Remote Patient Management:
A Study of the Attitudes of Patients and Professionals in Spain

Elena Reutskaja
Jaume Ribera

IESE Business School
University of Navarra
Center for Research in Healthcare Innovation Management
AN IESE-ACCENTURE INITIATIVE

Telefónica

ISBN: 978-84-86851-93-4
D.L.: B. 24696-2013

Remote Patient Management:
A Study of the Attitudes of Patients and Professionals in Spain

Remote Patient Management:
A Study of the Attitudes of Patients and Professionals in Spain

Elena Reutskaja
Jaume Ribera
IESE Professors

Barcelona, October 2013

IESE Business School
University of Navarra
Center for Research in Healthcare Innovation Management
AN IESE-ACCENTURE INITIATIVE

Telefónica

Table of Contents

Foreword by Telefónica

Telefónica is one of the world's leading integrated telecommunications operators. With a presence in more than 24 countries, the company provides infrastructure, communication, information and entertainment services to more than 315 million customers.

Telefónica has a dedicated ehealth unit within Telefónica Digital, the business division created in 2011 to capture opportunities that arise in the digital world. Telefónica believes information and communications technologies have the potential to radically transform healthcare, providing both greater quality of care for patients and driving greater efficiencies for healthcare providers. From demand and access management through to remote patient management, mobile tele-care and tele-consultation, Telefónica is able to provide innovative products and services to both healthcare providers and directly to end users.

Healthcare professionals and policymakers have worked hard to improve quality and efficiency within the Spanish healthcare system and great progress has been made in recent years, as demonstrated by the resulting indicators. But the healthcare system still faces some considerable challenges that require investment and new high-quality services and infrastructure.

An ageing population, and a related increase in chronic diseases, are applying additional pressure on the provision of healthcare, increasing the cost of health year after year at a time of general financial crisis.

Therefore, certain key factors in the healthcare system must change to make the system more sustainable. In particular, far greater emphasis needs to be placed on a more proactive approach to medicine, with more active, better informed patients who are focused on the prevention and management of their conditions.

New technologies can be used to drive this change and facilitate remote management and care of patients with chronic conditions in their own homes or anywhere else. Above all, Remote Patient Management can prevent sudden deterioration in the health of patients with chronic conditions and reduce emergency hospital admissions. The new model will facilitate and increase efficiency in the industry and will contribute to a more sustainable system.

At Telefónica, we understand the needs of the industry and have developed a range of ehealth solutions. We are now implementing remote patient management in Spain and Brazil, with the aim of expanding the use of these services in other countries in Latin America and Europe.

The remote management and monitoring service of chronic patients offered by Telefónica is a comprehensive service that makes it possible to monitor the health of at-home patients and those with reduced mobility. It offers complementary, alternative care that guarantees the quality and continuity of patient care at all times.

At Telefónica we believe it is vital to work closely with healthcare professionals when developing and testing ehealth solutions, and so we have involved doctors and nurses in a series of extensive clinical trials.

The most pleasing aspect of the trials we have conducted is the enthusiasm with which consumers have embraced the technology. Our experiences to date should allay the fears of many professionals that their patients, who are often elderly and have little technological knowledge, would not be able to use this kind of solution.

This report - which is the result of close collaboration between IESE and Telefónica – illustrates the potential of remote patient management to make a real positive difference to the lives of people with chronic conditions.

We look forward to working closely with patients, healthcare professionals, and policy makers to deliver this vision of a new healthcare model. A new, effective way of improving the quality and efficiency of healthcare.

Jaume Raventós
Director of eHealth, Telefónica Spain

Foreword by IESE

For over fifty years, IESE, the graduate business school of the University of Navarra, has been at the forefront of management education, developing and inspiring business leaders who strive to make a deep, positive and lasting impact on the people, companies and society they serve. IESE's success is built on a humanistic approach toward business and leadership complemented by a world-class teaching staff producing groundbreaking research; the global scope of its programmes, teaching staff, students and campuses; a practical and relevant teaching methodology; and a growing worldwide alumni network of 40,000 professionals prepared to take on today's challenges and lead business into the future. Inherent in everything IESE does is a focus on people, i.e. the personal and professional development of every individual partaking in the IESE experience, as the primary driver of positive change and impact on business and society.

