



On the road to added value!

2014 eHealth monitor

Better healthcare
through better IT



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This is a partial translation of the 2014 edition of the Dutch yearly national report on eHealth, the 'eHealth monitor'. It is a translation of the Management Summary and the Conclusions and Recommendations chapter. The full report is available in the Dutch language.



Summary

The Netherlands is well underway with eHealth and is therefore in a good starting position for utilising the possibilities of eHealth. Compared to the first eHealth monitor of 2013 we are seeing an increase in the availability or use of a number of eHealth applications. For example, more healthcare users say they are able to contact healthcare providers online to make appointments or renew prescriptions, among other things. We are not seeing major shifts compared to last year. We did obtain new insights, however, among other things because this year - in addition to healthcare users and doctors - we included nurses, care providers and practice assistants in the study as well.

Compared to other countries we are doing well, for example when it comes to Electronic Health Records and Health Information Exchange. That was already apparent from the 2013 eHealth monitor (Krijgsman et al., 2013) and with respect to Electronic Health Records we are doing even better in 2014 than last year.

The eHealth monitor is a yearly recurring study in which Nictiz and the NIVEL Institute map out the availability and use of eHealth in the Netherlands. The study also considers obstacles, effects and developments over time.

Also positive is the fact that the idea is taking hold that eHealth is not an objective in itself, but is aimed at contributing to improved care. In the first place it is about more self-management possibilities for patients, and also about increased patient safety, improved continuity of care, more (insight into) quality, increased accessibility for patients and greater effectiveness. In this summary we describe, in the main outlines, the results of the 2014 eHealth monitor and give our recommendations. For the accountability, detailed results and substantiation of our recommendations we refer to the further content of this report and the accompanying list of tables. An infographic is also available on the websites of the NIVEL Institute and Nictiz, with the main results in figures.

The core messages of 2014

Despite the favourable starting position we are not seeing large-scale use of eHealth across the entire spectrum of applications. While some applications, like teledermatology and Electronic Health Records in doctors' practices, have been broadly implemented, others are still lagging behind, for example access to health records for patients and the ability of healthcare users¹ to personally maintain health data or information about doctor's visits or treatments online. In the 2014 eHealth monitor we found four explanations for this:

- unfortunately, eHealth 'on the shop floor' is still not always a matter of 'plug and play';
- process innovation is complicated;
- healthcare users and healthcare providers don't experience enough added value from some applications;
- intended users are not always aware of the possibilities.

eHealth is the use of new information and communication technologies, particularly Internet technology, to support or improve health and healthcare.

The 'plug and play' myth

The expectations of policymakers and administrators are often high when it comes to eHealth, and the technical possibilities appear unlimited. But the everyday practice in the workplace is resistant. For example, this is where nurses notice that new applications are introduced without sufficient technical support and training. There are also problems with the

technology itself: wireless network connections are not available everywhere, information has to be re-entered manually because systems cannot exchange information among themselves, computer systems are sometimes slow or beset by disruptions, or the use is experienced as cumbersome.

Three quarters of all physicians experience difficulties with having patient contact via the Internet. In addition to a lack of financial remuneration they also suffer from insufficient technical support and the shortage of adequately secured systems. Three-fifth of physicians also experience problems with the information exchange about patients, especially because it is difficult or impossible to link systems together.

Two-fifth of all nurses, care providers and practice assistants also experience problems when using ICT in patient care². Lack of time to properly study the applications is the leading cause, followed by insufficient technical support and a lack of knowledge and skills to apply this.

This is how the difference between the positive expectations and the everyday reality is experienced in the workplace. The promise of 'plug and play' solutions that 'you can start right away' does not always come true. An eHealth application will not work if it is 'tossed over the wall' (as one nurse expressed it). Around half of the nurses, care providers and practice assistants therefore wants to be more involved in ICT innovations.

Process innovation is difficult

Especially eHealth applications that are combined with changes in the care provision process have been proven

¹ By this we mean every Dutch citizen who has access to healthcare. Not every healthcare user is necessarily also a *patient*.

² In some healthcare sectors patients are referred to as clients. Where this is the case the word 'patient' can be read as 'client' throughout this report.

difficult to implement. It is important that eHealth is easy to incorporate and does not distract from the primary care process. Particularly in cases where the work process changes with the introduction of eHealth healthcare providers are faced with difficult questions in their practice, which are not always easy to answer in advance. What if e-consultation results in an increase in e-mails that have to be dealt with in the evening? Is proper triage still possible when making appointments online? Potential risks also constitute an obstacle to the implementation, for example when it comes to the security of medical data, the reliability of measuring values or information that is missing in electronic consultations. More than a quarter of GPs feel that in online contact with patients the communication is not clear enough and that it is less efficient than telephone and face-to-face contact.

Despite these types of challenges healthcare professionals certainly do not reject the idea of eHealth. There is an awareness that 'eHealth is coming' and that 'you have to start using it', but healthcare professionals struggle with a lot of practical questions about the consequences for their work processes. In this context they can be a lot of help to each other: "How do you handle this?". For example, sometimes we see that a fellow practitioner has already found a solution for something that worries someone else, or that anticipated problems appear to be much less troublesome in practice. There is also a lot of interest in the question how colleagues then deal with an application. It is therefore important to promote knowledge exchange among fellow professionals, especially in the area of practical experiences, tips and 'best practices'.

