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# *The digital patient is here – but is healthcare ready?*



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*A study involving more than 1,000 doctors and nurses, conducted in spring 2016 by PwC in collaboration with the Swedish eHealth Agency, the Swedish Association of Health Professionals and the Swedish Medical Association.*

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# Summary

*The Swedish healthcare system, while being among the highest ranked in the world<sup>1</sup>, is under pressure, with a population that is getting older, sicker and increasingly overweight. The healthcare system is simultaneously undergoing a series of changes driven by rising demands as well as emerging needs. Citizens are at the centre of this change, having raised expectations on how healthcare should be delivered in an increasingly digitalised world.*

Other industries, such as banking and retail, have undergone similar shifts over the past few decades, resulting in higher levels of effectiveness and customer-centricity thanks to the implementation of new technologies and ways of working. Healthcare in Sweden has begun to embrace such developments as well, with the Swedish government and Swedish Association of Local Authorities and Regions recently launching a joint vision for e-health.

In spring 2015, PwC conducted a survey to explore what the general public in Sweden thought of digitalisation within healthcare, in particular how they would like to interact with the healthcare system via digital services. The study showed that respondents were open to

new digital and virtual care solutions, and would love to relate to healthcare with the help of modern technologies.

The current study, conducted a year later by PwC in collaboration with the Swedish eHealth Agency, the Swedish Association of Health Professionals and the Swedish Medical Association, posed similar questions to healthcare personnel in spring 2016. This study reveals that respondents from healthcare also see the possibilities within digital and virtual care solutions:

- 66% of respondents believe that virtual visits, for instance via video-calls, could replace at least a portion of in-person visits to a doctor or nurse.
- Less than 1 in 10 respondents currently recommend health-related apps to their patients as a part of treatment or followup, but 7 in 10 would be willing to recommend such apps in the future.
- 62% would like to be involved in developing apps that benefit patients.
- 59% to 88% of respondents believe that it would be at least somewhat possible to assess a patient's care needs based on "do-it-yourself" (DIY) solutions, depending on the type of solution.
- 3 in 5 respondents see digital solutions as a means of improving care for the chronically ill, and 44% believe that digital care solutions will become a natural part of care for the chronically ill within the next five years.



Healthcare should be patient-centric, integrated, sustainable and equitable. In order to meet these expectations that patients and healthcare personnel have on healthcare, there needs to be an understanding for how healthcare can develop into an organisation that takes full advantage of digital and virtual solutions. Accordingly, engaging in dialogue with the primary users of such solutions, i.e. both citizens and healthcare personnel, is critical to this process. Both forementioned studies on digital and virtual care indicate that concerns exist among these users in relation to such solutions, for instance how they impact on quality of care, the maintenance of personal contact between patient and healthcare personnel, healthcare consumption, and equity of care. These concerns should be considered, and their associated

1. The Guardian. 2016. Swedish healthcare is the best in the world, but there are still lessons to learn. [ONLINE] <http://www.theguardian.com/public-leaders-network/2014/jan/03/sweden-healthcare-coordinate-oecd>



potential risks addressed, through dialogue and clear communication on if, when and where digital and virtual solutions are best suited for use.

In addition, it is important to take into account other factors such as governance, reimbursement models, functionality and usability of solutions, competence, communication and collaboration. Incentives are needed to encourage the use of preventive and proactive measures within healthcare which are in turn supported by digitalisation. Healthcare personnel should receive the support and resources they need to keep pace with the changes that digitalisation brings. We should also consider how digitalisation impacts the way hospitals are built and healthcare personnel are educated and trained. And perhaps most importantly,

there must be clear and courageous leadership at all levels – nationally, regionally and locally. These leaders must be willing to work across boundaries and drive the changes that create value for citizens and patients, more often asking “how” rather than “if”!

We look forward to discussing this study with you and other interested parties in order to jointly achieve our shared vision for the future of healthcare in Sweden.

Happy reading and do not hesitate to contact us for further dialogue!

*Jon Arwidson & Sarah Lidé*



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# Introduction

## Healthcare is under pressure

Around the world, populations are becoming older, sicker and increasingly overweight. In Sweden, 24% of the country's population are aged above 60, 20% are obese and 44% live with at least one chronic disease. All of this contributes to the tremendous pressure faced by the healthcare system today, particularly in terms of rising healthcare costs that are estimated to grow from 9.6% of GDP in 2012 to 16% of GDP by the year 2050.

Furthermore, quality and access to healthcare are inequitably distributed across the country, and the care that is provided does not always meet the needs of the citizens.<sup>2</sup> Citizens' expectations of the healthcare system has changed, with many desiring to be independent, while being involved and having influence and control over the issues and decisions that impact their health and situations in life.

Digitalisation has impacted the way other industries, such as banking, retail and travel, interact with consumers. The public sector is also increasing its uptake of digitalisation. In autumn 2015, the Swedish government and the Swedish Association of Local Authorities and Regions (SALAR) presented a joint plan

for the digitalisation of the public sector, with "digital first" being the key words in the plan.<sup>3</sup> When it comes to the digitalisation of healthcare, the Swedish government and SALAR jointly developed a vision for e-health in spring 2016. The vision states that: *"By 2025, Sweden will be the best in the world in leveraging the opportunities that digitalisation creates, with the aim of enabling people to achieve good and equitable health and welfare as well as develop and strengthen their own resources for increased independence and participation in society."*<sup>4</sup> The vision emphasises the individual, as well as personnel within health and social care, as key target groups.

Digitalisation's potential is far from being realised within healthcare. The digital patient is here, but is healthcare ready?

## Background to the study

In spring 2015, audit and advisory firm PwC conducted the study "The doctor is in – your smartphone".<sup>5</sup> In the study, more than 1,000 persons in Sweden answered a series of questions on their perspectives towards digital and virtual care solutions. The study showed that respondents were open to solutions that could increase access to care, and that the potential exists for the better utilisation of resources within the Swedish healthcare system.

Given these findings, PwC, in collaboration with the Swedish eHealth Agency, the Swedish Association of Health Professionals and the Swedish Medical Association, has conducted a study to understand the needs, willingness and perspectives of doctors and nurses<sup>6</sup> in relation to digital and virtual care solutions. The study aims to highlight the conditions that these healthcare professionals believe should be in place in order for the healthcare system to undergo a true digital transformation.

This study is based on a web survey that was answered by more than 1,000 doctors and nurses in spring 2016. The

2. Socialstyrelsen. 2015. Öppna jämförelser 2015 - Hälso- och sjukvård. [ONLINE] <http://www.socialstyrelsen.se/Lists/Artikellkatalog/Attachments/20016/2015-12-34.pdf>

3. Regeringskansliet. 2015. Nu digitaliserar vi det offentliga Sverige. [ONLINE] <http://www.regeringen.se/pressmeddelanden/2015/10/nu-digitaliserar-vi-det-offentliga-sverige/>

4. SKL. 2016. Visionen för e-hälsoarbetet: Bäst i världen 2025. [ONLINE] <http://skl.se/tjanster/press/nyheter/nyhetsarkiv2016/visionenforehalsoarbetetbastivarlden2025.8687.html>

5. PwC. 2015. The doctor is in – your smartphone: Is Sweden ready for digital and virtual care? [ONLINE] <http://www.pwc.se/sv/halso-sjukvard/digitala-doktorn-kan-komma.html>

6. In our study, the use of the term "nurses" includes both nurses and midwives.



quantitative results of the survey has been further complemented with input from workshops and interviews conducted with, among others, representatives from health and social care, companies<sup>7</sup>, politicians, decision makers, and researchers. The aim with these workshops and interviews was to provide a better understanding of what these actors deem as necessary to bring about change.<sup>8</sup>

## Definitions

### **What is e-health?**

In its simplest form, health is defined as physical, mental and social wellbeing (according to the World Health Organization). There are various definitions for e-health, but we have adopted the description set forth by the National Board of Health and Welfare in Sweden: "E-health is the use of digital tools and exchange of information digitally in order to achieve and maintain health".

### **What is digitalisation?**

According to the 2025 vision for e-health, digitalisation includes both the digitalisation of information, i.e. the process in which analog information is converted into digital format, as well as the digitalisation of society, i.e. the larger societal process where different forms of IT support are more closely integrated into business operations and fundamentally affects them.

### **What is digital care?**

Digital care is the use of digital tools and technology to deliver and have access to care and health information. Digital care includes mobile health solutions which are sometimes referred to as "mHealth".

Virtual care services are often delivered with the help of mobile units, smartphones or tablets, wireless medical monitors or remote sensors. This means that healthcare personnel and/or patients can communicate, share information or monitor health statuses in different situations.

### **What is virtual care?**

Virtual care (more frequently known as remote care or telemedicine in Sweden) enables healthcare personnel to collaborate with patients and each other via a digital interface and deliver care remotely. This means that, for example, healthcare personnel can collect patient data in different ways and then diagnose and provide treatment to the patient in their home via videoconference or internet-based channels.

7. These include pharma, medtech, e-health and telco companies.

8. There are a number of ongoing studies that are examining how statutory support should be developed to create opportunities for a well-functioning flow of information between healthcare providers while taking into account the patient's privacy and right for self-determination. This report will not delve deeper into this area but recognises that this is something that needs to be done urgently.

# Is healthcare ready to connect the willing?

Sweden's citizens are among the world's most digitally mature. In 2015 more than 90% of the nation's population had access to computers and the internet, and 8 out of 10 used the internet at home on a daily basis. Almost 6 in 10 owned a tablet and 3 out of 4 had a smartphone.<sup>9</sup>

Our study shows that those who work within healthcare are even more digitally mature than the general population, based on the extent to which they use smartphones and tablets in their private lives. More than 9 out of 10 respondents in this study have indicated that they sometimes or often use a smartphone, and almost 7 out of 10, a tablet. Figure 1 reveals however that the use of such digital tools is significantly lower in interactions involving patients as compared to the extent of use in private life.