The Center for Research in Healthcare Innovation Management (CRHIM), an IESE-Accenture collaboration, brings together different partners from the field of innovation in healthcare to build on IESE's extensive health management-related activities and Accenture's wide-ranging experience in the field. The CRHIM has positioned itself as a centre of reference and excellence in research into innovation management in healthcare. By providing an institutional basis for health-related research activities at IESE, it fosters exchange of the expertise, knowledge and experience of different members of the teaching staff and partners, enhances the body of knowledge, provides visibility, and allows for greater capitalization of opportunities. It boasts an excellent teaching staff, as well as experts from a large network of different institutions and actors in public and private sectors at global and local level and from developed and developing countries.

The CRHIM's broader objective is to increase management knowledge and capacity in the health sector, including innovation in healthcare provision and management of technological innovations and how they change the way care is provided and organized. The evidence gained will advance the state of knowledge in the field through publications and teaching and learning materials for managerial capacity building. Health-related managerial capacity building is increasingly sought after by health-sector executives, professionals, policy makers and current and future executives, such as MBA students who seek a professional future in the broader health-related and social enterprise sector.

The CRHIM is currently focusing its research are on six topics: (1) integrated care – coordinated and seamless health and social care delivery; (2) chronicity – comprehensive approaches to reorganizing care provision for chronic patients; (3) telemedicine – remote clinical care delivery using telecommunications and mobile technologies; (4) efficiency and productivity – clinical outcome improvements and better use of available resources; (5) outcome-based contracting – risk-sharing models measuring performance and outcomes; and (6) health analytics – turning healthcare data into insights to drive medical and management decision making.

The topic of this study fits perfectly into the areas where the CRHIM is focusing its efforts, i.e. at the intersection of chronicity and telemedicine. The study explores the capabilities of Remote Patient Management (RPM) in the improvement of healthcare and reflects the attitudes of health professionals and patients, i.e. the actors who can make it work.

The results presented in this study show that Remote Patient Management can be used to achieve significant improvements in patients' healthcare experience, not to mention cost reductions. They also indicate that healthcare professionals and especially patients perceive Remote Patient Management to be a technology they can use, provided they are informed by a neutral, reliable source. Remote Patient Management is used as a complement to onsite doctor's visits and security systems guarantee the privacy of the information exchanged. This is good news for an industry that is striving to discover how to do more with less. It is our hope that the different stakeholders in the system will take notice of these results and move forward in the deployment of Remote Patient Management applications.

Jaume Ribera
Professor, IESE Business School

Executive Summary

There is ample evidence in the literature describing experiences in the United Kingdom, the United States and Spain that eHealth and Remote Patient Management offer solutions that can provide better health for patients, enhance their experience and reduce costs. Remote Patient Management should therefore be attractive to health system managers, healthcare professionals and patients. We were interested in identifying the possible causes for the delay in adopting this method and recommend some action to help overcome these difficulties.

This study aimed to understand the attitudes and beliefs of patients and healthcare professionals (HCP) regarding Remote Patient Management. The study focused on four parts: (1) assessment of awareness, current use and willingness to use Remote Patient Management; (2) detection of the potential benefits of the system; (3) evaluation of the possible barriers to implementation; and (4) possible actions to promote wider adoption of Remote Patient Management. The study is based on an online survey of healthcare professional (HCPs, i.e. general practitioners, specialty consultants and nurses) and an online survey of patients complemented by two focus groups with patients. The study revealed the following ten main findings:

HCP findings:

1. A great majority of healthcare professionals were aware of the term Remote Patient Management. However, despite the high level of awareness, few professionals understood its exact meaning and how it was applied. Knowledge was even more limited in private settings. The professionals claimed there was little information available for patients and themselves.

2. Remote Patient Management is currently available to very few HCPs, but the vast majority of them (80%-90%) said they were open to trying Remote Patient Management if given the option. The professionals also believed that more than a third of their patients would be willing to use Remote Patient Management to better manage their condition. The patients themselves were more open and positive than their HCPs believed, as 70% of them admitted their willingness to test Remote Patient Management if it were made available.