Healthcare users and healthcare providers see insufficient added value

The use of the different eHealth applications varies greatly. There is a number of appealing success stories, for example tele dermatology. The large-scale use of other applications, such as online access to health records for patients (3% of healthcare users say their GP, medical specialist or physiotherapist gives them this option), maintaining your own health information online (6% of healthcare users did so in the past year), or personally documenting information online about doctors' visits or treatments (2%) is currently not in evidence.

The success stories show that one condition for the use of the system is that an eHealth application must fill a clear need. An innovation must deliver sufficient results for the person who has to make an effort to use it. It appears to be difficult to ensure that eHealth applications, for which there may be high expectations from a policy perspective, automatically meet that condition. In practice it is often the case that an eHealth application initially requires extra money and/or effort and does not (yet) provide sufficient added value for the person making that investment, or for the intended users.

That added value can certainly be something other than financial. Other positive effects of the use of eHealth named by physicians include: increased convenience for patients ('improving the accessibility of my practice', 'patients find it convenient'), modest efficiency benefits or an improved image ('it shows we are moving with the times').

Job convenience is also a motivating factor among healthcare providers. Nearly half (45%) of the nurses, care providers and practice assistants occasionally use mobile apps. Examples are the pharmacotherapeutic compass, various calculators and apps that make it possible to update the actual schedule for client visits on a tablet computer. The reduction in the time spent on telephone calls proves to be a significant motivation for GPs to enable appointments via the Internet.

Healthcare users also appreciate applications that result in an instant convenience, such as making appointments via the Internet and renewing prescriptions online. The enthusiasm for applications that require more personal effort on the part of the healthcare users, such as being able to maintain their own health data or information about doctors' visits or treatments is not as great. Approximately one in five healthcare users are interested in using this option, two-fifths say they would not be interested if this was available to them.

Sometimes the use of eHealth results in a clear and concrete benefit for one person, but not for someone else. A diabetes patient in our study indicated that, thanks to a continuous glucose monitor loaned to her by her healthcare provider, she could make sure that her blood sugar levels remained steadier. However, she was only able to use this machine for a limited time because her healthcare provider was only reimbursed for a maximum of twenty machines. The healthcare provider had to invest in any machines over and above this number.

For a real, large-scale use of eHealth a good balance is needed between the investment (money, time and effort) and the experienced added value (improved care,

convenience and financial benefits). This applies to healthcare providers, care institutions and healthcare users alike. The limited use of some eHealth applications, such as online access to their own health records for patients, or the possibility for healthcare users to maintain their own health data or information about doctors' visits or treatments, shows that in these areas that balance is still insufficiently positive for at least a proportion of those involved.

Lack of awareness of the possibilities

As in 2013, it is notable that for healthcare users the visibility of what is possible at their healthcare providers remains limited. Many people don't know what online services their GP, dentist, physiotherapist or medical specialist offers. The same is true for applications of which healthcare users say that they would use them if these applied to them. It is therefore likely that this lack of awareness means that the use of the available applications is not optimal.

In addition to a lack of awareness among healthcare users of the possibilities offered by healthcare providers there is sometimes also a lack of understanding among healthcare users and healthcare providers about each other's needs and preferences. For example, some doctors question whether their patients need online access to health records, while some patients feel that their doctor is conservative in this area. At the same time approximately half of the healthcare users indicates that they want online access to health records and half of the GPs also indicates they are prepared to give access to medication details. Improved awareness of the needs and preferences of the other party can contribute to preferred applications becoming available sooner.

Policy developments

This past year a number of organisations in the healthcare sector have expressly made contact to jointly deal with obstacles to eHealth. Examples are the eHealth Implementation Agenda that was published in 2014 (KNMG, Nictiz, NPCF, VZVZ [Association of Healthcare Providers for Healthcare Communication], Zorginstituut Nederland [Dutch Healthcare institution], Zorgverzekeraars Nederland, 2014), Zelfzorg Ondersteund! (ZO!) [Self-care Supported!] and the Vital at Home vision of sector organisation ActiZ and network organisation VitaValley (ActiZ and VitaValley, 2013). A number of the recommendations from the 2013 eHealth monitor were taken into consideration. For example, within the eHealth Implementation Agenda the parties work on possibilities for giving patients online medication access and on agreements surrounding the exchange of information, for example in coordinated care for chronic patients.

At the same time the call for national control in the area of eHealth, which was noted among parties in the healthcare sector last year, remains an important issue. For example, see the recent recommendation about patient information issued by the Public Health and Healthcare Council, in which the Council calls on the Ministry of Public Health, Welfare and Sport (VWS) to 'execute its system responsibility by exercising control in order to realise the necessary changes for a patient-based information provision' (Public Health and Healthcare Council, 2014).

The 'eHealth and improvement of healthcare' letter (Minister and State Secretary of VWS, 2014), which was published last summer, can give a significant boost to

this national control. In this letter the Minister and the State Secretary set concrete targets in the area of e-Health for the next five years³:

1. 40% of Dutch citizens and 80% of the chronically ill have direct access to certain medical information and can use this information in mobile apps or Internet applications.
2. 75% of the chronically ill and the vulnerable elderly who can and want to do so can take independent measurements, in most cases in combination with telemonitoring.
3. Anyone who receives care and support at home can use home automation and consult a healthcare provider via a computer screen 24 hours a day if desired.