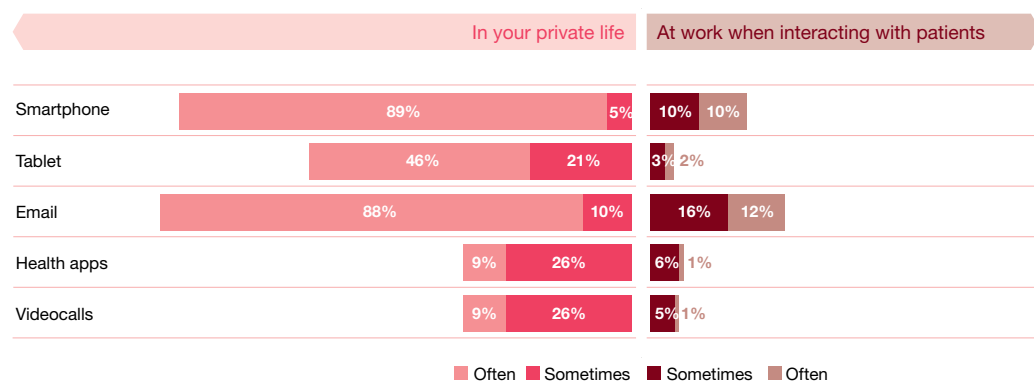
An example of this difference can be seen in the use of videocalls. While 35% of healthcare personnel use videocalls

in their private lives, only 6% use them when interacting with patients. At the same time, 1 in 5 Swedes would be willing to receive care via video<sup>10</sup>, and two-thirds of respondents in this study believe that virtual visits such as those conducted via video could replace at least some in-person patient visits within their business unit. This example clearly shows the potential for the increased adoption of virtual care.

In particular, those working within primary care (comprising 19% of all respondents) were most positive to providing care remotely, with close to 9 out of 10 indicating that at least a portion of in-person patient visits could be conducted virtually instead.

Figure 1. The extent to which healthcare personnel use digital tools in their private lives and while at work.

To what extent do you use the following digital tools...



9. 2015. Svenskarna och internet 2015 | En årlig studie av svenska folkets internetvanor. [ONLINE] <http://www.soi2015.se/>

10. PwC. 2015. The doctor is in – your smartphone: Is Sweden ready for digital and virtual care? [ONLINE] <http://www.pwc.se/sv/halso-sjukvard/digitala-doktorn-kan-komma.html>



## Analysis

The interaction that occurs when healthcare personnel and patients meet is valuable to both parties, but such meetings do not always have to be conducted in person. A digitally mature population paves the way for virtual meetings to become a real alternative.

Our study shows that those working in primary care are the most positively inclined towards more virtual care visits. Such virtual meeting solutions can allow caregivers to reach patients who have a difficult time accessing traditional healthcare environments. Digital solutions can also streamline the process of patient administration and documentation by, for example, allowing healthcare personnel to have full access to patient journals and other relevant information when conducting home visits.

For digital and virtual solutions to be successful, a clear message must be communicated to both citizens and healthcare personnel that such solutions are a complement to, rather than a replacement of, traditional healthcare. The purpose

of these solutions should be to simplify everyday life for users. In cases where digital healthcare centres have been introduced, the goal has been to provide care to patients in a way that best fits their needs. Such initiatives can enable local health centres and emergency departments to better plan their activities and prioritise patients.<sup>23</sup>

Is healthcare ready to connect the willing? This study indicates that the answer is yes, but it is important to recognise the extensive work that is needed to develop the right conditions for this change. Some of these conditions include the adjustment of reimbursement models, seamless integration between digital and traditional care, and clear evaluation and systematic monitoring of the quality of the care provided.

23. Hälsans nya verktyg. Videomöten i telefonen ökar tillgängligheten i primärvården. [ONLINE] <http://www.halsansnyaverktyg.se/case/videomoten-i-telefonen-okar-tillgangligheten-i-primarvardern/>

An example of a successful implementation of virtual care can be found in Region Jönköping. Since 2012, the region has, at selected local health centres, offered cognitive behavioural therapy (CBT) via the internet as a treatment option for patients. This has worked so well that it will be introduced throughout the entire region in 2016.<sup>11, 12</sup> The Stockholm County Council is also offering internet-based CBT treatment, called "Internetpsykiatri", for persons with depression, panic disorders or social phobia. Studies have shown that the effect of internet-based CBT treatment with minimal treatment support is comparable to both traditional individual and group treatment methods.<sup>13</sup>

## Example – virtual visits within primary care

Access to primary care continues to be a challenge in Sweden. According to a 2015 study by the Swedish Agency for Health and Care Services Analysis (Vårdanalys), 42% of primary care doctors in Sweden believed that a majority of patients were able to see a doctor within two days, which is low when compared to other participating countries in the study. This number was also lower compared to a similar study conducted in 2012 (57%).<sup>14</sup> This supports the findings of another study by Vårdanalys, where, among patients aged 55 years and above, only 46% were able to book an appointment with a doctor or nurse within two days.<sup>15</sup> Increasing the proportion of virtual visits in relation to in-person visits has the potential to not only increase access to primary care, but to also raise annual GDP productivity by 1.4 billion SEK through time saved from patients no longer requiring travel to and from primary care centres. This equates to approximately 330,000 working days per year!<sup>16</sup> The use of virtual care solutions does not have to be limited to patient-doctor visits; it could enable nurses to have initial contact with patients in order to evaluate their care needs.

Access to care outside of regular working hours is also an important area to consider. According to Vårdanalys, only 28% of patients who sought care outside of office hours said that it was easy or rather easy to get access to care without visiting the emergency room. At the same time, almost one-third of emergency room patients believed that their healthcare issue could have been treated by primary care.<sup>17</sup> Providing virtual visits as an option for consultations outside office hours could improve the quality of care by increasing access and possibly free up or reallocate healthcare resources, as well as ease the load on emergency rooms.

A study conducted by the Swedish National Audit Office indicated that primary care has become less accessible for patients with more intense healthcare needs. Proximity to a local health centre is particularly important for such patients, and there is a correlation between primary care visits and factors such as income and education.<sup>18</sup> Virtual visits can therefore complement in-person visits to ensure all patient groups have equitable access to care.

However, virtual care visits should not, and do not have to, compromise the quality of care. In a study published by JAMA Internal Medicine in May 2016, actors playing patients consulted doctors virtually for common ailments such as ankle pain, a sore throat and pain in the lower back. 76.5% of these patients received a correct diagnosis, and the level of drug prescriptions was similar to that of corresponding in-person visits. 14.5% of patients received a wrong diagnosis, which is comparable to the 10–20% of misdiagnoses from a traditional visit.<sup>19</sup>

An example of a virtual care solution is Bra Liv Nära, an initiative started by Region Jönköping. Since December 2015, the region has offered virtual visits via video along with traditional in-person visits and contact over telephone.<sup>20</sup> This is achieved through an app called Kry, where both doctor and patient log in with their bank ID. In the app, the patient can see which symptoms are best suited for a video visit, choose an appointment time, fill in their symptoms and even upload photos. Like a traditional in-person visit, each virtual visit lasts 15 minutes and is held with either a doctor or a physiotherapist depending on the symptoms. The cost of the visit for the patient is the same as that of a normal in-person visit at a local health centre.<sup>21, 22</sup>

11. Sveriges Radio. 2016. Vården blir mer digital - P4 Jönköping. [ONLINE] <http://sverigesradio.se/sida/artikel.aspx?programid=91&artikel=6381236>  
12. SKL. 2016. Satsning på internetbaserat stöd och behandling i Jönköpings län. [ONLINE] <http://skl.se/halsasjukvard/ehalsa/nyhetsarkivehalsa/arkivehalsa/satsningpainternetbaseratstodochbehandlingijonkopingslan.7662.html>  
13. 2016. Internetpsykiatri. [ONLINE] <http://web.internetpsykiatri.se/>

14. Vårdanalys. 2015. Vården ur primärvårdsläkarnas perspektiv. [ONLINE] <http://www.vardanalys.se/Rapporter/2015/Varden-ur-primarvardslakarnas-perspektiv/>  
15. Vårdanalys. 2014. Vården ur patienternas perspektiv - Jämförelser mellan Sverige och 10 andra länder. [ONLINE] <http://www.vardanalys.se/Rapporter/2014/Varden-ur-patienternas-perspektiv--Jamforelser-mellan-Sverige-och-10-andra-lander/>  
16. PwC analysis. Calculated based on the current number of primary visits in Sweden by those aged between 18–64 years, and GDP generated per capita per hour worked according to the OECD. The following assumptions were used: one-third of primary care visits can be held virtually instead of in-person, and there is an average time savings of one hour per visit (including travel and waiting time).  
17. Vårdanalys. 2014. Vården ur patienternas perspektiv - Jämförelser mellan Sverige och 10 andra länder. [ONLINE] <http://www.vardanalys.se/Rapporter/2014/Varden-ur-patienternas-perspektiv--Jamforelser-mellan-Sverige-och-10-andra-lander/>

18. Riksrevisionen. 2014. Primärvårdens styrning - efter behov eller efterfrågan? [ONLINE] [http://www.riksrevisionen.se/Page-Files/2016/RIR\\_2014\\_22\\_%20v%C3%A5rdval\\_Anpassad\\_2.pdf](http://www.riksrevisionen.se/Page-Files/2016/RIR_2014_22_%20v%C3%A5rdval_Anpassad_2.pdf)  
19. Schoenfeld et al. 2016. Variation in Quality of Urgent Health Care Provided During Commercial Virtual Visits. [ONLINE] <http://archinte.jamanetwork.com/article.aspx?articleid=2511324>  
20. Läkartidningen. 2015. Läkarbesök på videolänk är nu del av landstingsutbudet i Jönköping. [ONLINE] <http://www.lakartidningen.se/Aktuellt/Nyheter/2015/12/Lakarbesok-pa-videolank-nu-del-av-landstingsutbudet-i-Jonkoping/>  
21. Nwt.se. 2015. Smygstart med läkare online. [ONLINE] <http://nwt.se/varmland/2015/12/15/smygstart-med-lakare-online>  
22. Region Jönköpings län. 2016. Bra Liv nära - alltid nära dig, Vårdcentralerna Bra Liv. [ONLINE] <http://rjl.se/vardcentralerna-braliv/Utbud-och-tjanster/bralivnara/>

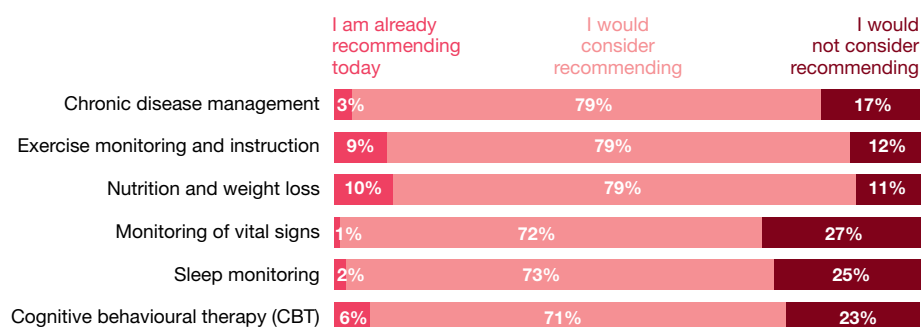
# Is healthcare ready to help patients help themselves?

