills/knowledge of healthcare staff and ICT suppliers' staff.

6 Professionals' experience with research, development and telemedicine in general [Question 17]

The importance of the primary healthcare professionals' experience with medical research, project development, and innovation or telemedicine services with regard to the implementation of telemedicine services is not a critical factor for telemedicine service implementation.

6.1 Synthesis of the answers to the questionnaire

This question was focused on the primary healthcare professional as the subject of enquiry. By definition, in most European countries, the primary healthcare professional is the person who provides the first point of entry of the patient to the healthcare system.

The precise questions and sub-questions posed to the respondents were as follows:

Q17. On a scale from 1-5 how would you rate the experience of the primary healthcare professionals involved in the telemedicine service with

Q17.1.) Medical research in general?

Q17.2.) Development projects and innovation in general?

Q17.3.) Telemedicine services (both projects and in operation) in general?

In terms of primary healthcare professionals' experience with medical research, development projects and innovation, and telemedicine services in general, the spectrum of answers was distributed among all the possible options. Primary healthcare professionals have varied levels of experience in being involved in these three fields. There does not, however, seem to be any particular pattern that affects their involvement in these three different types of activity.

The highest rate of answers was of the "don't know" variety (see the following figure).

There are at least possible explanations for such a high level of respondents' not knowing about healthcare professionals' involvement in research, development, and telemedicine. For example, first, primary healthcare professionals are not always involved in e.g., specialist-specialist services. Second, the question did not ask about a specific health professional involved in the service, which might have made it easier to answer. Third, respondents may have found the question generally difficult to interpret.

As a consequence, because of the scope of this question and the way in which it was worded, it is hard to conclude what is the importance of the primary healthcare professionals' experience with medical research, project development, and innovation or telemedicine services with regard to the implementation of telemedicine services.

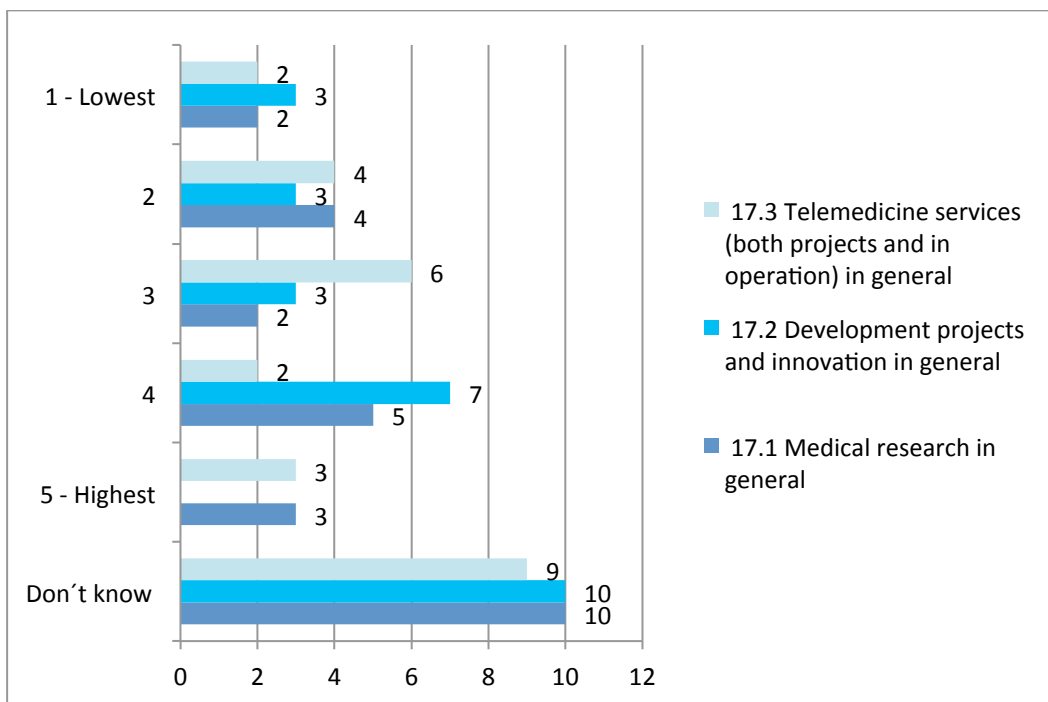


Figure 6: Responses to question 17.1-3 (professionals' experience)

6.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013, the high number of “don’t know” answers regarding healthcare professionals’ experience in telemedicine services, development projects, and innovation and medical research in general, led to lively discussion about the interpretation of the question results. It was suggested by the stakeholders present that, one reason for the high volume of these responses could be that the questionnaire respondents came from specialties other than general practitioners and, hence, they did not know about the involvement of primary healthcare professionals in such activities. It was also argued that the interest of healthcare professionals is in clinical work rather than in research activities.

Generally, the stakeholders identified that the results from the questionnaire show that the successful implementation of a telemedicine service does not require specific knowledge or previous experience in telemedicine, innovative projects or medical research on the part of primary healthcare professionals.

6.3 Synthesis of the literature review

The literature indicates that overall there is not enough scientific evidence of the benefits of the telemedicine services (Rigby 2006; Ekeland *et al.* 2012). Therefore more research is needed to prove the value of any new services. It is also obvious that most of the telemedicine services in use have started from development projects (RTF 2012c).