According to the letter the government wants to make every effort, together with parties in the healthcare sector, to realise these objectives and formulate an 'eHealth step-by-step plan' / 'roadmap'. The government will contribute to these efforts with measures for removing specific obstacles and with a programme to promote the exchange of information.

Recommendations

The 2014 eHealth monitor results in five recommendations. The 2014 results reconfirmed last year's recommendations:

- make it clear to healthcare users what the possibilities are;
- provide patients with online access to their health records, starting with the medication records;
- enhance the exchange of information;
- increase the eHealth expertise among healthcare providers.

³ These objectives were published after the completion of the questionnaire survey prior to this edition of the eHealth monitor. Based on the figures in this report the status with respect to these objectives cannot be fully determined, because the survey group of healthcare users is a reflection of the Dutch population as a whole and no separate survey was conducted among chronically ill people.

The most important new recommendation is to focus strongly on tangible added value. The three objectives of the Minister and State Secretary of VWS with respect to access to the medical records, self-measurements & telemonitoring and 'computer screen care' (see above), can provide the guidelines. With the eHealth monitor we can continue to scrutinise the effects.

Make it clear what the possibilities are

Healthcare providers themselves play an important role in 'selling' the eHealth options they offer. Although a lot is already being done in this area this apparently is not yet translating into a high level of awareness of these applications among healthcare users. Physicians' organisations and patient organisations can jointly look for ways to make the information about the possibilities more effective. Here lies an opportunity for the Royal Dutch Society for the Promotion of Medicine (KNMG) and the Dutch Federation of Patients and Consumers (NPCF) in the context of the e-Health Implementation Agenda (KNMG, Quality Institute, Nictiz, NPCF, VZVZ and Zorgverzekeraars Nederland, 2014). In practice, patients and healthcare providers can also enter into the discussion about each other's expectations, for example with regard to online possibilities, so that a more realistic picture of these possibilities can be created.

Provide patients with online access to their health records

In the area of online access to health records for patients the possibilities are currently still limited. Healthcare users and healthcare providers also have a different image of each other's attitude with regard to this point. However, it appears there is support for

access to medication records, both among healthcare users (half wants access to their medical data) and healthcare providers. Half of the GPs are willing to give online access to medication records and a further one-tenth has plans to this effect. Sharing this information makes it possible for a better picture to emerge about the latest medication usage of patients. As indicated earlier, the Minister and State Secretary of VWS have proposed a concrete objective with respect to the access to and use of health records by patients (Minister and State Secretary of VWS, 2014). The aforementioned e-Health Implementation Agenda also contains projects aimed at promoting access to and availability of medical data for patients. This has established a basis. It is now the turn of the parties in the healthcare sector (healthcare providers and healthcare financiers) to translate this into concrete objectives they can realise together.

Enhance the exchange of information

One of the obstacles as a result of which eHealth in the workplace is not always a matter of 'plug and play', is the fact that it is difficult or impossible to link systems. In practice there is a need to do so, both within care institutions and between different care institutions. For example, this monitor asked for many concrete examples of information exchange between individual healthcare providers. In nearly all cases in which healthcare providers say that certain methods of sending or receiving information electronically are not yet possible, a large group indicates that they are definitely desirable. This means that there is a high level of support among healthcare providers for expanding the mutual electronic exchange of information.

The Ministry of VWS has announced an information exchange programme aimed at solid and enforceable agreements about the exchange of information (Minister and State Secretary of VWS, 2014). It is important that this is also translated into actions at the level of care providers and ICT suppliers. Solid agreements with respect to the exchange of information are also a condition for them to be able to realise the three objectives in the 'eHealth and improvement of healthcare' letter.

Increase the eHealth expertise among healthcare providers

It appears that individual healthcare providers have a lot of questions about how the changes to the process that will accompany the introduction of eHealth are best dealt with (what are the 'best practices'?). We notice that there is a significant need for the mutual exchange of practical experiences with eHealth between fellow practitioners. This applies to physicians, nurses, care providers and practice assistants alike.

Regional support structures and professional associations can play a role in this respect by actively bringing together healthcare providers with more and with less eHealth experience. In the implementation of eHealth in the workplace more attention is needed for support and the promotion of expertise of nursing and care personnel. This will better prepare them to resolve any problems themselves, and any problems they cannot resolve themselves will be noted sooner.

Involving nurses and care providers more closely in the implementation of eHealth applications can also result in these applications being used more. The attention for this aspect can possibly be enhanced if organisations

for nursing and care personnel are involved more in collaborations as described above under 'policy developments'.

Focus on tangible added value

One lesson learned in 2014 is that, despite the promises regarding more self-management or improved patient care, the added value of some eHealth applications is still not sufficiently perceived. Consider, for example, online access to health records for patients, or the ability to personally maintain health data or information about doctors' visits or treatments online. For broad groups of healthcare users and healthcare providers a better balance is needed between added value - for example in the form of more self-control for the patient and improved care - and the investments, both in time and money.

Aiming for tangible added value is not easy. It demands a joint effort by the government, care providers, patient organisations, insurance companies and the business community. The objectives outlined in the recent policy letter regarding eHealth and healthcare innovation (Minister and State Secretary of VWS, 2014) provide a good starting point for this joint effort.