*The forementioned digital maturity of the Swedish population is further evidenced in their use of mobile apps. 44% of persons in Sweden say that they have at least one app on their smartphone or tablet that relates to health, lifestyle or medicine.<sup>24</sup> This proportion is clearly higher than in the US, where 28% own such an app<sup>25</sup>, or in the UK where 25% have a health-related app on their smartphone or tablet.<sup>26</sup>*

Despite this, only a small percentage of healthcare personnel, barely 1 out of 10, currently recommend patients to use apps as a part of treatment or followup, and the apps they do recommend mainly relate to lifestyle management such as diet and exercise (Figure 2). At the same time, as many as 7 out of 10 would be willing to recommend apps to their patients in the future. Close to two-thirds of respondents have also stated that they would be interested in getting involved in the development of apps that benefit patients. Younger healthcare personnel are particularly interested in this, with three-quarters of respondents under 40 years old indicating their interest to be involved in the development of such apps. The results further seem to indicate that doctors are more willing than nurses to recommend apps and be involved in app development.

**Figure 2. The proportion of healthcare personnel who are currently recommending or would, in future, recommend a health-related app to their patients.**

To what extent would you recommend your patients an app as part of treatment and follow-up in the following areas:



There seems to be a similar openness among citizens and healthcare personnel when it relates to "do-it-yourself" (DIY) solutions, where an ailment can be diagnosed remotely through the patient's use of test kits at home with the results of these tests sent digitally to a doctor for evaluation (Figure 3). Depending on the type of diagnostic solution, 45% to 62% of citizens are in favour of using such solutions.<sup>27</sup> Healthcare personnel also see the potential in the use of these types of solutions to assess care needs – depending on the type of solution, 59% to 88% believe that it would be at least somewhat possible to evaluate a patient's care

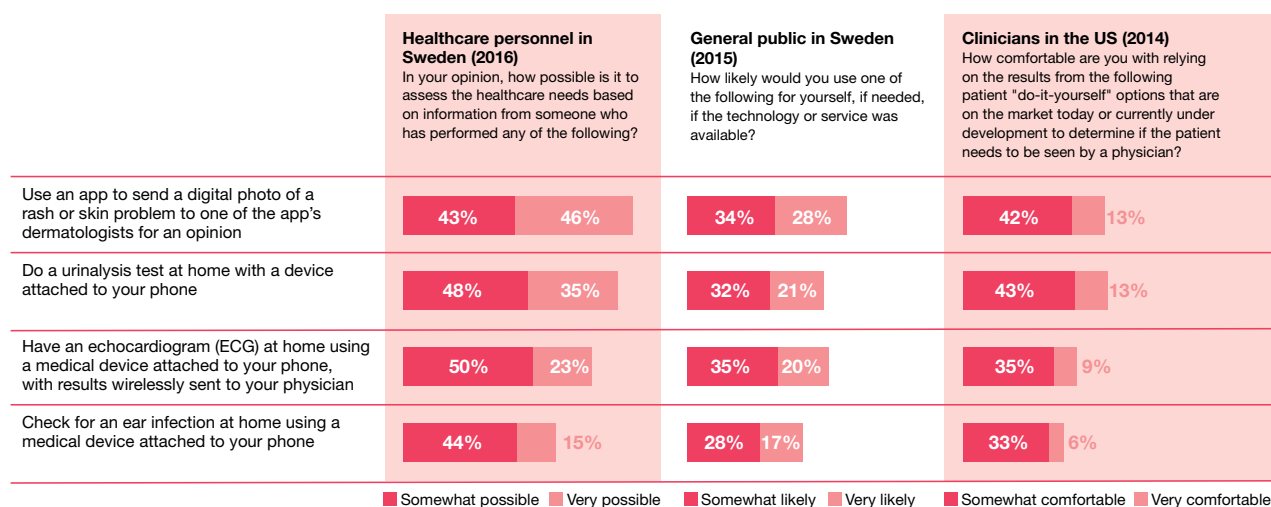
needs with the help of these DIY solutions. In particular, the virtual diagnosis of skin conditions seems to be the most popular solution among both citizens and healthcare personnel. Swedish healthcare personnel in turn are aligned with their American colleagues in seeing the potential behind these DIY solutions.

24. PwC. 2015. The doctor is in – your smartphone: Is Sweden ready for digital and virtual care? [ONLINE] <http://www.pwc.se/sv/halso-sjukvard/digitala-doktorn-kan-komma.html>  
 25. PwC. 2014. Healthcare delivery of the future – How digital technology can bridge time and distance between clinicians and consumers. [ONLINE] <https://www.pwc.se/sv/halso-sjukvard/assets/healthcare-delivery-of-the-future.pdf>

26. PwC. 2016. Capture the growth – The opportunities for new entrants in healthcare and wellbeing. [ONLINE] <http://www.pwc.co.uk/industries/healthcare/insights/capture-the-growth-the-opportunities-for-new-entrants-in-healthcare-and-wellbeing.html>  
 27. PwC. 2015. The doctor is in – your smartphone: Is Sweden ready for digital and virtual care? [ONLINE] <http://www.pwc.se/sv/halso-sjukvard/digitala-doktorn-kan-komma.html>

*Strengthening the position of the patient is, according to several studies, an effective way of improving outcomes in healthcare. In the long term it also leads to a more effective use of healthcare resources.<sup>31</sup>*

**Figure 3. The attitudes of healthcare personnel and the general public in Sweden, as well as clinicians in the US, towards the use of DIY solutions for diagnosis.**



## Analysis

Despite having a digitally mature population that are positive towards using apps and other digital solutions, the use of such solutions is still limited within healthcare. Digital tools such as health-related apps can be an effective way of engaging patients in their own health and thereby enabling them to take greater responsibility in living a healthy lifestyle. Such tools can also provide patients with the opportunity to share their health information with loved ones, allowing those within the patients' support network to get more closely involved where desired. The interest of healthcare personnel to be a part of developing apps that benefit patients should also be encouraged and supported. It is essential that the main users of such solutions – healthcare personnel and patients – participate in the development of new tools and processes for them to be truly successful.

In addition, apps and remote diagnostic solutions must have a proven track record and demonstrate they are scientifically robust for

healthcare personnel to be more comfortable with recommending or advocating such solutions to patients. Certifications or other labels could be used to indicate that the product lives up to certain quality standards. Evaluating the clinical relevance of these solutions is another important step in this process.

The Swedish Medical Products Agency, which oversees medical devices, encourages users of medical apps to ensure that they are CE-marked. The agency however has admitted that it is not able to keep track of all the apps out in the market.<sup>28</sup> There are over 165,000 health-related apps in the market today, with thousands of new health apps released every year.<sup>29</sup> The UK's National Health Service (NHS) launched a library of health apps in 2013 that contained a selection of apps reviewed by the NHS, but it has had problems with keeping the library up to date. A new app curation initiative, Ranked Health from the US-based and non-profit Hacking Medicine Institute, evaluates apps in largely the same way as academic medical

journals peer review research. Reviewers study each app and then publish a public review that describes the app's intended use and rates its clinical effectiveness, functionality and usability.<sup>30</sup> Ranked Health, however, had only 17 reviewed apps as of May 2016, so it remains to be seen if such an approach is scalable to address the ever-growing app market.

Is healthcare ready to help patients help themselves? The study indicates this to be the case, so long as healthcare personnel are provided with the right support and conditions. Quality assurance, monitoring and the evaluation of the apps and DIY solutions' clinical relevance are key for healthcare personnel to feel comfortable in recommending such solutions to their patients. The integration of patient data from these solutions with patient medical records or other health information systems can also enable caregivers to make more informed decisions regarding their patients.

28. Dagens Medicin. 2015. Läkemiddelsverket maktar inte kontrollera hälsoappar - Riksstämman. [ONLINE] <http://www.dagensmedicin.se/artiklar/2015/12/03/lakemedelsverket-maktar-inte-kontrollera-halsoappar/>

29. The Economist. 2016. Things are looking app. [ONLINE] <http://www.economist.com/news/business/21694523-mobile-health-apps-are-becoming-more-capable-and-potentially-rather-useful-things-are-looking>

30. Chilmark Research. 2016. A Different Approach to Health App Curation. [ONLINE] <http://www.chilmarkresearch.com/2016/05/16/a-different-approach-to-health-app-curation/>

31. Regeringskansliet. 2016. Effektiv vård - Slutbetänkande av En nationell samordnare för effektivare resursutnyttjande inom hälso- och sjukvården. [ONLINE] <http://www.regeringen.se/rattsdokument/statens-offentliga-utredningar/2016/01/sou-2016/2/>

# Can digitalisation help those who need care most?

Today, approximately 3–4% of patients account for nearly half of all healthcare costs in Sweden, and persons with one or more chronic diseases contribute to around 85% of total healthcare expenditure.<sup>32</sup> The prevalence of chronic disease is naturally related to age and the population will continue to grow older, with the proportion of the population aged 85 years and above set to double by the year 2050.<sup>33</sup>

At the same time, based on an international study, Sweden is falling behind when it comes to patient satisfaction among those with chronic disease.<sup>34</sup> Patients perceive that they lack sufficient dialogue with their doctor on how they can manage their disease, and that healthcare personnel are not taking responsibility for coordinating their care with other relevant actors.