These findings from the literature are, however, not reflected in the responses to the questionnaire. The majority of the respondents to Q17 did not emphasise the importance of research and development.

7 Healthcare professionals' satisfaction [Question 18]

The respondents rated healthcare professionals' satisfaction with the telemedicine service high or very high in 18 cases out of 26. There seems to be a clear correlation with the incentives provided to the particular professionals and their degree of satisfaction. The stakeholders' feedback pointed out that new telemedicine services should not be added further to the healthcare professionals' workloads but be separated from their everyday work as a different task. The professionals should be motivated, as well as trained, to adopt best practices in healthcare.

7.1 Synthesis of the answers to the questionnaire

This question on healthcare professionals' satisfaction can be contrasted to the next set of question responses which deal systematically with the satisfaction, and the education and training, of patients.

The following two questions deal with the satisfaction of healthcare professionals. The precise question posed on healthcare professionals' satisfaction was:

Q18.1 On a scale from 1-5 how would you rate the healthcare professionals' satisfaction with using the telemedicine service?

Please describe how the healthcare professionals' satisfaction was measured.

The healthcare professionals' satisfaction with using the telemedicine service was high (see the figure below). This insight also applies to the services that were not operational or which had a "don't know" status.

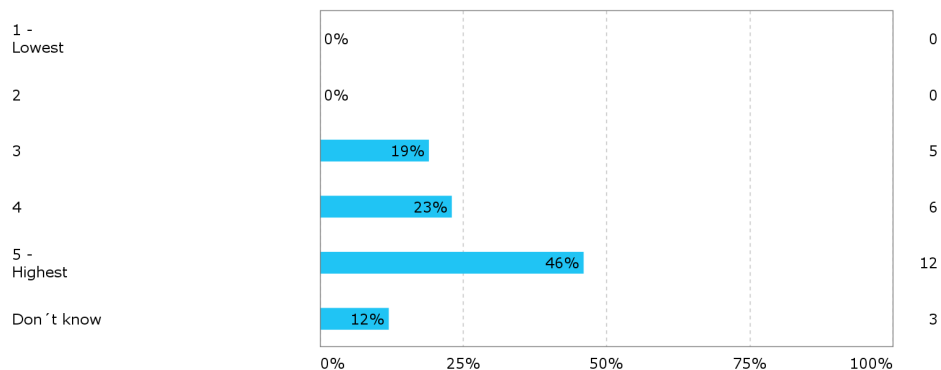


Figure 7: Responses to question 18.1 (professionals' satisfaction)

The respondents indicated that the satisfaction of healthcare professionals was measured in two main ways: either through conducting a questionnaire or collected from personal interviews (see the figure below). Other forms of measurement of professional satisfaction involved less often: informal feedback; focus group interviews; and polls.

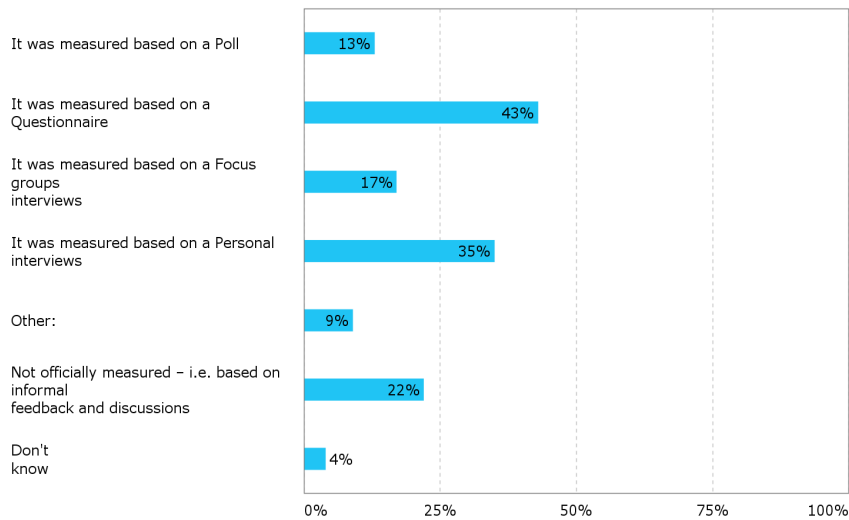


Figure 8: Responses to question 18.1 (how satisfaction was measured)

The approximate number of members of personnel that were questioned (in order to explore their satisfaction levels) was more than 20 in seven cases, 5-10 in five cases and 10-20 in three cases. Sixteen (16) respondents answered that the degree of satisfaction did not vary greatly among the personnel involved.

However, those respondents who considered satisfaction to vary greatly pointed out that there was a difference between, first, the pioneers of the use of e-services and, second, professionals who had to both carry out their daily routine and additionally work with telemonitoring equipment. Furthermore, these respondents pointed out that there was a clear correlation with the incentives provided to the particular professional. It was also mentioned that, the more personalised the approach, the more satisfied the user was. Those respondents who had problems with changes in the overall organisation were a bit more negative than those who did not experience overall organisational changes.

7.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013, the importance of separating healthcare professionals' everyday work from new telemedicine services was emphasised. Stakeholders were of the opinion that new telemedicine services should not be added to the healthcare professionals' workload. In situations in which this aspect of work overload is satisfactorily resolved, healthcare professionals are keen to use new gadgets and new services.