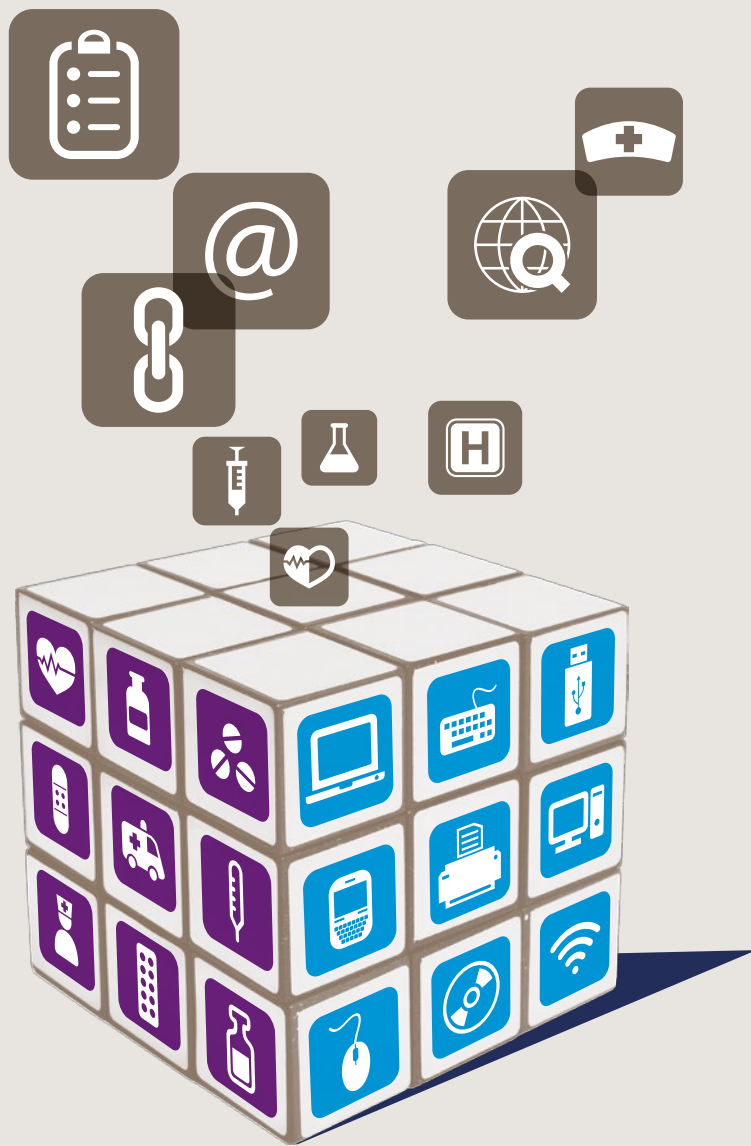
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Conclusion and discussion

This chapter answers the research questions of the eHealth monitor that were introduced in the introduction. For this purpose we use the results of the questionnaire survey among healthcare users, doctors, nurses, care providers and practice assistants and the focus groups of healthcare users, GPs, nurses, care providers and practice assistants. These results are dealt with in more detail in subsequent chapters of this report.

The following will be discussed:

- the extent to which healthcare users and healthcare providers have access to eHealth applications and use them (research questions 1 and 2);
- the developments in availability and use over time (research question 3);
- the factors that influence the use of eHealth and the effects healthcare users and healthcare providers anticipate/experience (research questions 4 and 5).

In the discussion of the influencing factors we use Rogers' theory about the distribution of innovations in order to explain some of the results of the study. We conclude the chapter with a discussion.

1.1 Availability and use of eHealth applications

In this paragraph we answer research questions 1 and 2. These are:

1. *To what extent do healthcare users and healthcare providers have access to eHealth applications?*
2. *To what extent do they use the eHealth applications that are available to them?*

As explained in the introduction, there is a large diversity of eHealth applications. The results of this eHealth monitor once again show that there are significant discrepancies in the extent to which different eHealth applications have been adopted. It is therefore not possible to say *in a general sense* whether eHealth is being used frequently or not: for that reason we discuss this at the *application level* in the following paragraphs.

1.1.1 Searching for and maintaining health information

For the healthcare user at home there are many different eHealth possibilities. According to healthcare users searching for information on the Internet is the most frequently used option. Approximately two-thirds of the surveyed healthcare users looked for information about illnesses or treatment, for example.

People can also collect and maintain their own health information via mobile apps or on a website.

Approximately one-tenth of healthcare users has used a device or mobile app to record physical activity, such as a step counter. Also approximately one-tenth has measured their own health values (such as weight or blood pressure) and maintained these via the Internet or with an app.

Other forms of maintaining information were used by fewer than one in 10 healthcare users, such as recording information about doctors' visits or treatments (3%) or maintaining information about diet and/or nutrition (8%). Approximately one-fifth indicates they would use such applications where appropriate, two-fifths would not.

1.1.2 Communication between healthcare users and healthcare providers

An important category of eHealth applications is aimed at the interaction between healthcare providers and healthcare users. In these applications there is a discrepancy between the available options (reported by doctors) and the use by healthcare users.

For example, six out of ten GPs say they offer repeat prescriptions via the Internet and half say they offer the option for patients to ask a question via e-mail or a

website. Approximately one-third of medical specialists offers this latter option and more than one-fifth offers the option of online appointments.

However, approximately half or more of the healthcare users say they don't know whether their GP or medical specialist offers such options. The use of these options therefore lags behind the availability reported by doctors. The most frequently used options are electronic reminders from the dentist via text message or e-mail (27% of healthcare users) and repeat prescriptions from the GP (18% of healthcare users). Other options are used by less than one in ten healthcare users, but two out of five healthcare users say they do want to use them (except for video contact, 15-20% want to use this).