3. The HCPs envisioned a number of benefits of Remote Patient Management usage. The overwhelming majority perceived Remote Patient Management to be a beneficial tool and more than 85% said they believed Remote Patient Management could improve the quality of care because it encouraged patients to take greater responsibility for their own health and could result in earlier detection of changes in their chronic conditions. The HCPs also said it could help reduce patient overcrowding at hospitals and reduce appointments scheduled to monitor vital signs. 75% of the nurses said they believed that patients with chronic conditions could be safely managed through Remote Patient Management.

4. Remote Patient Management also generated a number of concerns for HCPs: slightly more than half of them said they would not feel comfortable using videoconferencing with patients. The HCPs said they believed that the biggest potential barriers to the use of Remote Patient Management were patients' lack of access to, knowledge of or confidence in technology.

Other concerns also shared by a majority of HCPs included patients having less personal contact with doctors, the current contracting system, uncertainty about potential increased liability, and the cost and privacy issues.

5. There is a need to increase information on Remote Patient Management in order to improve understanding of the system and facilitate its adoption. Moreover, a vital part of the successful introduction and use of Remote Patient Management is reassuring and supporting patients to use Remote Patient Management. Doctors and nurses said they believed that the most efficient way to encourage patients to use Remote Patient Management was to reassure them that Remote Patient Management would not undermine the effectiveness of their treatment and to support patients who felt less comfortable using the technology.

Patient findings:

6. 40% of the patients said they were not aware of the term Remote Patient Management and only a quarter claimed to understand its exact meaning. They said that there was little information available to them on Remote Patient Management. Those who were familiar with the term had heard it mostly from mainstream media, followed by information from medical professionals.

7. Only 7% of the patients said they were using Remote Patient Management at the time of the survey, but another 70% said they would consider using it if they were offered such an option. Overall, the patients seemed to be quite optimistic and positive about the possibility of using Remote Patient Management, although they stressed in the focus groups that they would need more information before committing themselves to using the system. One fourth of the patients said they did not want to use it, but the current study was not able to clarify their reasons.

8. Like the HCPs, the patients perceived a number of potential benefits of Remote Patient Management. They said they believed that Remote Patient Management could improve the quality of care and help them manage their conditions more effectively. They said that Remote Patient Management could be especially useful for patients who wanted to save time and reduce the number of trips they needed to make to the hospital to manage their condition. Patients with heart disease and COPD seemed to view Remote Patient Management slightly more positively than the rest.

9. The patients also had a number of concerns about Remote Patient Management, the most important being the fear of losing personal contact (not being able to make appointments) with their medical professionals. However, most said they would feel comfortable having consultations with their doctor via videoconferencing. A significant number (45%) said they were concerned that Remote Patient Management might be imposed in order to reduce costs, even if it were not appropriate for the patient. Moreover, as with the HCPs, the patients believed that lack of access to, knowledge of and confidence with technology could be the biggest potential barrier for using Remote Patient Management. Patients also showed some concern about cost and privacy issues.

10. In general, the patients viewed Remote Patient Management quite positively, but they said they needed more information on Remote Patient Management to improve their understanding of the system. Moreover, an essential part of successful adoption of Remote Patient Management should include reassurance and support for patients from trustworthy sources (mainly doctors themselves).

Based on these findings, the study presents nine recommendations:

1. Providing clear, relevant, transparent and timely information about Remote Patient Management is the first essential step that should be taken for promotion and successful adoption of Remote Patient Management.

2. There is a need to facilitate the dissemination of results and evidence of successful Remote Patient Management experiences in different regions and settings, and to encourage prospective beneficiaries to adopt the system.

3. When providing information on Remote Patient Management, special attention should be paid to increasing awareness of Remote Patient Management among the groups with the least knowledge of it and its meaning, e.g. GPs, patients with high blood pressure, patients with diabetes, patients with a low income, and those residing in the central, north-western and eastern regions of Spain.