The use case, Cordiva, presented at the workshop by the German organisation Gesellschaft für Patientenhilfe, showed that general practitioners are not interested in following home monitoring data routinely. Rather, they prefer to receive notices or alerts of problems in the event that there are sudden changes in their patients' conditions. However, when home monitoring of patients is carried out by professionals based in a specialised home monitoring company, there appears to be no problem with the professionals' motivation to use new technology.

7.3 Synthesis of the literature

The positive attitude of healthcare professionals towards telemedicine services is supported by the scientific literature. The satisfaction level of healthcare professionals is found to be

D5.1 - Organisational implementation and change management section of the Blueprint developed by practitioners

high in both primary care and specialists groups (Dobke *et al.* 2011). In the literature, there are also arguments that financial incentives would drive this kind of organisational change in an effective way, and encourage healthcare professionals to be more motivated (Berger 2011). Grol and Wensing (2004) conclude that professionals should be motivated, as well as well trained, to adopt best practices in healthcare.

Last but not least, although physicians are interested in telemedicine, it was identified in the early part of the twenty-first century that they may be afraid of increasing their workload; they may also be concerned about the response of patients, reimbursement issues, and the need of leadership from top or intermediate management (Kennedy *et al.*, 2003; Hicks *et al.*, 2003).

8 Training and education of patients [Question 19]

Answers to this question revealed that patients' training and education prior to the use of the telemedicine service was done only in ten cases out of 26. When training was needed, it included the demonstration and use of equipment, guidelines for communication in the event of health and/or technical problems, and demonstrations of the use of computers/tablets for video conferencing. According to the literature, patients' training plays an important role in securing the engagement of the patients.

8.1 Synthesis of the answers to the questionnaire

This section describes the training and education of patients. The question posed on which the analysis is based is outlined immediately below:

Q19.1 Did the patients receive any training or education prior to the use of the telemedicine service?

Patients' training and education, prior to the use of the telemedicine service, was performed in ten cases out of the 26 reported. In all those cases, the training included a brief introduction and demonstration of the equipment. More specifically, the training and education included the demonstration and use of the equipment, how and whom to contact in case of a health and/or technical problem, training and demonstrations of the use of a computer/tablet for video conferencing, and how to give written instructions. One respondent answered that the training was determined by how "savvy" the patients (and/or their caregivers) already were in the use of these technologies.

In an equal number of cases (10), it was reported that patients did not receive any training because they were not directly an active part of the telemedicine service.

In three cases, there was no training offered to the patients, even though the patients were directly an active part in the service. The reasons given for this lack of training were that a specialist nurse was included, the patient was not involved in the technical facilitation of the service, and the training was given online.

Intensive training of patients was conducted in two cases. In those cases, the patients received information/education in arterial hypertension. Patients received educational material both on paper and online via the patient platform.

8.2 Synthesis of the stakeholder feedback process

There were no additional comments regarding patient training and education provided by the stakeholders.

8.3 Synthesis of the literature review

Patient training is important in applications where more sophisticated medical equipment is used. The guidelines on telemedicine for chronic obstructive pulmonary disease points out the importance of health education and training of the patients (RTF 2012d). These Regional Telemedicine Forum guidelines from 2012 emphasise that, after suitable training, patients rarely opt out of a telemedicine programme.

9 Patient satisfaction [Question 20]

Patient satisfaction with the telemedicine service(s) was high or very high in all cases where the satisfaction was measured. The patient satisfaction was measured systematically in more than a half of the cases. The number of patient respondents whose satisfaction was measured was higher than 50 in two-thirds of the cases. Issues of special concern were mentioned in seven cases. Patients asked specifically for more robust equipment, fewer buttons and wires, and proper addressing of service reliability, confidentiality, security, privacy and quality issues.

9.1 Synthesis of the answers to the questionnaire

This section describes the degree of satisfaction of the patients. The three sub-questions posed on which the analysis is based are outlined immediately below:

Q20.1 On a scale from 1-5 how would you rate the overall satisfaction of the patients with the telemedicine service? On what approximate number of patients is your last answer based?

Q20.2 Was patient satisfaction measured systematically? If Yes, please describe how patient satisfaction was measured.

Q20.3 Please describe if there were any issues of special concern or interest to the patients?

The overall satisfaction of the patients was high or very high in all the cases where satisfaction was measured (see the figure below).

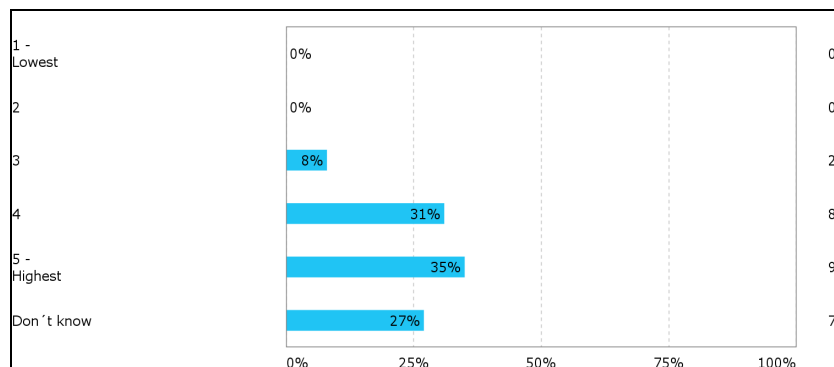


Figure 9: Responses to question 20.1 (patients' satisfaction)

In two-thirds (12) of the cases the approximate number of patients questioned about their satisfaction was more than 50 (see the following figure).