When it comes to patients' access to their health records held by their healthcare provider the possibilities are still very limited. With the exception of access to medication offered by the GP (12% of GPs), less than one-tenth of the doctors says they offer online access options. Two-thirds of the healthcare users say they don't know whether their GP offers access, but approximately half of the healthcare users would use such access where applicable.

1.1.3 Online treatment

Some eHealth applications support forms of online treatment. An important example is telemonitoring. Both doctors and nurses use this to remotely monitor the health of chronically ill patients, based on health values measured by the patient. GPs particularly use telemonitoring for patients with diabetes (15% of the GPs) and, to a lesser extent, for patients with congestive heart failure or COPD. Among medical specialists telemonitoring is also used the most frequently for

patients with diabetes. Of the nurses one-fifth says that they use telemonitoring themselves or that it is used within their institute.

In mental healthcare (GGZ) various forms of online treatment are used. Two-fifths of the psychiatrists offer the option to ask a question about psychological problems via the Internet. In addition more than one-fifth says that patients can take a psychological self-evaluation or undergo treatment in combination with offline face-to-face interaction. Other possibilities, such as treatment that is not combined with offline face-to-face interaction, is offered by fewer psychiatrists.

Less than one-tenth of the healthcare users has completed a psychological self-evaluation and 1% have undergone (anonymous) treatment for psychological problems via a website. This data does not confirm the picture that the GGZ is a forerunner when it comes to using eHealth. However, it must be noted that the group of healthcare users is a cross-section of the Dutch population in which the proportion of people with psychological problems is limited. Of the healthcare users 1% have poor mental health and 6% have average mental health.

Online physiotherapy treatment is still unknown to six out of ten healthcare users who have visited a physiotherapist. It was used by 1% of the healthcare users who visited a physiotherapist.

1.1.4 Remote support

Particularly in long-term care there are various possibilities for providing patients⁴ with remote support.

Monitoring techniques are used the most frequently, such as motion detectors or fall detectors. These are used mainly in the care industry: supervisory techniques are used in the institutions of over half of the nurses and care providers who work in this industry. Other technologies, such as video calling and the use of medicine dispensers, are used by one in ten nurses and care providers in the institutions where they work.

1.1.5 Electronic health records

As is shown from international studies (Codagnone et al., 2013; Schoen et al., 2012), adoption of electronic health records among doctors in the Netherlands is very advanced. Ninety-eight percent of GPs and 75% of medical specialists maintain their patient files mainly or exclusively electronically. Nurses are not as far advanced in this respect as doctors, particularly in the care industry. In the care industry 31% maintain files mainly or exclusively electronically.

1.1.6 Contact between healthcare providers

In the area of the electronic exchange of information between healthcare providers there are also a lot of existing options, with GPs being the front runners. Nearly all GPs say they use a system to exchange information electronically with pharmacies, out-of-hours GP services, laboratories and hospitals (84-93%). Medical specialists report slightly less possibilities for information exchange; approximately half of them says they use a system to exchange information with GP practices or laboratories.

There is room and support for further improvement. It is remarkable that one-tenth of medical specialists say they are able to exchange information electronically with other hospitals, while three-fifths

⁴ In some healthcare sectors patients are referred to as clients. Where this is the case the word 'patient' can be read as 'client' throughout this report.

consider it a preferred option. Opportunities for exchange between cure and care are also limited; less than one-tenth of doctors uses a system to exchange information with home care organisations or nursing homes.

The other thing that is remarkable with respect to the information exchange between healthcare providers is that doctors are less able to exchange medication overviews than they would like to. Only one-third of GPs says they can electronically receive discharge medication instructions from a hospital and less than one-fifth of specialists can receive a current medication overview from a public pharmacy, while in both cases the majority of the doctors would prefer to be able to do so.

Another form of contact between healthcare providers that is broadly used is teledermatology, in which the GP takes a picture of the patient's skin and subsequently gets advice electronically from a dermatologist. Three quarters of GPs use this.

Video consults between doctors are not yet common practice. For one-fifth of the medical specialists this is an option for interaction between medical specialists in different care institutions.

1.2 Developments over time

In this paragraph we answer research topic 3. This is:

3. What developments are visible over time when it comes to availability and use of eHealth?

In 2014 few major shifts can be seen in the availability and use of eHealth compared to 2013. Below we discuss any differences that are visible⁵.

The awareness of healthcare users with respect to a number of possibilities for online contact with healthcare providers increased compared to 2013. This relates, for example, to the option of getting a repeat prescription from the GP via the Internet. Last year 21% of the healthcare users who had contact with their GP said this was possible, this year that percentage is 30%. The percentage of healthcare users who were aware of the option to make an appointment with the GP or medical specialist via the Internet increased from 7% to 13% for both examples.

There was no difference in the availability of online contact options (such as online appointments or repeat prescriptions) reported by GPs or medical specialists compared to 2013.

There is also an increase compared to 2013 with regard to the extent in which GPs and medical specialists maintain their patient files mainly or exclusively electronically. For GPs this percentage went from 93% to 98% and for medical specialists from 66% to 75%.

⁵ We limit ourselves to differences that are statistically significant ($p < 0.05$). In addition, some aspects could not be compared properly because the terms of reference have been amended following the experiences with the measurement in 2013. This applies, for example, to the electronic exchange of information between care providers.