4. Promotion of Remote Patient Management among HCPs should start in the public sector, as the HCPs working in the public sector were less sceptical about using Remote Patient Management if it were available than those working in the private sector.

5. Promotion of Remote Patient Management should start with the patient groups that perceived Remote Patient Management more enthusiastically: patients with COPD, patients with heart disease, those having a higher income and those residing in the southern and north-eastern regions of Spain and in Madrid.

6. To successfully promote Remote Patient Management among patients and to build patients' trust in the system, information about Remote Patient Management should come from a "trustworthy, reliable and credible source".

7. There is a need to reassure patients that the introduction of Remote Patient Management will not cause the personal patient-doctor relationship to suffer.

8. Clearer information should be provided on the technology and level of knowledge required from patients and HCPs to use Remote Patient Management and less technologically literate patients should receive personalized applications adjusted to the level they feel comfortable with.

9. Strong privacy protection should be key in the deployment of any Remote Patient Management initiative.

The study indicates that healthcare professionals and especially patients perceived Remote Patient Management to be a technology they could use, provided that they were informed by a neutral, reliable source, that Remote Patient Management was used as a complement to onsite doctor's appointments, and that security systems guaranteed the privacy of the information exchanged. This is good news for an industry striving to discover how to do more with less. It is our hope that the different stakeholders in the system will take notice of these results and move forward in the deployment of Remote Patient Management applications.

Background

There is a universal trend within healthcare systems: they all face difficult times ahead as a result of population growth and ageing (a consequence of the success of many years of healthcare), the development of new medical technologies, the increasing incidence and prevalence of chronic diseases, the impossibility of maintaining the expenditure growth of previous years, the global deficit of qualified healthcare professionals, and especially the budget cuts in national economies facing austerity programmes within the global economic crisis. No single stakeholder group in the system will be able to provide a solution to these problems, but there is a hint of success in areas where business, the government, insurers, healthcare providers, patients and caregivers work together to offer more integrating, innovative initiatives using widely available technology.

The areas of ehealth, telehealth, mhealth, telecare and Remote Patient Management provide many experiences where these solutions can have a quick, significant impact on achieving the "triple aim" of improving patients' experience of care, advancing population health and lowering per capita costs[1].

For the purpose of this study, we define Remote Patient Management as the use of a mobile phone or tablet connected to mobile networks to enable people with chronic conditions such as diabetes, high blood pressure, heart or respiratory problems to monitor their condition in their own homes and share the results in real time with their doctor. It is essentially the same as telehealth.

Remote Patient Management has been shown to support patient self-management, to shift responsibilities to non-clinical providers and to reduce the use of emergency departments and hospital services[2]. Mosa et al.[3] reviewed and documented 83 applications, 15 of which were for patients focusing on disease management of chronic illness, and highlighted the growing role of mobile technologies in patient education, disease self-management and remote monitoring of patients. Chung and Tritle[4] concluded that many healthcare applications are unfolding with significant promise of empowering patients to actively manage their own healthcare and/or facilitating the requirements of caregivers and providers. Healthcare is the fastest, most prominent growth area for mobile device applications.

Healthcare providers control most decisions that drive outcomes in emergency and high-acuity cases. In contrast, in low-acuity situations such as managing a chronic condition, patients and/or their families are clearly in control of the actions that drive outcomes. What is needed is the equivalent of a global positioning system for healthcare, a system that would know where a patient is on the journey back to full health. The GPS in this analogy represents a variety of personal health communication and tracking tools[5] (Remote Patient Management systems in our study).

1. Finn, N., e-Patients live longer: the complete guide to managing health care using technology, iUniverse, Bloomington, 2011.
2. Coye, et al., Remote Patient Management: technology-enabled innovation and evolving business models for chronic diseases care, Health Affairs, Jan-Feb 2009.
3. Mosa et al., A systematic review of healthcare applications for smartphones, BMC Medical Informatics and Decision Making, 2012.
4. B. K. Chung and B. Tritle, The power of mobile devices and patient engagement, in Engage, edited by Jan Oldenburg, HIMSS 2013.
5. Chase, D., "Patient-provider communications: communication is the most important medical instrument", in Engage, edited by Jan Oldenburg, HIMSS 2013.