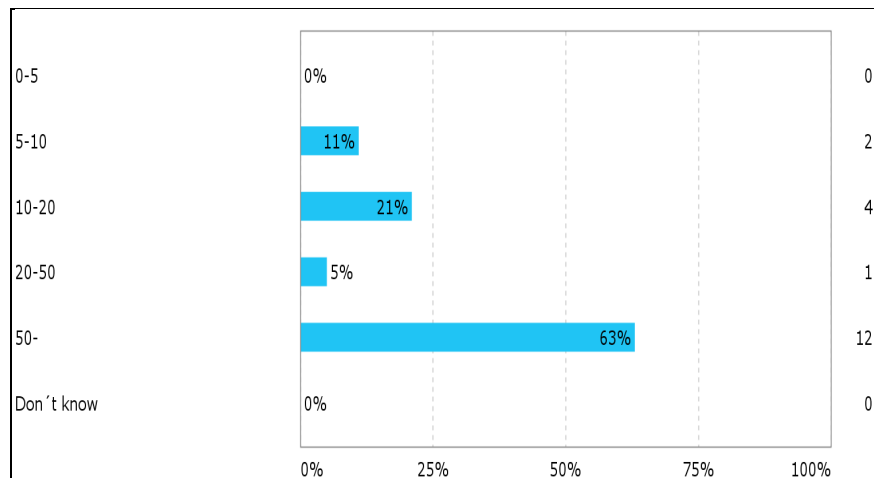


Figure 10: Responses to question 20.1a (number of patients)

Patient satisfaction was measured systematically in 14 (54%) of the cases. The methods on how the satisfaction reports were collected are described in the figure relating to Q20.2: they include polls, questionnaires, focus group interviews, and personal interviews. Other methods included SF-36 questionnaire. While the numbers are not similar to those with regard to measuring the healthcare professionals' satisfaction (see Q18), they do use mostly very similar methods.

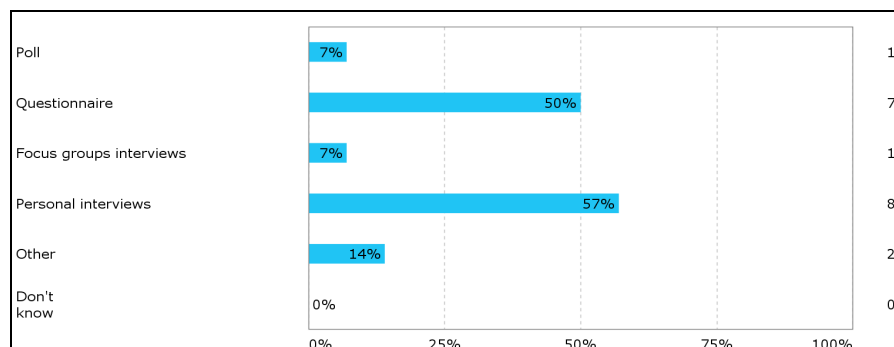


Figure 11: Responses to question 20.2 (how was satisfaction measured)

Issues of special concern were mentioned by patients in seven (27%) of cases. They include examples such as the following. Patients were asking for more robust equipment. The fewer wires and buttons the equipment had, the more satisfied were the patients. Service reliability, confidentiality, security, privacy and quality issues were also mentioned as patient-related concerns. In one case, it was mentioned that patients were satisfied with the possibility of having their surgery monitored via a telemedicine service. Some patients came to this specific clinic particularly as a result of this option being available to them.

9.2 Synthesis of the stakeholder feedback process

There were no comments regarding patient training and education from stakeholders.

9.3 Synthesis of the literature review

There is evidence that patients are satisfied with telemedicine services (RTF 2012d; Levin *et al.* 2013; Dias Costa *et al.* 2013). Usually the acceptance rate on the part of patients is high or very high. A substantial number of patients still prefer face-to-face appointments (Ibid, 2013).

10 Patient empowerment [Question 21]

According to three sets of evidence (the open answers to the sub-question of question 21, stakeholders’ feedback and literature review), the use of telemedicine service has a strong positive influence concerning patient empowerment. Surprisingly, patient empowerment was an intended goal in only two services out of the 26 services described in the questionnaire responses.

10.1 Synthesis of the answers to the questionnaire

This section describes patient empowerment. The question and sub-question posed, and the request for further description on which the analysis is based are outlined immediately below:

Q21.1 Was patient empowerment part of the service as an intended goal?
Q21.2 Please describe if patient empowerment was achieved (intended or unintended) and to what extent.

Patient empowerment was an intended goal only in two services. In more than half of the questionnaires (54% i.e., 14 services), the respondent answered “No” to the question “Was patient empowerment part of the service as an intended goal?”