In the area of decision-making support in medication monitoring and signalling potential high-risk situations we also see progress compared to last year. Medical specialists receive an alert regarding an allergy, intolerance or interaction between medicines more frequently than last year. GPs receive an alert regarding intolerances on the part of the patient more frequently than last year.

1.3 Factors and effects that influence usage

In this paragraph we answer research questions 4 and 5. These are:

4. *What factors influence the use of eHealth by healthcare providers and healthcare users (in a positive and negative sense)?*

5. *What effects do healthcare users and healthcare providers experience/ anticipate with respect to the use of eHealth applications?*

The results of this eHealth monitor show once again that there are major differences in the extent to which different eHealth applications are adopted. While some applications are already being used comprehensively, such as teleconsults in dermatology, others are still largely underutilised, such as video contact between doctor and patient.

To explain which factors influence the use of eHealth the questionnaire survey asked questions about obstacles preventing this use and about the positive effects of eHealth applications. The focus groups also looked at obstructive and stimulating factors. We look at this in detail in several places in this eHealth monitor. In this discussion we choose to have a closer look at four factors that obstruct a large-scale use of eHealth. These are matters that came to our particular attention in the study for this second edition of the eHealth monitor:

- unfortunately, eHealth in the workplace is still not always a matter of ‘plug and play’;
- process innovation is difficult;
- healthcare users and healthcare providers see insufficient added value in some applications;
- intended users are not always aware of the possibilities.

In the discussion of these four aspects we use the theory of Rogers to put the results of the questionnaires and focus groups in context. The five characteristics of innovations that influence the adoption of innovations according to Rogers offer a number of starting points for this. The first of these characteristics is ‘relative advantage’; this is the extent to which an innovation is experienced as being better than what existed before. Therefore, an innovation must fill a clear need. In addition, the results must be visible to others (‘observability’) and correspond with the values, experiences and needs of the users (‘compatibility’). Finally, innovations must be easy to understand and use (‘complexity’) and easy to try (‘trialability’).

1.3.1 The 'plug and play' myth

The expectations of policymakers and administrators are often high when it comes to eHealth, and the technical possibilities appear unlimited. But the everyday practice in the workplace is resistant. Among the doctors, for example, three quarters experience difficulties with having patient contact via the Internet. In addition to a lack of financial remuneration they also suffer from insufficient technical support and the shortage of adequately secured systems. Three-fifths of doctors also experience problems with the information exchange about patients, especially because it is difficult or impossible to link systems together.

During the focus group it was evident that GPs sometimes experience obvious advantages of eHealth. For example, GPs notice that patients like e-consults and online appointments. Such applications also reduce the time spent on the telephone. But GPs also comment that eHealth applications often still don't function without problems. For example, they are difficult to integrate with the GP information system, or it takes a lot of actions to perform a certain task.

Two-fifths of the nurses also experience problems when using ICT in patient care. Lack of time to properly study the applications is the leading cause, followed by a lack of technical support and a lack of knowledge and skills to apply this. In the focus group in particular, nurses and care providers said that they have a lot of problems with inadequate support when using the technology, and problems with the technology itself. With respect to the lack of support this concerns both insufficient technical support and insufficient training

to learn how to use the new technologies. People are given little time to get used to the new options because innovations follow each other (too) quickly. Nurses also talk about a high registration burden, which takes up a lot of their time. In practice it appears that the use of ICT does not really improve this situation, although the careful application of ICT could contribute to this. Problems with the technology itself include applications being unable to exchange information (lack of interoperability), wireless network connections not being sufficiently available (for example during the home care route), computer systems sometimes being slow or struggling with faults, or the operation being experienced as cumbersome.

This is how the difference between the positive expectations and the everyday reality are experienced in the workplace. The promise of 'plug and play' solutions that 'you can start right away' is not always kept. An eHealth application will not work if it is 'tossed over the wall' (as one nurse expressed it). Around half of the nurses therefore wants to be more involved in ICT innovations.

In terms of Rogers' model these issues can mostly be explained based on complexity: healthcare providers are faced with issues in the workplace that they experience as complicated, and receive insufficient help to deal with this complexity.

1.3.2 Process innovation is difficult

eHealth applications that are combined with changes in the care provision process have been proven particularly difficult to implement. The focus groups show that in cases where the work process changes

with the introduction of eHealth healthcare providers are faced with difficult questions that are not always easy to answer in advance. What if e-consult results in an increase in e-mails that have to be dealt with in the evening? Is proper triage still possible when making appointments online? Potential risks also constitute an obstacle to the implementation, for example when it comes to the security of medical data, the reliability of measuring values or information that is missing in electronic consults. For example, more than a quarter of GPs in the questionnaire survey feel that in online contact with patients the communication is not clear enough and that it is less efficient than telephone and face-to-face contact.

Some GPs feel that eHealth applications are not suitable for all patients. About personal health records, for example, one GP says: "It is too much hassle for a patient to properly maintain a personal health record. Some patients are capable of maintaining one properly, but they are few and far between. Furthermore, it is only relevant for certain conditions." GPs in the focus group do, however, expect that eHealth will ultimately start to contribute more to patient safety and self-management, but say that at this point they are noticing very little of the latter. They say they don't feel that there is a big demand among patients for more online options.