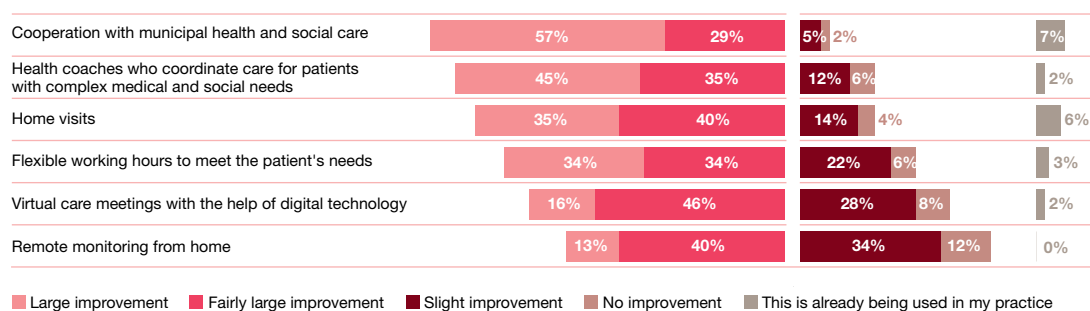
Accordingly, our study shows that healthcare personnel believe that solutions which enable the coordination of care are most important in improving chronic disease management (Figure 4).

However, only half say that they have the time, mandate and support they need to coordinate care for their patients (Figure 5). This indicates the need for change in the conditions supporting the coordination of care. Implementing digital solutions that promote coordination between caregivers while facilitating contact between patients and caregivers can serve to improve the quality of life and care for the chronically ill.

In some parts of Västra Götaland county, care planning can be conducted via video as an alternative to in-person meetings or via telephone, with all parties given the

**Figure 4. The perception of healthcare personnel towards the use of innovative solutions in improving chronic disease management.**

To what extent do you believe that the care of patients with one or more chronic diseases would be improved with the help of the following?



32. Regeringskansliet. 2016. Effektiv vård - Slutbetänkande av En nationell samordnare för effektivare resursutnyttjande inom hälso- och sjukvården. [ONLINE] <http://www.regeringen.se/ratts-dokument/statens-offentliga-utredningar/2016/01/sou-20162/>

33. Regeringskansliet. 2010. Den ljusnande framtid är vård - Delresultat från LEV-projektet. [ONLINE] <http://www.regeringen.se/rapporter/2010/06/s2010.021/>

34. Vårdanalys. 2014. Vården ur patienternas perspektiv - Jämförelser mellan Sverige och 10 andra länder. [ONLINE] <http://www.vardanalys.se/Rapporter/2014/Varden-ur-patienternas-perspektiv--Jamforelser-mellan-Sverige-och-10-andra-lander/>

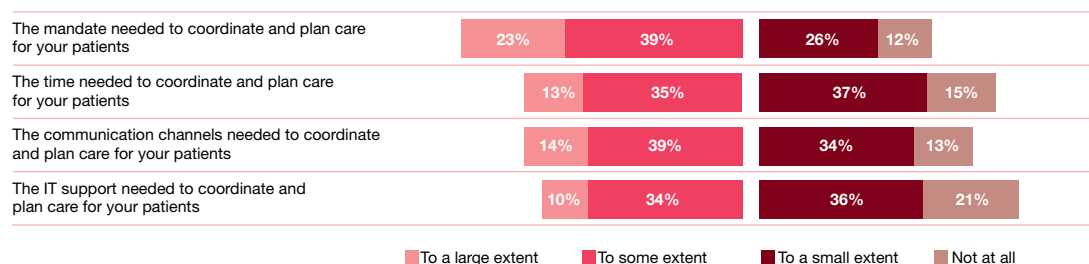
opportunity to participate. These virtual meetings has resulted in shorter and more effective meetings, with municipal employees saving between 30 to 90 minutes in travel time per meeting, and the use of video conferencing, compared to a teleconference, provides participants with a visual interface. The video meetings have also enhanced the patient experience – patients receive the information they need while retaining a sense of satisfaction and security. In fact, nurses reported that patients felt less tired after video-based meetings compared to traditional care planning meetings.<sup>35</sup>

Figure 4 also illustrates that home visits and flexible opening times, options which provide the opportunity to better meet the specific needs of the patient, are important for chronic disease management. These options however tend to demand more time and resources. Digital solutions can help by freeing up time and resources to give space for home visits and extended opening hours. The city of Västerås has for instance replaced a portion of in-person checkup visits with telephone calls or virtual

visits. Called “e-home services”, users receive better and faster contact with care personnel, and experience higher perceived quality as well as an increased freedom in living their lives. Less travel spent on checkup visits has in turn given care personnel more efficient working hours while reducing the impact on the environment.<sup>36</sup>

**Figure 5. The extent to which healthcare personnel believe that they have the mandate, time, communication channels and IT support they need to plan and coordinate care with other caregivers for their patients.**

To what extent do you, when in contact with other health and social care providers, have:



35. Ringla. 2016. Vårdplanering via videolänk. [ONLINE] <http://ringla.nu/goda-exempel/varoplanering-via-videolank>  
 36. Hälsans nya verktyg. 2016. E-hemtjänst - ökad trygghet och stopp för kostnadsökningar. [ONLINE] <http://www.halsansnyaverktyg.se/case/e-hemtjanst-okad-trygghet-och-stopp-for-kostnadsokningar/>



The potential for virtual care having a greater role in chronic disease management should not be underestimated. Almost 1 out of 5 persons with a chronic disease are open to receiving care via video, and their loved ones (2 out of 5) are even more positive with the adoption of such virtual care solutions for those they are taking care of.<sup>37</sup> In turn, the majority of healthcare personnel we surveyed, around 3 out of 5, see digital solutions as a means of improving chronic disease management, for instance via remote monitoring and virtual care visits (Figure 4). 8 out of 10 further believe that digital care will become a natural part of chronic disease management, with 4 out of 10 estimating that this will occur within the next five years.

Remote monitoring and virtual care meetings can lead to more effective use of resources and increased quality of care. A randomised study conducted by UK's Department of Health among patients with chronic disease revealed that the implementation of virtual care solutions resulted in big differences in terms of both costs of care and patient outcomes. The study involved approximately 6,000 patients in a telehealth trial. Preliminary results showed that, if implemented appropriately, telehealth

could reduce the need for admissions to hospital as well as mortality rates among patients.<sup>38</sup> These effects indicate the advantages of adopting virtual care when properly executed, and there is reason to believe that similar results can occur in Sweden if such an approach is adapted suitably to the local context.



37. PwC. 2015. The doctor is in – your smartphone: Is Sweden ready for digital and virtual care? [ONLINE] <http://www.pwc.se/sv/halso-sjukvard/digitala-doktor-kan-komma.html>

38. Gov.uk. 2011. Whole system demonstrator programme: Headline findings: December 2011. [ONLINE] <https://www.gov.uk/government/publications/whole-system-demonstrator-programme-headline-findings-december-2011>

## Example – telemedicine for COPD patients in Denmark

A large-scale project conducted in Denmark, TeleCare Nord, demonstrates the benefits of telemedicine solutions.<sup>39, 40, 41, 42</sup> The project entailed a collaboration between the North Denmark Region, 11 municipalities, Aalborg University and local doctors with the aim of testing the use of telemedicine for patients with chronic obstructive pulmonary disease (COPD).<sup>43</sup> Participants in the project received a so-called TeleKit which gave them the opportunity to measure and report data about their health condition on their own. Using telemedicine solutions, patients were able to measure blood pressure, pulse, weight and blood oxygenation by themselves. An app collected the patient's data and transmitted the measurements for viewing and assessment by healthcare personnel at hospitals or other health institutions. This virtual contact was supported by in-person visits either at home or at the hospital.

The study revealed a number of positive effects:

- 6 out of 10 participants experienced increased control with the disease.
- More than 7 out of 10 experienced increased comfort and mastering of their disease.
- A random sample made during the project indicated that almost 9 in 10 participants found it easy or very easy to use the TeleKit (the average age of the participating patients was 70 years old, over a span from 31 to 94 years old).
- The potential economic gains from telemedicine are largest for patients with very severe COPD – TeleCare Nord estimates that the resulting cost savings, primarily driven by fewer hospitalisations, could amount to 7,000 DKK annually for each patient.

The project has in turn paved the way for telemedicine to be provided as an option to patients with COPD throughout the rest of Denmark.

It is important to note that this solution would not be similarly cost effective if applied to all patients with COPD, as the telemedicine equipment is expensive and the solution does not reduce the number of hospitalised patients across all degrees of COPD severity. This project is thus a clear example of the importance of identifying which specific patient groups would benefit the most from certain care solutions.

If a similar solution is adopted for the estimated 150,000 patients in Sweden with severe COPD, it could not only reduce patient suffering via hospitalisations, but could also save 800 million SEK in direct healthcare costs annually, equal to the cost of taking care of an additional 18,000 patients with severe COPD given existing levels of healthcare expenditure.<sup>44</sup> If one were to include the impact on indirect costs, such as those arising from productivity losses or premature deaths, it is clear that such telemedicine solutions could better effectivise the use of resources.