Different countries have invested in and gained experience with Remote Patient Management. The European Commission has been supporting ehealth research and development (R&D) through framework programmes for over 20 years now and has contributed to the emergence of new generations of technologies in several healthcare fields[6]. In the United Kingdom, the Whole System Demonstrator Programme (WSD), a two-year research project funded by the Department of Health to find out how technology can help people manage their own health while maintaining their independence, included Remote Patient Management and involved 6161 patients and 238 GP practices. 3030 people with one of three conditions (diabetes, heart failure and chronic obstructive pulmonary disease (COPD)) were included in the Remote Patient Management trial. The programme ran from 2008 to 2010 and the results were published in December 2011[7]. The WSD findings on Remote Patient Management stated that, if used properly, it could deliver a 15% reduction in accident and emergency (A&E) visits, a 20% reduction in emergency admissions, a 14% reduction in elective admissions, a 14% reduction in bed-days, an 8% reduction in tariff costs, and, more surprisingly, a 45% reduction in mortality rates. Based on the results of the study, it was estimated that 3 million people with chronic and/or social care needs could benefit from using Remote Patient Management and telecare, and the Department of Health signed an agreement to work with industry, the National Health Service and professional partners on the Three Million Lives campaign.

In the United States, the U.S. Veterans Administration has more than 12 years of experience with Remote Patient Management. First introduced in 2003, care coordination home telehealth (CCHT), which covers patients at risk for long-term institutional care, managed more than 70,000 veterans in 2013 using home telehealth technologies. A study of outcomes covering the 2004-2007 period included approximately 17,000 patients with both single and multiple conditions, and reported an average 25% decrease in utilization (hospital days), ranging from 54.6% for depression to 20.4% for diabetes[8].

The Health Buddy programme, a demonstration project, enrolled 700 patients and showed cost reductions of from 7.7% to 13.3% per person per quarter in the first phase (2006-2009). The Health Buddy programme does not replace routine medical appointments; rather, it simply enhances primary care. The new technology has become increasingly popular with veterans because it provides greater access to medical care. Veterans take a more active role in their wellbeing and gain peace of mind knowing that their healthcare providers have up-to-date information every day, so that their medical care can be adjusted as necessary. They know someone is looking out for their welfare[9].

In Spain, the Catalan Remote Management Evaluation (CARME) in a Germans Trias i Pujol hospital study used the Philips Motiva interactive platform to track heart failure patients' weight, heart rate and blood pressure and sent the information to a hospital unit, which then sent back educational videos, questionnaires to assess the patient's situation, personalized messages and

6. Ilias Iakovidis, The European dimension of eHealth: Challenges of Innovation, International Journal of Healthcare Management, 2012, Vol. 5, No. 4.

7. Whole System Demonstrator Programme, Headline Findings, UK Department of Health, Dec. 2011.

8. Darkins et al., "Care Coordination/Home Telehealth: the systematic implementation of Health Informatics, Home Telehealth, and Disease Management to Support the care of veteran patients with chronic conditions", Telemedicine and e-health, Dec. 2008.

9. Baker et al., "Integrated Telehealth and Care Management Programs for Medicare beneficiaries with chronic disease linked to savings", Health Affairs, Sept. 2011.

alert notices. The project ran from 2007 to 2010, and included 97 patients. The preliminary results showed that the patients in the pilot had 67% fewer hospital admissions and 73% fewer hospitalization days. More than 60% of the patients experienced an improvement in their perceived quality of life[10].

Run from 2010 to 2012, the Parc Salut Mar and Telefónica study on cardiac patients (heart failure) ICOR project[11], involved 200 patients (100 using Remote Patient Management and 100 as a control group) and is showing some preliminary good results in cost reduction and outcomes improvement.