When it comes to online access for patients to their medical information the majority of the doctors also proves to be reticent (they don't want it or are not sure whether they want it), except on the point of prescribed medication. Among other things this reticence relates to, according to the focus group, the uncertainty

regarding the best way to provide access (with or without clarification), questions on how to organise the explanation of the results, and uncertainty as to how patients will experience this.

During the focus groups it became apparent that, despite these types of reservations, healthcare providers certainly do not reject the idea of eHealth. GPs refer to 'having cold feet'. There is an awareness that 'eHealth is coming' and that 'you have to start using it', but healthcare providers struggle with a lot of practical questions about the consequences for their work processes. In this context they can be a lot of help to each other: "How do you handle this?". For example, in the focus group with doctors we saw that a fellow practitioner had already found a solution for something that worried someone else, or that anticipated problems appear to be much less troublesome in practice. There was also a lot of interest in the question how this had been arranged. It is therefore important to promote knowledge exchange among fellow professionals, especially in the area of practical experiences, tips and 'best practices'.

In terms of Rogers' theory these issues come mainly under the aspect of compatibility: to what extent does the innovation correspond with the values, working methods and needs of the intended users? The bigger the demand that is being made on the preparedness to change the existing method, the more difficult it will be for an innovation to be accepted.

1.3.3 Healthcare users and healthcare providers see insufficient added value

The use of the different eHealth applications varies greatly. There are a number of appealing success stories,

for example teledermatology. However, at the same time we are still not seeing the large-scale use of a number of other applications. This applies, for example, to online access to health records for patients or for healthcare users maintaining their own health information online.

An explanation may be found in the extent to which eHealth applications fill a clear need. According to Rogers an innovation must deliver sufficient results for the person who has to make an effort to use it, which makes innovating attractive. It appears to be difficult to ensure that eHealth applications, for which there may be high expectations from a policy perspective, automatically meet that condition. In practice it is often the case that an eHealth application initially requires extra money and/or effort and does not (yet) provide sufficient added value for the person making that investment, or for the intended users.

This doesn't mean that no added value is currently being experienced at all. Positive effects of the use of eHealth named by doctors include: increased convenience for patients ('improving the accessibility of my practice', 'patients find it convenient'), modest efficiency benefits or an improved image ('it shows we are moving with the times').

Job convenience is also a motivating factor among healthcare providers. Nearly half (45%) of the nurses and care providers occasionally use mobile apps, such as the pharmacotherapeutic compass, various calculators and apps that make it possible to update the actual schedule for home visits on a tablet computer. According to GPs in the focus group the reduction in the

time spent on telephone calls proves to be a significant motivation to enable appointments via the Internet.

Healthcare users, according to the focus group, also appreciate applications that result in an instant convenience, such as making appointments via the Internet and renewing prescriptions online. However, when it comes to applications that require more personal effort on the part of the healthcare users, such as being able to maintain their own health data, around two-fifth of respondents in the questionnaire survey say they don't want this. With regard to screen-to-screen video contact (for example with the GP) healthcare users are also reticent. In the focus group they said they were worried that something would be lost when compared to face-to-face contact, for example certain observations a GP can make when the patient visits the practice.

Sometimes the use of eHealth results in a clear and concrete benefit for one person, but not for someone else. A diabetes patient in our study indicated that, thanks to a continuous glucose monitor loaned to her by her healthcare provider, she could make sure that her blood sugar levels remained steadier. However, she was only able to use this machine for a limited time because her healthcare provider was only reimbursed for a maximum of twenty machines. The healthcare provider had to invest in any machines over and above this number.

For a real, large-scale use of eHealth a good balance is needed between the investment (in terms of money and effort) and the experienced added value (improved care, convenience and financial benefits). This applies to healthcare providers, care institutions and healthcare

users alike. The limited use of some eHealth applications, such as online access to their own health records for patients, or the possibility for healthcare users to maintain their own health data, shows that in these areas this balance is still insufficiently positive for at least a proportion of those involved.

1.3.4 Lack of awareness of the possibilities

As in 2013, it is notable that for healthcare users the visibility of what is possible at their healthcare providers remains limited. Many people don't know what online services their GP, dentist, physiotherapist or medical specialist offers. The same applies to applications of which healthcare users say that they would use them if they applied to them. It is therefore likely that this lack of awareness means that the use of the available applications is not optimal.

In addition to a lack of awareness among healthcare users of the possibilities offered by healthcare providers there is sometimes also a lack of understanding among healthcare users and healthcare providers about each other's needs and preferences. For example, some doctors question whether their patients need online access to their health records, while some patients feel that their doctor is conservative in this area. At the same time approximately half of the healthcare users indicates that they want access to their health records and half of the GPs also indicates they are prepared to give access to medication details. Improved awareness of the needs and preferences of the other party can contribute to preferred applications becoming available sooner.

1.4 Discussion

The answers to the research topics lead to a number of

discussion points that are interesting enough to look at more closely. To start with we observe that a number of recommendations we made last year are still valid today:

- making healthcare users aware of the possibilities;
- giving patients online access to their health records, starting with the medication records;
- investing in information exchange;
- increasing the eHealth expertise among healthcare providers.

The most important new recommendation is to focus strongly on tangible added value.

1.4.1 Visibility

In the first place it is noticeable that few people know what online services their GP, dentist, physiotherapist or medical specialist offers.