39. Digitaliseringsstyrelsen. 2016. TeleCare Nord as a model for nationwide telemedicine. [ONLINE] <http://www.digst.dk/ServiceMenu/English/News/TeleCare-Nord-as-a-model-for-nationwide-telemedicine>

40. Region Nordjylland. 2016. TeleCare Nord. [ONLINE] <http://www.rn.dk/Sundhed/Til-sundhedsfaglige-og-samarbejdspartnere/TeleCare-Nord>

41. Udsen, F. W., Lilholt, P. H., Hejlesen, O., & Ehlers, L. H. 2014. Effectiveness and cost-effectiveness of telehealthcare for chronic obstructive pulmonary disease: study protocol for a cluster randomized controlled trial. *Trials*, 15, 178. <http://doi.org/10.1186/1745-6215-15-178>

42. 2016. TeleCare Nord - Afslutningsrapport. [ONLINE] [http://www.rn.dk/-/media/Rn\\_dk/Sundhed/Til%20sundhedsfaglige%20og%20samarbejdspartnere/TelecareNord/KOL/Evaluering%20og%20forskning/Fra%20tro%20til%20viden%20-%20afrapportering/TeleCare%20Nord%20afslutningsrapport%2018-11-2015%20final.ashx](http://www.rn.dk/-/media/Rn_dk/Sundhed/Til%20sundhedsfaglige%20og%20samarbejdspartnere/TelecareNord/KOL/Evaluering%20og%20forskning/Fra%20tro%20til%20viden%20-%20afrapportering/TeleCare%20Nord%20afslutningsrapport%2018-11-2015%20final.ashx)

43. COPD can be divided into four stages, with stage 4 being defined as severe COPD. <http://www.1177.se/Skane/Fakta-och-rad/Sjukdomar/KOL---kroniskt-obstruktiv-lungsjukdom/>

44. PwC analysis. Calculated based on the application of percentage cost savings from the TeleCare Nord example to current direct healthcare costs for patients in Sweden with severe COPD.

## Analysis

Virtual care holds great potential when it comes to chronic disease management. Patients and their loved ones, as well as healthcare personnel, view digital and virtual care solutions as a means of improving care for the chronically ill. The examples from the UK and Denmark illustrate that these solutions can have a major impact on patient outcomes and the effective use of resources, especially if they are directed towards the right patient group.

Coordination of care is an area that is crucial in chronic disease management. Having an effective digital flow of information between different caregivers remains a challenge, however, with different health and social care authorities rarely able to share information easily. Ensuring that digital information can flow smoothly between various health and social care actors requires change, with clarification on who should have access to patient information and how it should be shared seamlessly. Health and social care authorities must improve the way they currently coordinate with one another, and a review of existing legislation can provide further opportunities for coordination and information sharing.

From the patient's point of view, communication and information sharing can be made possible by allowing care to be managed online. Providing the opportunity to participate in meetings via video and enabling virtual access to medical records and other relevant information would ease the load on patients and their loved ones. This is especially important given that the chronically ill tend to be elderly – despite the increased use of tablets among the elderly in recent years, those aged over 75 years still feel least involved in today's digital society.<sup>45</sup> Providing loved ones access could thus become crucial in enabling elderly patients to take advantage of these digital and virtual solutions.

Can digitalisation help those who need care most? Yes, but it is vital that the use of digital and virtual care solutions be tailored to each individual patient. There should also be resources allocated to the implementation of these solutions, and clarity on how information can and should be shared between parties without compromising the rights and privacy of the patient.

45. 2015. Svenskarna och internet 2015 | En årlig studie av svenska folkets internetvanor. [ONLINE] <http://www.soi2015.se/>

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# What opportunities and challenges do healthcare personnel see in relation to digital and virtual care?

*Enabling patients to have faster access to care is the primary motivation for both citizens and nurses to adopt virtual care solutions. Doctors in turn see the potential to save patients time that would have been spent travelling to receive care as their biggest motivation for offering virtual care (Figure 6).*

Figure 7 in turn reveals concerns related to the use of virtual care. Among the healthcare personnel we surveyed, the biggest concern lies in the potential loss of personal contact between patient and caregiver if the patient does not meet his doctor or nurse in person. Other concerns relate to the impact on the patient if the technology fails, as well as to the lack of understanding about the technology. In particular, citizens and doctors are worried about how virtual care might negatively impact the quality of care, with doctors also expressing the concern that virtual care would lead to increased healthcare consumption.

Furthermore, while healthcare personnel generally agree that engaged and well-informed patients can take greater responsibility for their own health and wellbeing, they have differing views on whether such patients, as well as the use of digital solutions, would free up time and resources for those patients who need care the most (Figure 8). These differences exist between doctors and nurses, with nurses being more positively inclined to such statements, as well as between different practice settings.

As mentioned earlier in this report, respondents in primary care see the most potential in virtual care visits, with 9 out of 10 indicating that at least some in-person visits in their business unit can be held virtually instead. However, this group also seems to be the most hesitant when it comes to the potential for engaged and well-informed patients as well as digital solutions freeing up resources for those who need care most. In fact, almost 1 out of 5 respondents

working within primary care (compared to 1 out of 10 among all respondents) see the overutilisation of healthcare resources as their greatest concern with virtual care. This may be due to the perception that virtual care may not necessarily result in the saving of time for healthcare personnel, while at the same time creating the risk that increasing access through virtual care would lead to an increase in medically unjustified healthcare consumption.

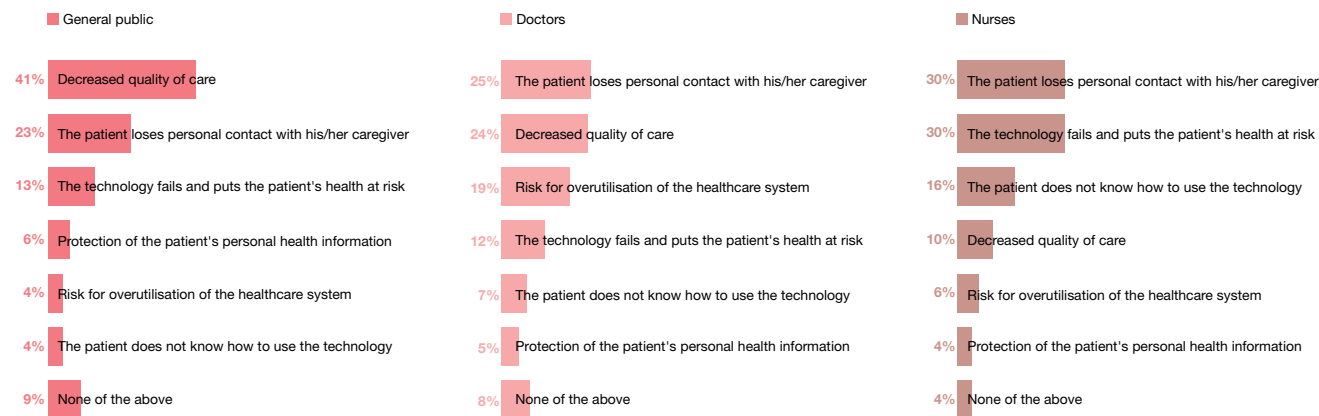
**Figure 6. What motivates the general public and healthcare personnel when it comes to virtual care.**

If you had the opportunity to offer / receive virtual care, what would motivate you the most to do so?



**Figure 7. What the general public and healthcare personnel see as the biggest challenge to virtual care.**

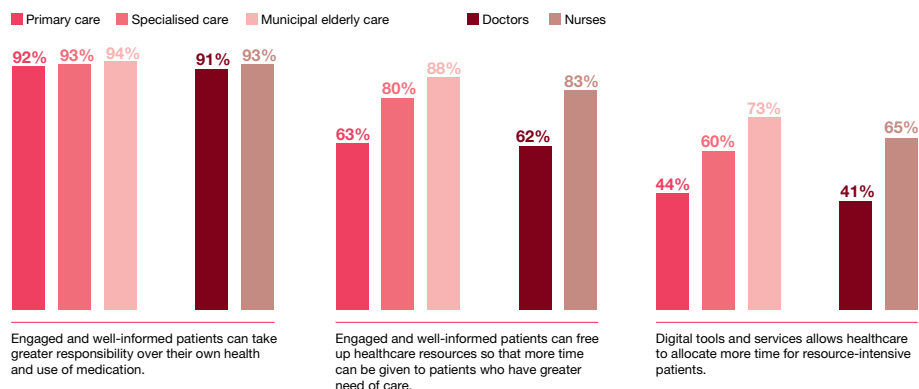
What is the biggest challenge you see in offering / receiving virtual care?



**Figure 8. Healthcare personnel share different views on whether engaged and well-informed patients, as well as digital solutions, would free up resources for allocation to patients who need them most.<sup>46</sup>**

To what extent do you agree with the following statements:

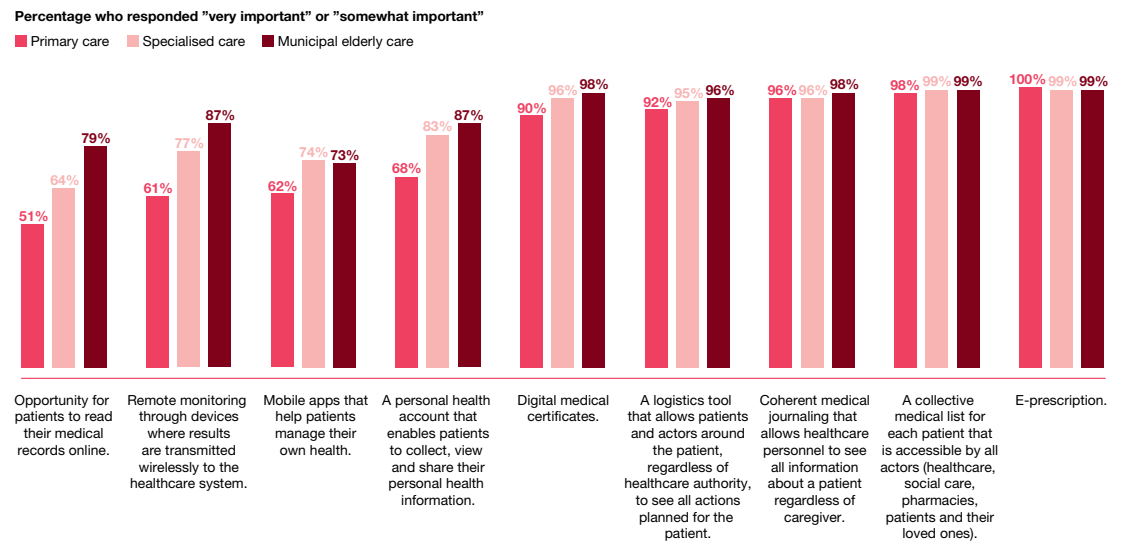
Percentage who responded "fully agree" or "somewhat agree"



46. Respondents within primary care (19% of all respondents) comprise of 58% doctors and 42% nurses. Respondents within specialised care (62% of all respondents) comprise of 22% doctors and 78% nurses. Respondents within municipal elderly care (8% of all respondents) comprise of 3% doctors and 97% nurses.