These examples highlight the extensive evidence indicating that Remote Patient Management can be one of the tools used to help provide better care while reducing the costs of healthcare systems. Many of the barriers to its use are imaginary, at least for a large proportion of patients, who are willing and eager to make use of the technology. The cost for patients is not merely financial, but also includes learning costs. The context must also change, so that governments and insurers (1) are able to provide the limited upfront expenditure required and can work together to link the Remote Patient Management system to existing IS systems in doctors' offices, and (2) are willing to arrange for changes in reimbursement and payment methods to recognize the work done by professionals when treating patients via Remote Patient Management.

10. Domingo M., et al., Evaluation of a telemedicine system for heart failure patients: Feasibility, acceptance rate, satisfaction and changes in patient behavior. Results from the CARME study, European Journal of Cardiovascular Nursing, (2011).

11. Presentation by Dr. Josep Comin-Colet, GSMA Mobile World Congress, Barcelona, February 2013.

Online Surveys and Focus Groups

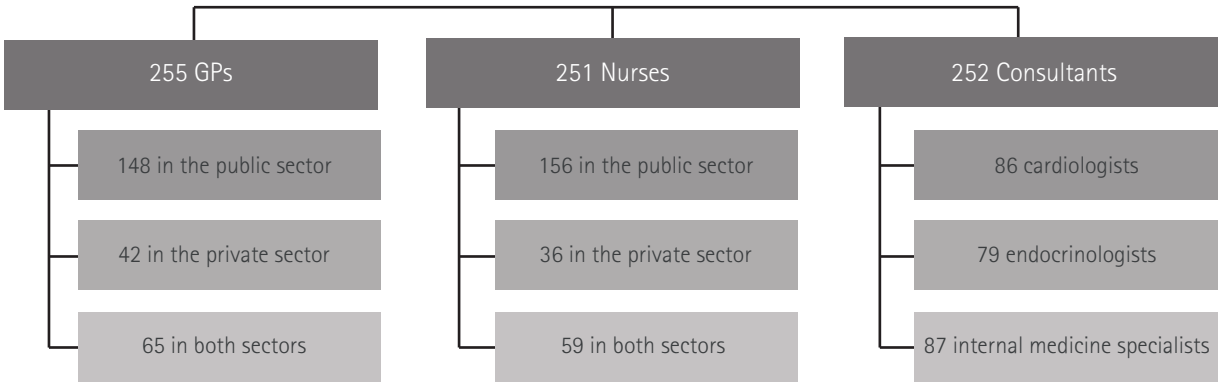
1.1. Methods

We conducted an online survey with healthcare professionals, an online survey with patients and two focus groups with patients in Spain in May-June 2013. The survey was designed by experts from IESE-CRHIM, Populus and Telefónica. The surveys and focus groups were run by the research company Populus.

The key aim of the online surveys was to obtain opinions about Remote Patient Management from the two parties most involved in the system: healthcare professionals and patients. In addition to the online surveys, two focus groups were conducted with patients in Madrid with the aim of gathering more information on the use, benefits and drawbacks of Remote Patient Management, and gaining a more in-depth understanding of the opinions of potential patients of Remote Patient Management. While most of the questions in the online experiment were close-ended (with response items "suggested" by experts), the aim of the focus groups was to let patients express their opinions freely without being biased by proposed responses. Our aim was to check the level of agreement between the opinions of the patients participating in the online survey and the focus groups, and to generate additional ideas, suggestions and insights about Remote Patient Management. We included a sample of participants in the focus groups who were not as familiar with the use of computers as those who took part in the online survey.

The online survey of 758 healthcare professionals[12] in Spain was conducted between 30 May and 19 June 2013. Three types of medical professionals participated in the study: local doctors and general practitioners (GPs)[13]; nurses; and consultants specializing in cardiology, endocrinology and internal medicine (see Figure 1). We also aimed to explore any differences in attitudes about Remote Patient Management between medical professionals working in the public and private sectors. Our online survey therefore included HCPs working in the private sector, the public sector and both, though the vast majority of GPs and nurses (approximately 60%) came from the public sector.