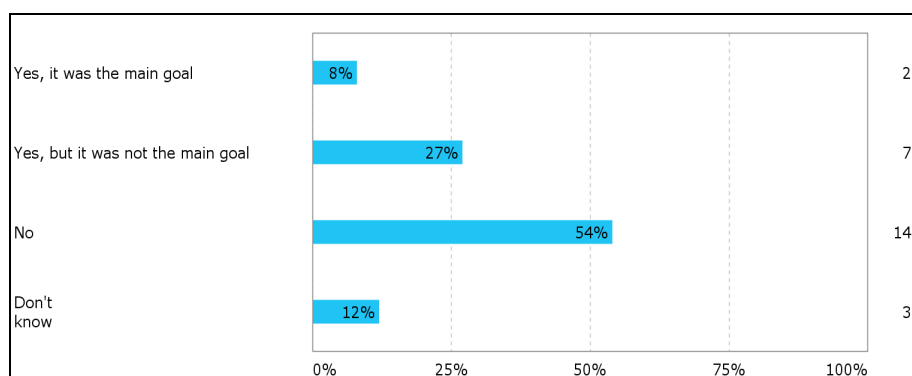


Figure 12: Responses to question 21.1 (was empowerment intended)

Valuable feedback was provided by the respondents regarding the influence of the telemedicine service to the patient. The response of patients in interviews and telephone surveys was that the telemedicine service gave them a greater sense of control over their lives as well as a greater sense of security. As one patient put it: *“This enables me to conduct my life in such a way that I don't feel like a patient suffering from chronic heart failure.”* In interviews, patients also stated that they felt more in control of their condition when using the telemedicine service.

Other respondents to the Momentum questionnaire stated that they wanted to make it possible for patients who wanted this option to treat their ulcers themselves under supervision from trained staff. Several patients were willing to “self-manage” their own diseases, and said that the quality of the advice was better via the telemedicine service than from the local health personnel.

Empowerment was achieved in different ways. For example, it was done by asking patients to input their data and opinions. By getting feedback on their achievements, patients were empowered to continue to use the system in the long term.

10.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013, members of the Momentum consortium emphasised that, even though the questionnaire did not reveal that the aim of implementation of telemedicine service was patient empowerment, they themselves have seen evidence that telemedicine clearly increases patients' participation in the care process and increases their knowledge of their own health condition.

10.3 Synthesis of the literature review

The literature supports the interpretation that, among other benefits, telemedicine influences patient empowerment positively (RTF 2012d; Rygh *et al.* 2012).

11 Ethical issues relating to patients [Question 22]

Seventeen respondents out of the 26 did not report any particular ethical considerations relating to the telemedicine service. Those respondents that described ethical considerations pointed out the patient’s right to privacy, professional secrecy, and the inclusion/exclusion criteria and selection of the patients provided with the telemedicine service. In the majority of cases (18) there were one or more alternative services to the telemedicine available for the patients.

11.1 Synthesis of the answers to the questionnaire

This section describes ethical issues relating to patients. The two sub-questions posed on which the analysis is based are outlined immediately below:

Q22.1 Are there or were there any aspects or consequences of the service that led to any particular ethical considerations?

Q22.2 Is an alternative service available for patients who refuse or are not able to manage the telemedicine treatment?

Two-thirds (17) of the respondents did not see any ethical issues relating to the patients in terms of the particular telemedicine initiative on which they reported (see the figure below).

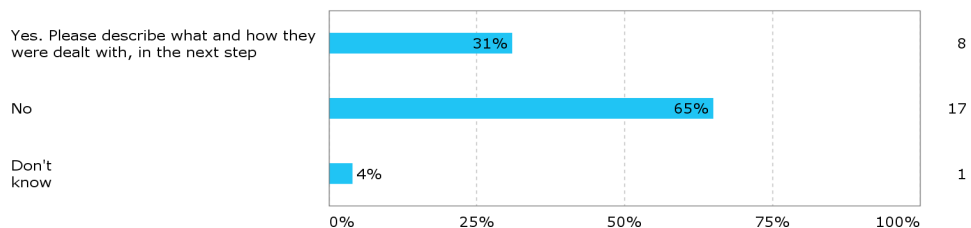


Figure 13: Responses to question 22.1 (ethical considerations)

For those who were concerned about ethical issues, the list of problems was as follows (these comments are direct quotes from the survey responses):

- “As always we discussed possible ethical implications, but found no dilemmas of that kind as long as the support and the quality of the service are assured.”
- “All patients receive their dialysis treatment in the same room and at the same time. That caused a discussion about how to take care of the duty of professional secrecy and protect the patient's right of privacy in that situation. Several patients in the same room at the same time are also the case without using [a] video conference. The difference is that, before [video conferences], the nurses went into a shielded room to phone the hospital/nephrologist when they needed to ask for a medical advice. When using [video conferences], these matters were discussed with other patients present. Still, they used the phone in case they needed assure patient confidentiality and privacy. The patients were offered headsets and private [video conference],-meetings with the nephrologists after the consultation, if needed. However, nobody was using this option.”
- “The major ethical consideration was the decision over the inclusion/exclusion criteria and the selection of the patients among the applicants. The decision was made over clinical criteria (more severe cases) after overview of the scientific literature and ability

to use the equipment, together with some other specific criteria, e.g., distance from the hospital.”

- “Ethical aspects are always an issue when collecting medical data. The issue was dealt by Ethical Approval during the trial. The issue is constantly monitored during daily operations as required by the law.”

Regarding alternative service availability for the patients who refused or were not able to manage the telemedicine treatment, a service was present in 69% (18) of cases. There were only 12% (3) of cases where an alternative service was not present.