**Figure 9. Importance of digital tools in supporting the effective use of healthcare resources.**

In your opinion, how important are the following digital tools for the effective use of healthcare resources?



Similar concerns can be seen in Figure 9, with respondents working in primary care comparatively more skeptical towards solutions which empower patients.<sup>47</sup> Still, more than half of these respondents believe that these solutions could result in the more effective use of healthcare resources, which shows a certain degree of openness.

Healthcare personnel working with municipal elderly care believe the most that engaged and well-informed patients as well as digital solutions can free up resources for those who need care most (Figure 8). This same group is also the most positive towards the potential for solutions enabling increased patient involvement, for example giving patients access to their own medical journals and the use of remote monitoring, in improving the use of healthcare resources (Figure 9). This openness could be partly due to the large role that home visits play in municipal care. Some of these involve short checkup visits, where good examples of well-functioning digital solutions exist.

At the same time, the group holds concerns that the patient's health might suffer if the technology stops functioning, with 35% of respondents in this group seeing this as their biggest concern relating to virtual care, compared to 25% among all respondents. This concern should be taken seriously but can be addressed by, for example, incorporating fail-safe strategies to handle downtime events.

Personnel working within municipal elderly care are similarly positive as their counterparts in other practice settings to solutions that would improve the coordination of care between different caregivers and the patient (Figure 9). As mentioned earlier, patients are dissatisfied with their current state of care coordination. It thus stands to reason that healthcare personnel would believe that such solutions would make a difference in how healthcare resources are used.

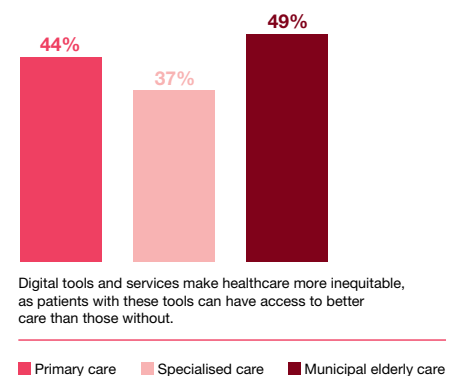
When asked to evaluate how digital solutions could impact the equity of care, less than half of all respondents said that these solutions could make healthcare more inequitable (Figure 10). Equitable

healthcare means that care should be provided and distributed in a way that allows all to thrive, and it should always remain high on the healthcare policy agenda. When it comes to digital and virtual care, focus should be placed on how these solutions can minimise existing inequities and, in accordance with the Swedish government and SALAR's vision for e-health, contribute to greater equity of care.

**Figure 10. Perspectives on the impact of digital tools and services on equitable care.**

To what extent do you agree with the following statement:

Percentage who responded "fully agree" or "somewhat agree"



Digital tools and services make healthcare more inequitable, as patients with these tools can have access to better care than those without.

Primary care Specialised care Municipal elderly care

47. For example, the opportunity for patients to read their medical records online, remote monitoring, and mobile apps which enable patients to manage their own health.



## Example – Virtual care as a complement to in-person GP visits

An example of a successful virtual care initiative can be seen in a pilot conducted in the UK.<sup>48</sup> More than 130,000 patients, over the course of six months, were provided access to digital services that complemented traditional general practitioner (GP) visits. These digital services enabled patients to search for information on their own symptoms to evaluate if they needed to visit a GP. They also had access to self-help guides, 24/7 telephone-based consultations and e-consultations with their own GPs with a guaranteed response within one day. These e-consultations were based on a web-based questionnaire containing approximately 100 questions which patients would answer online. GPs then used the questionnaire results to triage patients and make decisions as to whether patients required an in-person visit or a telephone consultation with a doctor or nurse.

Users were clearly satisfied with the experience – more than 80% of GPs involved in the pilot were confident that the provision of these complementary digital services benefitted their patients and 78% wanted their own personal GP to adopt the solutions. 91% of patients were extremely satisfied with the online consultations, with 78% saying that the services saved them time and 83% extremely likely to recommend these services. Furthermore, 18% of patients who used the self-help guides and sign posting content stated that they no longer needed to book a GP appointment they had originally planned on booking, and 97% would have directly approached a medical service if they did not have access to the virtual consultation services.

This pilot shows that there exists great potential for virtual care to avoid an increase in medically unjustified healthcare consumption while easing the workload for those working within healthcare. The net total GP appointment time saved during the course of the 6-month pilot was over 400 GP hours, with 60% of all e-consults managed remotely, out of which one-third was conducted via telephone consultation with a GP with an average consultation time of 5.5 minutes.

48. 2014. webGP: the virtual general practice - Pilot Report (May 2014). [ONLINE] <http://webgp.com/documents/e-consult-pilot-report-2014.pdf>

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*How well does healthcare understand the patient's need for intervention and the patient's ability to contribute, and how well does healthcare deliver the governance, structure, collaboration, organisation and ways of working that meet the patient's needs and circumstances?*<sup>51</sup>

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## Analysis

Both doctors and nurses have concerns regarding the digitalisation of care. At the same time, there exists great potential for digital solutions to contribute towards the more effective use of resources. For this to happen requires structural changes in working methods and care flows, in addition to the provision of digital tools.

There is no “one-size-fits-all” solution in healthcare – the introduction of digital solutions and new ways of working must always take place based on the specific needs of each patient in various practice settings. Only then can digital solutions add value to patients as well as become a means of support to healthcare personnel in their work. Achieving this requires dialogue with both patients and healthcare personnel in understanding existing needs, what these new solutions can bring to the table, and how they impact the way healthcare operates today. This dialogue is also crucial in ensuring that digital solutions contribute towards more equitable care. As stated in the 2025 vision for e-health: “Digitalisation can make it easier to work towards increased equity, by providing tools which support initiatives that are tailored to the individual needs of users, clients and patients.”

This dialogue should further include communicating the measured outcomes of these solutions and how they impact the quality of care and the use of resources. For example, the provision of e-home services in Västerås city has led to shorter response times and better perceived quality among users. Users feel more secure and can have better interactions within their natural social networks. From an economic perspective, the services, implemented among 300 users, have generated net savings of between 5.7 to 20.6 million SEK, which means that the municipality can afford to provide home services for an additional 170 users without changing the current cost structure.<sup>49</sup>

Healthcare in Sweden today faces a number of shortcomings when it comes to involving and partnering with patients, as well as providing them with relevant information.<sup>50</sup> Patients are a valuable source of information which is often overlooked, and digital solutions can play a part in changing this. Increased digitalisation can also create better information and communication flows between caregivers, which in turn can create improved opportunities for coordination.

What opportunities and challenges do healthcare personnel see in relation to digital and virtual care? This study indicates that faster access to care is the biggest motivating factor for the use of virtual care solutions. There are however other factors which give healthcare personnel pause, for example how virtual care might impact personal contact with patients, influence the quality and consumption of care, and affect the prospects for equitable care. These are issues that should be considered and addressed through dialogue and clear communication as to when and where such solutions are suitable, and the views of healthcare personnel – regardless of profession or practice setting – should be heard in relation to these areas. Healthcare personnel should also be supported through the provision of resources and training to be able to smoothly navigate the resulting changes.

49. Hälsans nya verktyg. 2016. E-hemtjänst - ökad trygghet och stopp för kostnadsökningar. [ONLINE] <http://www.halsansnyaverktyg.se/case/e-hemtjanst-okad-trygghet-och-stopp-for-kostnadsokningar/>  
50. Vårdanalys. 2015. Vården ur primärvårdsläkarnas perspektiv. [ONLINE] <http://www.vardanalys.se/Rapporter/2015/Varden-ur-primarvardslakarnas-perspektiv/>

51. Regeringskansliet. 2016. Effektiv vård - Slutbetänkande av En nationell samordnare för effektivare resursutnyttjande inom hälso- och sjukvården. [ONLINE] <http://www.regeringen.se/rattsdokument/statens-offentliga-utredningar/2016/01/sou-20162/>

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# From vision to reality

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*”It means that we should not, in any way, try to paint a picture of how it will look like in 10 years, for that we will never know, and we should not assume that we can solve today’s problems. We should rather say that we must now look at the opportunities digitalisation brings and soberly and urgently consider how we can apply these in healthcare.”<sup>52</sup>*

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*The digitalisation of healthcare is driven by several parties – patients who want greater access and security, and a new generation of healthcare personnel who see opportunities in virtual care and are not afraid to explore new digital care options.*

Citizens have become more accustomed to using digital solutions to receive services at their convenience. The banking, retail and travel industries have implemented digital solutions to improve the effectiveness and quality of their services, which has in turn led to increased customer satisfaction. Similar examples exist among government agencies such as the Swedish Tax Agency and Försäkringskassan (the social insurance office). There is potential – and even an expectation – that digitalisation would achieve the same evolution in healthcare.

The coming years are important for quickening the pace of change in healthcare. In many respects, it is about increasingly developing ways of working through digitalisation and thereby creating new models of care that lead to sustainable and cost-effective care.