Healthcare providers play an important role in making people aware of the possibilities. They indicate they are already paying attention to this aspect. For example, half of the GPs says that during a personal consult they draw people's attention to the available online options offered by the practice and more than half say they sometimes recommend a mobile app to patients. Apparently this is not yet translating into a high level of awareness of these applications among healthcare users. It may be interesting for physicians' organisations and patient organisations to jointly look for ways to make the information about the possibilities more effective. This may also be an opportunity for the KNMG and the NPCF in the context of the e-Health Implementation Agenda (KNMG, Nictiz, NPCF, ZN, VZVZ, Zorginstituut Nederland, 2014). In practice, patients and healthcare providers can also enter into the discussion about each other's

expectations, for example with regard to online possibilities, so that a more realistic picture of these possibilities can be created.

1.4.2 Online access to health records for patients

In the area of online access to health records for patients the possibilities are currently still limited. Earlier in this chapter we mentioned a certain reticence among doctors with regard to this point, particularly because of questions as to how this kind of access can best be organised from a practical point of view. Approximately half of the healthcare users indicated they would like access.

A good starting point, about which there is little debate, is access to medication. There is support for this among healthcare users (half wants access to their medical data) as well as healthcare providers: 48% of the GPs are willing to give online access to medication and a further 12% have plans to this effect. Sharing this information makes it possible for a better picture to emerge about the current medication usage of patients. In chapter 2 we noted that some initiatives have now been started with regard to this point.

1.4.3 Wanting and not wanting

On several occasions we asked healthcare users and healthcare providers whether they use certain eHealth-possibilities and, if not, whether they would want to if it were applicable. This is a hypothetical question that is often difficult to answer, because people can't always picture exactly what is being asked. Neither is an intention the same as actually doing something. The fact that people have actually used something is therefore a better measure than the wish to do so. Still, these questions provide insight into the attitude people

have with respect to different eHealth applications. Differences between the size of the groups that would or would not want to use an eHealth application are particularly interesting, as they give an indication of the applications that are more for less attractive at this point.

1.4.4 Knowledge sharing between healthcare providers

Earlier in this chapter we noted that healthcare providers have a lot of questions about how the changes to the process that will accompany the introduction of eHealth are best dealt with. We noticed that there is a significant need for the mutual exchange of practical experiences with eHealth between fellow practitioners. This applies to both doctors and nurses. Regional support structures and professional associations may play a role in this respect.

In the implementation of eHealth in the workplace more attention is needed for support and the promotion of expertise of nurses and healthcare providers. This will better prepare them to resolve any problems themselves, and any problems they cannot resolve themselves will be noted sooner. Involving nurses and care providers more closely in the implementation of eHealth applications can also result in these applications being used more. The attention for this aspect can possibly be enhanced if organisations for nursing and care providers are involved more in collaborations like the EHealth Implementation Agenda.

1.4.5 Support for data exchange

In this monitor we asked for concrete examples of information exchange between individual healthcare

providers. In nearly all cases in which healthcare providers say that certain methods of sending or receiving information electronically are not yet possible, a large group indicates that they would definitely prefer to have that option. This means that there is a high level of support among healthcare providers for expanding the mutual electronic exchange of information. Healthcare providers feel that this leads to more up-to-date and complete information, that information about patients is available sooner, and that it improves the quality and efficiency of the care. At the same time they consider the fact that systems are difficult to link or cannot be linked at all as the biggest obstacle, so there is good reason to resolve that situation. The results of this monitor confirm the importance of the information exchange programme announced by VWS (Minister and State Secretary of VWS, 2014).

1.4.6 On the road to added value

One lesson the results from the 2014 eHealth monitor teaches us is that, despite the promises of greater personal control or better care for the patient, for example, the added value of some eHealth applications is still not being sufficiently perceived. Consider, for example, online access to health records for patients or the ability to maintain their own health information. For broad groups of healthcare users and healthcare providers a better balance is needed between added value - for example in the form of greater personal control or improved care - and the investments in time and money.

Aiming for tangible added value is not easy. It demands a joint effort by the government, healthcare providers,

patient organisations, insurance companies and the business community. The objectives outlined in the recent policy letter regarding eHealth and healthcare innovation (Minister and State Secretary of VWS, 2014) provide a good starting point for this joint effort.

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Colophon

Auteurs:

Johan Krijgsman

José Peeters

Arina Burghouts

Anne Brabers

Judith de Jong

Fernao Beenkens

Roland Friele

Lies van Gennip

Supervisory Committee:

Guus Schrijvers, Chairman

Erwin Eisinger (Ministry of VWS)

Titia Lekkerkerk (NPCF)

Annemiek Mulder (Actiz)

Sjaak Nouwt (KNMG)

Bernadette van Oost (NPCF)

Michiel Sprenger (Nictiz)

Albert Versteegde (Zorgverzekeraars Nederland)

Erna Vreeke (V&VN)

Maaïke Wijnhoud (Ministry of VWS)

This report is accompanied by a separate list of tables, the 'table appendix 2014 eHealth monitor' (only available in Dutch).

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Nictiz

Visiting address

Oude Middenweg 55
2491 AC The Hague
The Netherlands
T 070 31 73 450
F 070 32 07 437

www.nictiz.nl

Postal address

P.O. Box 19121
2500 CC The Hague
The Netherlands

Nivel

Visiting address

Otterstraat 118 – 124
3513 CR Utrecht
The Netherlands
T 030 27 29 700
F 030 27 29 729

www.nivel.nl

Postal address

P.O. Box 1568
3500 BN Utrecht
The Netherlands