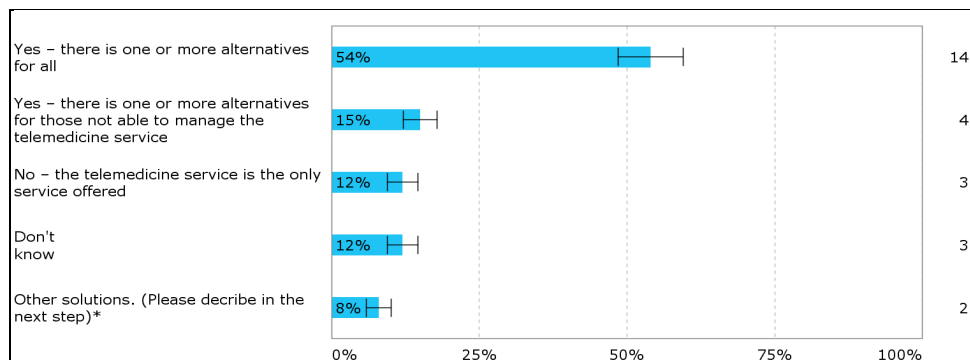


Figure 14: Responses to question 22.2 (were alternatives provided)

11.2 Synthesis of the stakeholder feedback process

In the second Momentum workshop held on 8 April 2013 in Berlin, the importance of having an alternative service for the patients who were not included in the telemedicine service group was emphasised.

11.3 Synthesis of the literature review

A limited approach to the literature on patients, telemedicine, and ethics has so far been undertaken by SIG 2.

Work on ethical issues related to patients in terms of telemedicine a decade ago had a tendency to focus on the confidentiality of patient data, legal and regulatory issues particularly at a pan-European or international level, jurisdictional, and reimbursement challenges (e.g., Stanberry, 1997, 1998, 2006; Silvermann, 2003a; 2003b). More recently, at least two shifts seem to be reflected in changing preoccupations in the literature. First, there is the shift in policy and societal approach (and pending legislation on privacy and security due in the European Union in 2014) and, second, the advances in technologies towards more personalised and intimate technologies. Researchers’ orientations now tend to be increasingly towards ethics that focus on empowerment, access, democracy, care and the home (e.g., Kubitschke *et al*, 2009; Duquenoy *et al*, 2012; Fisk and Rudel, 2012). There also seems to be a move towards developing forms of framework analysis that enable the merger of such classic topics as privacy and confidentiality with others that are more user-related (e.g., Kubitschke *et al*, 2009; Wadhwa and Wright, 2012).

Additional available materials included in the work of the European Patient Forum (EPF)¹ and other international patients’ organisations, the patients’ group in EHTEL, various patient-

¹ See <http://www.eu-patient.eu> Accessed 21 June 2013.

related journals e.g., the *BMJ*,² and official telemedicine journals such as e.g., the *Journal of Telemedicine and Telecare*,³ and *Telemedicine and e-Health* will be investigated.⁴ Findings from initiatives such as the three whole systems demonstrator projects undertaken in England⁵ may additionally provide useful references or materials as well as the work of the TeleScope⁶ and the ETHICAL project.⁷ Last but not least, the 2012 Opinion of the European Group on Ethics in Science and New Technologies to the European Commission/BEPA in relation to information and communication technologies⁸ may contain observations about the ethical needs of patients.

² See <http://www.bmj.com> Accessed 21 June 2013.

³ See <http://jtt.rsmjournals.com> Accessed 21 June 2013.

⁴ See <http://www.liebertpub.com/TMJ> Accessed 21 June 2013

⁵ See http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131684 Accessed 21 June 2013.

⁶ See <http://wwwm.coventry.ac.uk/hdti/Research/Pages/TeleSCOPE.aspx> Accessed 21 June 2013.

⁷ See <http://www.ethical-fp7.eu> Accessed 21 June 2013.

⁸ See http://ec.europa.eu/bepa/european-group-ethics/docs/publications/ict_final_22_february-adopted.pdf Accessed 21 June 2013.

12 Observations and concerns

A number of observations are made with regard to the questionnaire's purpose, its orientation towards quantitative and qualitative analysis, and its length and question design.

Purpose: The Momentum knowledge gathering questionnaire was developed so as to receive systematic and structured feedback from service providers relating to several factors and aspects of telemedicine: in SIG 2's case, these elements related to organisational implementation and change management. The total number of the respondents was 26.

Quantitative analysis: On the one hand, from the perspective of quantitative analysis, the number of reported services (26) does not enable any scientific conclusions to be drawn. However, it is worthwhile mentioning that the aim of the questionnaire was not to undertake quantitative research but to obtain input for the Momentum Blueprint. The blueprint will be created based on a combination of the results from the questionnaire, the valuable feedback from the stakeholders, and the professional experience of the Momentum consortium members.

Qualitative analysis On the other hand, the answers to the questionnaire provide excellent materials as a basis for qualitative research relating to telemedicine providers, both in terms of service diversity and geographical location.

The questionnaire was relatively exhaustive and covered most of the telemedicine service aspects.

Questionnaire design and length: Completing the questionnaire was a pretty strenuous, and time-consuming, task: this might be among the reasons for the relatively low number of respondents at this stage of the project. Some questions were phrased in a way that they could have been interpreted variously by the different respondents. Therefore, in the event that circulation of the Momentum questionnaire will be repeated in the future, it will need some further refinement.