#### **The transformation of healthcare**

A number of changes need to take place to meet the expectations that both patients and healthcare personnel have of healthcare, with the goal of creating a system that is patient-centric, integrated, sustainable and equitable. The adoption of digital solutions should

start with an evaluation of the patient’s needs based on evidence-based care and be implemented in the right setting, by personnel with the right competencies, and in a way that both patient and personnel are comfortable with.

By offering various options for establishing contact, the healthcare system can provide patients the opportunity to choose how they wish to interact with their caregiver. Digital tools can provide such support to patients and personnel in these healthcare processes. System compatibility between various healthcare actors can further facilitate communication and the sharing of information.

The focus of any implemented digital solution should be to make life easier for patients and healthcare personnel with the overall purpose of improving health in Sweden.

#### **Preventive, proactive and equitable care**

The implementation of digital tools require that healthcare actors work in new ways to effectively provide patients with good care.

Both preventive and proactive efforts are needed to meet the growing healthcare

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52. Quote from a politician.



demands that come with a population that is older and growing sicker: preventive measures to avoid the onset of disease, and proactive measures to, as far as possible, prevent the worsening of existing medical conditions.

Furthermore, the implementation of digital solutions can not only enable patients to become more involved in their own care, but can also contribute to the equity of care. For example, physical distances to specialists can be bridged with the help of technology, and language barriers between caregiver and patient can be overcome with the help of digital translation tools. However, in every given care situation, the patient's actual care needs must be taken into account when considering the use of digital care solutions. Healthcare providers must be clear that digital solutions are a complement, not a replacement, to traditional in-person

meetings. Efforts relating to digitalisation and e-health should, among other things, be developed to ensure equitable services, resource allocation and influence.<sup>53</sup> These efforts should further take into account the protection of individuals from the invasion of personal privacy. The need for access management regarding personal information and consent issues should remain central to this discussion.

### ***The way forward***

Achieving the 2025 vision for e-health requires that clear plans and targets be put in place. For starters, there needs to be an understanding of the actual needs facing healthcare today in order for digital care solutions to be relevant. It is also important to consider other factors such as market regulation,

governance, functionality, collaboration and competence.

### **Governance and functionality**

Connected to the governance of healthcare is the need for reimbursement systems that better promote and incentivise the use of digital solutions, particularly those which support preventive and proactive healthcare measures. Getting there requires innovative ways of reimbursing care that rewards beyond the mere volume of activity to the resulting impact on quality and outcomes.<sup>54</sup> A balance between financial and non-financial incentives should be struck with the aim of motivating healthcare actors to provide the best possible care.

53. SKL. 2016. Visionen för e-hälsöarbetet: Bäst i världen 2025. [ONLINE] <http://skl.se/tjanster/press/nyheter/nyhetsarkiv2016/visionenforehalsöarbetetbastivarlden2025.8687.html>

54. Flower, Joe. 2015. How to Get What We Pay For: A Handbook for Healthcare Revolutionaries: Doctors, Nurses, Healthcare Leaders, Inventors, Investors, Employers, Insurers, Governments, Consumers, You.





In turn, digitalisation should be, to a greater extent, seen as an integral part of business activities and budgets. The needs of each business must consistently guide implemented solutions, rather than which technologies exist in the market. In-depth analysis into areas of need, utility and costs should be taken before deciding which system is most advantageous for implementation. When are digital solutions suitable, which patients receive the most benefits, and in which cases are other solutions better options? These are questions that should always be taken into account in health-care development.

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*“Simple, robust solutions – not rocket science.”<sup>55</sup>*

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#### **Competence and communication**

For healthcare to successfully make the transition towards increased digitalisation, all who work within healthcare should be comfortable with managing digital tools. This is not always the case today and it will require initiatives that enhance the skills of healthcare personnel. At the same time, digital solutions should strive to achieve high levels of usability<sup>56</sup> so that healthcare personnel do not perceive them to be a burden.

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*“Patients are often more able than we think, but personnel need training.”<sup>57</sup>*

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55. Quote from actors within health and social care.

56. Usability includes user-friendliness.

See <http://storandeellerstodjande.se/>

57. Quote from a development manager at a private healthcare company.

Achieving the vision of being the best in the world when it comes to e-health means that all healthcare personnel and a large part of the population must be in favour of change. New solutions cannot be forced on healthcare personnel or patients. It requires a comprehensive dialogue around what the changes entail and ensuring that solutions are integrated into business models, as well as identifying leaders who can take charge of change management.

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*”This is about a culture change. It is a long-term perspective, and therefore why everyone, especially those who are furthest away, must be involved from the very beginning.”<sup>58</sup>*

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#### Leadership and collaboration

Clear and courageous leadership at all levels – national, regional and local – is key to drive through the changes that increased digitalisation brings. Roles and responsibilities regarding who does what should be made clear, and collaboration should be a central piece in this process.

Creating opportunities for collaboration between different healthcare providers requires a common information structure based on national standards, and this demands that certain strategic decisions be made at a national, regional and even local business level. There are several ongoing efforts aimed at creating

comprehensive national and regional conditions to increase the use of digital in healthcare activities, such as SALAR’s action plan for joint opportunities in digital development<sup>59</sup>, the National Board of Health and Welfare’s efforts to develop a common information structure<sup>60</sup>, and, as mentioned earlier, the 2025 e-health vision with plans for action currently under development.<sup>61</sup> It is also important that the government manages such efforts and ensures that they result in concrete proposals that are presented to the Swedish Parliament.

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*”To be successful, organisations must understand that it is not only about technological innovations, they must also change the way they work. Analog ways of working in a digital world would make little difference.”<sup>62</sup>*

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At the business unit level, line managers are responsible for driving change, by educating, guiding and supporting staff to work towards common goals that contribute to continued development. Creating a practice where digital solutions form a natural part of work requires different ways of working as well as care flows.

Collaboration must involve various industry sectors and interest groups. This includes being open to existing actors and new entrants that can contribute innovation and further development of the healthcare system.

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*”We need clear leadership at all levels – from the government where this vision (for e-health) is a sign of leadership pointing the way; we need to have it at the regional and municipal level, but we also need it at operational level. This is a central business issue. It should not be a separate track in itself but rather a core part of business development.”<sup>63</sup>*

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58. Quote from a civil servant.

59. SKL. 2016. Nästa steg i gemensam handlingsplan för digital utveckling. [ONLINE] <http://skl.se/naringslivarbetedigitalisering/digitalisering/nyhetsarkivdigitalisering/arkivdigitalisering/nastastegigemensamhandlingsplanfordigitalutveckling.8888.html>

60. Socialstyrelsen. 2016. Nationell informationsstruktur.

[ONLINE] <http://www.socialstyrelsen.se/nationellhalsa/nationell-informationsstruktur>

61. SKL. 2016. Visionen för e-hälsoarbetet: Bäst i världen 2025. [ONLINE] <http://skl.se/tjanster/press/nyheter/nyhetsarkiv2016/visionenforehalsarbetetbastivarlden2025.8687.html>

62. Quote from actors within health and social care.

63. Quote from a civil servant.



Swedish eHealth Agency:

## **A healthier and more equitable Sweden with the help of e-health**

The Swedish eHealth Agency leads and coordinates the government's e-health efforts. We are collaborating with other actors to make the 2025 vision for e-health a reality.

Digitalisation is an amazing force that is changing the way we live our lives. By using digital tools and exchanging information digitally, professionals within health and social care can have better opportunities to engage with their patients, users and clients. At the same time, digitalisation provides increased opportunities for individuals – health, sick, young and old – to get engaged in their own health and care.

More than 90% of participants in the survey that forms the basis for this report agree that patients who are engaged and well-informed can take greater responsibility for their health and use of medication.

However, despite the high digital awareness among doctors and nurses, much remains to be done in order to fully realise all the opportunities that digitalisation offers. The 2025 vision for e-health highlights three main areas to be developed at a national level: laws and regulations, standards, and unified definitions. There exist several ongoing initiatives within these areas, where the Swedish eHealth Agency is also engaged. Further investments are in the pipeline within the framework of the action plans that will concretise the vision and which will be implemented by us and other agencies and organisations.

The Swedish eHealth Agency offers e-health related products and services, such as the transmission of electronic prescriptions and e-prescription data over national borders, the personal health account "Health for me" ("Hälsa för mig"), national drug statistics, and the infrastructure between all healthcare actors in the form of records and systems. An example of the latter is the electronic expert support system ("Elektroniskt expertstöd", or EES) which is used by pharmacists to see how a current prescription fits in with a customer's other medication.

We have been engaged in the study "The digital patient is here – but is healthcare ready?" as a part of our efforts to support and develop collaboration between all actors involved in e-health, for example professionals, patient and user organisations, agencies as well as companies. In the current study, healthcare professionals have been represented by the Swedish Association of Health Professionals and the Swedish Medical Association, but we naturally also interact with representatives from all other professions within health and social care.

We are hoping for many discussions and concrete progress to take place, in contributing to Sweden taking one step closer to achieving its vision of becoming the best in the world at e-health.

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Find out more about the Swedish eHealth Agency at [www.ehalsomyndigheten.se](http://www.ehalsomyndigheten.se)

Swedish Association of Health Professionals:

## **Care in Sweden needs a paradigm shift!**

Demographic change, the increased incidence of chronic disease and urbanisation are all serving to challenge the provision and delivery of care in both rural and urban areas. At the same time, citizens are becoming more knowledgeable, placing new expectations and demands on healthcare. To meet these challenges, while reaching the goal for equitable health, requires that we change perspective, from focusing on how healthcare is organised, to what individuals need. Only then can we better use our resources and achieve care that is truly equitable.

The Swedish Association of Health Professionals is the trade union and professional organisation for 114,000 nurses, midwives, biomedical scientists and radiographers. We see the need for a paradigm shift in healthcare. The need to open up to innovation and creativity. We need to challenge what we think we know. We describe this paradigm shift below from five different perspectives.

The paradigm shift necessitates that we make full use of modern information technologies. Equitable health and person-centred

care requires tools which enable citizens to manage their own health and illness as much as possible, and which promote new ways of interacting with healthcare, something that many citizens also wish for.

There is a willingness among healthcare personnel to use digital solutions to improve care, but there is a lack of access to such solutions. The Swedish Association of Health Professionals has, together with the Swedish Municipal Workers' Union, the Swedish Medical Association, the Swedish Society of Medicine and the Swedish Society of Nursing, developed a report outlining what needs to be done to improve the state of e-health in Sweden ([www.storandefellerstodjande.se](http://www.storandefellerstodjande.se)). The ten action points mentioned in the report are still highly relevant today. If Sweden is to meet the future challenges it faces within health and social care, a completely different tempo in e-health development is key!

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Find out more about the Swedish Association of Health Professionals at [www.vardforbundet.se](http://www.vardforbundet.se)

### **From**

Focus on the organisation  
Disease and diagnosis  
Hierarchies  
Divided and episodic care  
Governed by cost and production

### **To**

Focus on the person  
Health and holistic needs  
Team  
Cohesive and seamless care  
Governed by health equity and person-centeredness

Swedish Medical Association:

## **New technologies should support continuity, coordination and quality of care**

The Swedish Medical Association is the union and professional organisation for doctors in Sweden with almost 48,500 doctors active across all specialities, primary care, inpatient care, industry and academia. We believe that their knowledge, insights and experiences are necessary in efforts to drive developments in healthcare forward.

Healthcare is facing major change. Progress within medicine and technology means that we can do more for more patients, especially those who are ageing. This, together with demographic shifts, are also placing growing demands and requirements on healthcare. Providing equitable care as an element of achieving health equity in society will continue to be a challenge for the Swedish healthcare system. Equitable care is about providing good care to all patients, tailored to each patient's specific circumstances and needs. It is also about constantly improving the quality of patient encounters within healthcare, regardless of whether these take place face-to-face at a hospital or local health centre, or with the help of new technologies. Digitalisation is changing society and healthcare at the very core. Increased individualisation goes hand in hand with digitalisation, which means that

patients are desiring to influence their own care and treatment in growing measure. It is the Swedish Medical Association's aspiration that new technologies within healthcare should support the continuity, coordination and quality of care, and enable greater involvement among more patients.

According to the new vision for e-health, Sweden is to be, by 2025, the world leader in exploiting digitalisation opportunities within healthcare for the promotion of equitable health, participation, and making full use of a person's individual resources. The Swedish Medical Association welcomes the goals that the government and SALAR have clearly set forth, and hopes that this entails them making the decisions and financial investments necessary for success. This study has shown that those working within healthcare are digitally mature and willing to contribute to these developments. If Sweden is to be the world leader in utilising digitalisation in healthcare, change must begin from the ground up, and healthcare professionals must be given the opportunity to drive developments forward.

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Find out more about the Swedish Medical Association at [www.slif.se](http://www.slif.se)

# Methodology

The study's target population are healthcare personnel who have close contact with patients, such as doctors, nurses and midwives. Data collection was carried out with the help of a web-based survey that went out to members of the Swedish Association of Health Professionals and the Swedish Medical Association in March and April 2016. The Swedish Association of Health Professionals conducted a random sample of 5,000 nurses and midwives from its membership register (the total number of members in its register was 114,000), while the survey went out all 48,500 members of the Swedish Medical Association via its website, newsletter and social media.

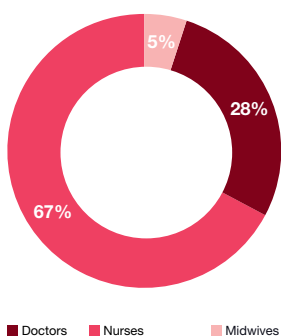
A total of 718 nurses and 57 midwives from the Swedish Association of Health Professionals answered the survey, corresponding to an adjusted response rate<sup>64</sup> of 16.1%. A total of 301 doctors from the

Swedish Medical Association answered the survey, corresponding to an adjusted response rate of 0.6%. Despite the low response rates, we have captured a good representation of the target population in terms of sex and age (those aged 50 years or older are somewhat overrepresented, while those aged between 20 and 49 years are somewhat underrepresented).

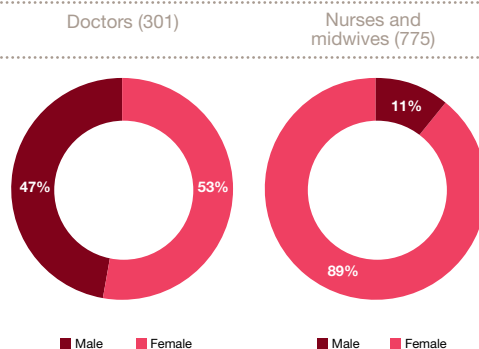
In order to achieve representativeness of the target population in the collected material, we have created a model that provides weights based on age. The weighted model is based on population data from the member registers of both the Swedish Association of Health Professionals and the Swedish Medical Association. In brief, weighting is implemented so that responses from underrepresented groups are given a greater impact on the overall results, while responses from overrepresented groups are given a lower weight when the results are compiled.<sup>65</sup>

We recognise that the use of a web-based survey indicates a bias, likely positive, i.e. that respondents are generally more positively inclined towards digital care solutions. This document is however not intended to be an academic paper; it should rather serve as a basis for further discussion. We believe that the results of from the study provide guidance regarding how healthcare personnel in Sweden perceive digital and virtual care solutions. The quantitative results of the survey has been further complemented with input from workshops and interviews conducted with, among others, representatives from health and social care, companies<sup>66</sup>, politicians, decision makers, and researchers, in order to obtain further insights into the results of the survey.

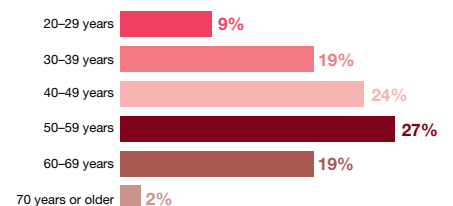
## Profession



## Sex

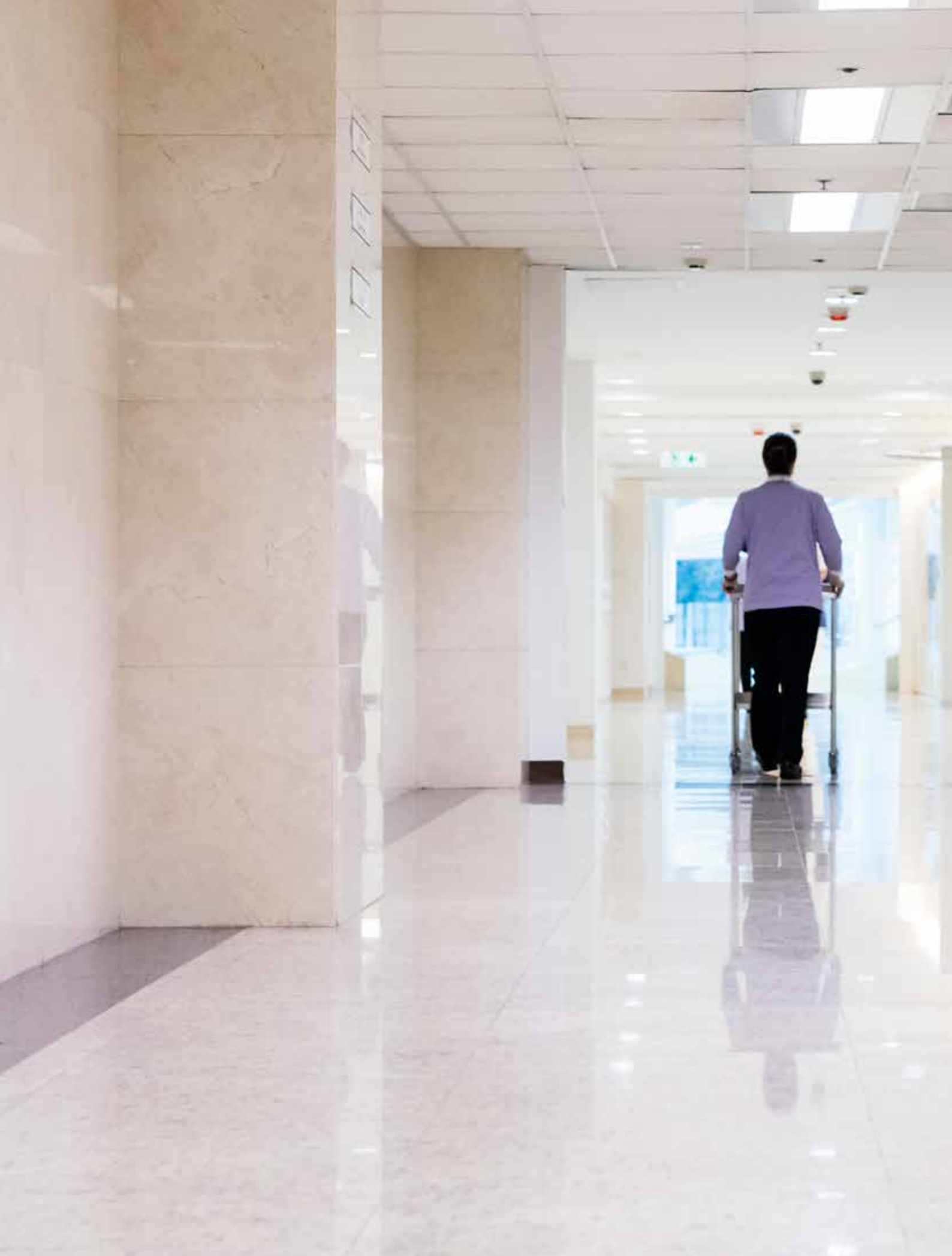


## Age



64. An adjusted response rate is the number of responses received in relation to the number of recipients of the survey, after disregarding those who were unable to participate in the survey for various reasons.

65. Vårdanalys. 2015. Vården ur primärvårdsläkarnas perspektiv – Bilaga 1 (Metod).  
66. These include pharma, medtech, e-health and telco companies.





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