Bibliography

- Berger E (2011) Value over Volume: Value-based Purchasing Brings Financial Incentives for 13 Core Quality Measures. *Annals of Emergency Medicine*, 58(6)
- Catwell, L., Sheikh, A. (2009). Evaluating eHealth Interventions: The Need for Continuous Systemic Evaluation. *Plos Medicine*. 6 (8), 1-6.
<http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000126>.
Accessed 21 June 2013.
- Ciborra C (2002) *The labyrinths of information. Challenging the Wisdom of System*. 2002: Oxford University Press.
- Dias Costa P, Hipólito Reis A, Rodrigues P (2013) Clinical and Economic Impact of Remote Monitoring on the Follow-Up of Patients with Implantable Electronic Cardiovascular Devices: An Observational Study *Telemedicine and e-Health*. February 2013, 19(2): 71-80.
doi:10.1089/tmj.2012.0064.
- Dobke M, Bhavsar D, Herrera F (2011) [Do Telemedicine Wound Care Specialist Consults Meet the Needs of the Referring Physician? A Survey of Primary Care Providers](#) *Int J Telemed Appl*. 2011
- Dobrev, A., Jones, T., Stroetmann, Veli N. *et al*. Sources of financing and policy recommendations to Member States and the European Commission on boosting eHealth investment. Final report of the Financing eHealth study. Bonn/Brussels, empirica Dec. 2008
- Ekeland A, Bowes A, Flottorp S (2010) Effectiveness of telemedicine: A systematic review of reviews. *International Journal of Medical Informatics*, Volume 79, Issue 11, November 2010, Pages 736–771. <http://dx.doi.org/10.1016/j.ijmedinf.2010.08.006>
- Ekeland AG, Bowes A, Flottorp S (2012) Methodologies for assessing telemedicine: a systematic review of reviews. *Int J Med Inform*. 2012 Jan; 81(1):1-11. doi: 10.1016/j.ijmedinf.2011.10.009. Epub 2011 Nov 21.
- EU Task Force on eHealth (2012) *Redesigning health in Europe for 2020*
<http://ec.europa.eu/digital-agenda/en/news/eu-task-force-ehealth-redesigning-health-europe-2020>. Accessed 21 June 2013.
- European Commission (2008) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on telemedicine for the benefit of patients, healthcare systems and society. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0689:EN:NOT> Accessed 21 June 2013.
- Field MJ (ed.) (1997). *Telemedicine: a Guide to Assessing Telecommunications in Health Care*. Committee on Evaluating Clinical Applications of Telemedicine, Division of Health Care Services, Institute of Medicine. Washington, D.C.: National Academy Press 1997.
- Fisk M, Rudel D (2013) Telehealth and Service delivery in the Home: Care, Support, and the Importance of User Autonomy. In *eHealth: Legal, Ethical and Governance Challenges*, edited by George C, Whitehouse D, and Duquenoy P. Springer-Verlag: Heidelberg: 221-225.

- Grol, R, Wensing, M (2004) What drives change? Barriers to and incentives for achieving evidence-based practice. *Medical Journal of Australia*.
- Hakansson S, Gavelin C (2000). What do we really know about the cost-effectiveness of telemedicine? *J. Telemed Telecare*, 6(2); 133-136 (4).
- Hage F, Roo JP, van Offenbeek MA, Boonstra A (2013) Implementation factors and their effect on e-Health service adoption in rural communities: a systematic literature review. *BMC Health Serv Res*. 2013 Jan 12;13:19. doi: 10.1186/1472-6963-13-19.
- Hailey D (2005) The need for cost-effectiveness studies in telemedicine. *J Telemed Telecare*. 2005;11(8):379–83. doi: 10.1258/135763305775013563.
- Hicks LL, Boles KE, Hudson S, Kling B, Tracy J, Mitchell J, Webb W (2003) Patient Satisfaction with Teledermatology Services. *J Telemed Telecare*; 9(1): 42-45.
- Kennedy C, Johnston K, Taylor P, Murdoch IE (2003) Determining Clinician satisfaction with telemedicine. *J Telemed Telecare*; 9(suppl. 1): 62-64.
- Kubitschke L, Garais K, Lull F, Müller S, Cullen K, Delay S, Quinn-Taylor L, Wynne R, and Rauhala M (2009) ICT & Ageing: users, markets and technologies – compilation report on ethical issues. empirica: Bonn.
- Lapao LV, Lopes M (2013) Managing Health Systems in a Globalized World: Telemedicine Service Improves Access to Pediatric Cardiology in Cape Verde. *IST-AFRICA Book of Proceedings*
- Levin K, Madsen J, Petersen I, Wanscher C, Hangaard J (2013) Telemedicine Diabetes Consultations Are Cost-Effective, and Effects on Essential Diabetes Treatment Parameters Are Similar to Conventional Treatment: 7-Year Results from the Svendborg Telemedicine Diabetes Project. *Journal of Diabetes Science and Technology*. Volume 7, Issue 3, May 2013
- Lindsköld L (2012) Designing and Using an Information Infrastructure in Radiology. Division of Medical Imaging and Technology, Department of Clinical Science, Intervention and Technology. Karolinska Institutet, Stockholm, Sweden. ISBN 978-91-7457-901-7.
- Müller A, Goette A, Perings C, Nägele H, Konorza T, Spitzer SS, von Bary C, Hoffmann M, Albani M, Sack S, Niederlohner A, Lewalter T (2013) Potential Role of Telemedical Service Centers in Managing Remote Monitoring Data Transmitted Daily by Cardiac Implantable Electronic Devices: Results of the Early Detection of Cardiovascular Events in Device Patients with Heart Failure (detect-Pilot) Study. *Telemed J EHealth* 2013 Jun;19(6):460-6. doi: 10.1089/tmj.2012.0154. Epub 2013 Apr 9
- Mulvenna M, Nugent C (2010) Supporting People with Dementia Using Pervasive Health Technologies. Springer. ISBN: 978-1-84882-550-5 (Print) 978-1-84882-551-2
- Obstfelder A, Engeseth KH, Wynn R (2007) Characteristics of successfully implemented telemedical applications. *Implement Sci*. 2007;27;2:25.
- Rigby M (2006) Evaluation – the Cinderella Science of ICT in Health. *Methods Inf Med* 2006;45 (Suppl 1):S114-S20.

- RTF – Regional Telemedicine Forum (2012a) Policy Recommendations for Deployment of Telemedicine Services. <http://regional-telemedicine.eu/wp-content/uploads/Policy-Recommendations.pdf>. Accessed 21 June 2013.
- RTF – Regional Telemedicine Forum (2012b) Good Practice Guidelines concerning Regional Strategies for IT-Support of Chronic Disease Management. <http://regional-telemedicine.eu/wp-content/uploads/Good-Practice-Guidelines-concerning-Regional-Strategies-for-IT-support-of-Chronic-Disease-Management.pdf>. Accessed 21 June 2013.
- RTF – Regional Telemedicine Forum (2012c) Good Practice Guidelines of Regional Facilitation for Market Development of SMEs within eHealth. <http://regional-telemedicine.eu/wp-content/uploads/Good-Practice-Guidelines-for-Regional-Facilitation-of-Market-Development-of-SMEs-within-Telemedicine.pdf>. Accessed 21 June 2013.
- RTF – Regional Telemedicine Forum (2012d) Good Practice Guidelines on Telemedicine Services for Chronic Obstructive Pulmonary Disease. <http://regional-telemedicine.eu/wp-content/uploads/Good-Practice-Guidelines-on-Telemedicine-Services-for-Chronic-Patients-with-COPD.pdf> Accessed 21 June 2013.
- Rygh E, Arild E, Johnsen E, Rumpsfeld M (2012) [Choosing to live with home dialysis-patients' experiences and potential for telemedicine support: a qualitative study](#). BMC Nephrol. 2012; 13: 13. Published online 2012 March 19. Accessed 21 June 2013.
- Saluse J, Aaviksoo A, Ross P, Tiik M, Parv L, Sepper R, Pohjonen H, Jakovlev Ü, Enni K (2010) Assessing the Net Benefits of the Estonian Electronic Health Record System. Eesti Arst 2010; 89(10):659–696. <http://www.e-tervis.ee/index.php/en/international-projects/finished-projects/digimpact/digimpact-final-report> Accessed 21 June 2013.
- Silvermann R D (2003) Current legal and ethical concerns in telemedicine and e-medicine. J Telemed Telecare June 1 2003; 9(suppl. 1): 67-69.
- Stanberry B (1997) The legal and ethical aspects of telemedicine. 1: Confidentiality and the patient's rights of access. J Telemed Telecare December 1 2007; 3(4):179-187. doi: 10.1258/1357633971931101.
- Stanberry B (1998) The legal and ethical aspects of telemedicine. J Telemed Telecare March 15, 1998; 4(suppl.1): 95-97. doi: 10.1258/1357633981931632.
- Stanberry B (2006) Legal and ethical aspects of telemedicine. J Telemed Telecare June 1 2006; 12(4); 166-175. doi: 10.1258/135763306777488825.
- Talmon J, Ammenwerth E, Brender J, de Keizer N, Nykanen P, Rigby M (2009) STARE-HI – Statement on reporting of evaluation studies in Health Informatics. Int J Med Inform 2009;78(1):1–9.
- Wadhwa, K, Wright D (2012) eHealth: Frameworks for Assessing Ethical Impacts. In eHealth: Legal, Ethical and Governance Challenges, edited by George C, Whitehouse D, and Duquenoy P. Springer-Verlag: Heidelberg: 183-210.
- Werner P, Karnieli E. (2003) A model of the willingness to use telemedicine for routine and specialized care. J Telemed Telecare; 9(5): 264-272.

Whitten PS, Mackert MS (2005) Addressing telehealth's foremost barrier: provider as initial gatekeeper. *Int J Technol Assess Health Care*. 2005;21(4):517–21.

Whitten P, Buis L (2007) Private Payer Reimbursement for Telemedicine Services in the United States. *Telemedicine and e-Health*. February 2007, 13(1): 15-24. doi:10.1089/tmj.2006.0028.

Wootton R, Zanaboni P (2012) [Adoption of telemedicine: from pilot stage to routine delivery](#). *BMC Med Inform Decis Mak*. 2012; 12: 1. Published online 2012 January 4. doi: 10.1186/1472-6947-12-1.