Figure 1. Sample characteristics of the online survey



12. In this document, we use the terms "healthcare professionals" (HCPs) and "medical professionals" interchangeably.

13. In this document, we use the terms "doctors", "local doctors" and "GPs" interchangeably.

The online survey of 1006 Spanish patients (adults suffering from chronic health conditions) was run between May 30 and June 26, 2013. Patients were drawn from across Spain and all patients had at least one of four chronic conditions: high blood pressure, diabetes, heart disease or chronic obstructive pulmonary disease (COPD). If patients had more than one of these conditions, they answered the survey in relation to the one they considered to be their main health condition. A total of 416 patients were suffering from high blood pressure, 317 from diabetes, 156 from heart disease and 117 from COPD. Besides being classified by their chronic condition, patients were also stratified by gender, age, income and the region in Spain they came from. For more details on the demographic profile of the participants (see Figure A1 in Appendix 1.4 of the report). The majority of patients participating in the study received their care from the public sector (74%) and required no assistance in their daily lives (74%). In addition, almost half of patients with heart disease and COPD claimed they had sent information to a medical professional from their computer via the Internet, whereas only around one third of those with diabetes or high blood pressure said they had done so (see Figure A2 for more details).

The focus groups were conducted in Madrid on 25 June 2013 with patients suffering from one of the four conditions mentioned in the preceding paragraph. As stated above, the participants were less technologically literate than those participating in the online survey. All of the patients in the groups used the Internet infrequently or for only simple tasks such as checking their email. A total of 16 people participated in the two focus groups.

The survey and focus groups had several main parts designed to test different aspects of Remote Patient Management. The first part of the survey aimed to assess the awareness of HCPs and patients about Remote Patient Management, the current use of Remote Patient Management in Spain and participants' willingness to use the system if they were offered this option and were not currently using it. The second part intended to reveal the potential benefits of the system. The third part was aimed at evaluating possible barriers to the use of Remote Patient Management. Finally, the last part explored what could be done to promote wider use of Remote Patient Management among reluctant patients. For the full HCP and patient surveys, see Appendices 1.5 to 1.8.

1.2. Results: Healthcare Professionals

The first part of the results section assesses the attitudes of healthcare professionals in Spain toward Remote Patient Management. We analysed the answers of GPs, nurses and consultants from the private and public sectors who participated in our online survey. We first aimed to understand whether HCPs practicing in Spain were aware of the term "Remote Patient Management", whether they knew what it meant and whether they chose to use it. We were also interested in finding out whether those who are not using it at the time would be willing to do so if Remote Patient Management were an option. The survey also explored the potential benefits and drawbacks of the Remote Patient Management system considered important by HCPs. Finally, we studied HCPs' recommendations on what can be done for wider adoption of Remote Patient Management.

1.2.1. Are healthcare professionals aware of Remote Patient Management?

Finding 1

At least two thirds of HCPs said they were aware of the term "Remote Patient Management". However, very few of them understood its exact meaning. They said there was little information available about Remote Patient Management at the moment (for both patients and HCPs).

We used the responses of the local doctors (GPs), nurses and hospital consultants who took part in our online survey to understand whether they were aware of the term "Remote Patient Management" and whether they actually knew what Remote Patient Management meant. We found that the vast majority of HCPs (about two thirds) stated they were aware of the term "Remote Patient Management" (see Figure 2). However, despite this relatively high awareness level, most healthcare professionals were still unsure about the exact meaning of the term. As shown on Figure 2, 28% of hospital consultants, 26% of nurses and only 15% of GPs said that they knew what the term meant. GPs were the HCPs who had heard the least about Remote Patient Management and were the least informed about the exact meaning of the term. Moreover, around one third of GPs had not heard of Remote Patient Management at all (see Figure 2). Though being aware of the term is important, it is even more important to understand what it refers to. Yet our findings suggest that there is still a high proportion of HCPs (70%-85%, depending on the HCP category) who are either unaware of the term or its meaning.

In addition, HCPs in the private sector were less familiar with the term than those who worked in the public healthcare system (see Figure 3). The medical professionals who worked in both sectors were the category of HCPs who were the most familiar with the term and who claimed to know its exact meaning better than those who worked in the private or the public sectors.

Figure 2. Awareness and understanding of Remote Patient Management

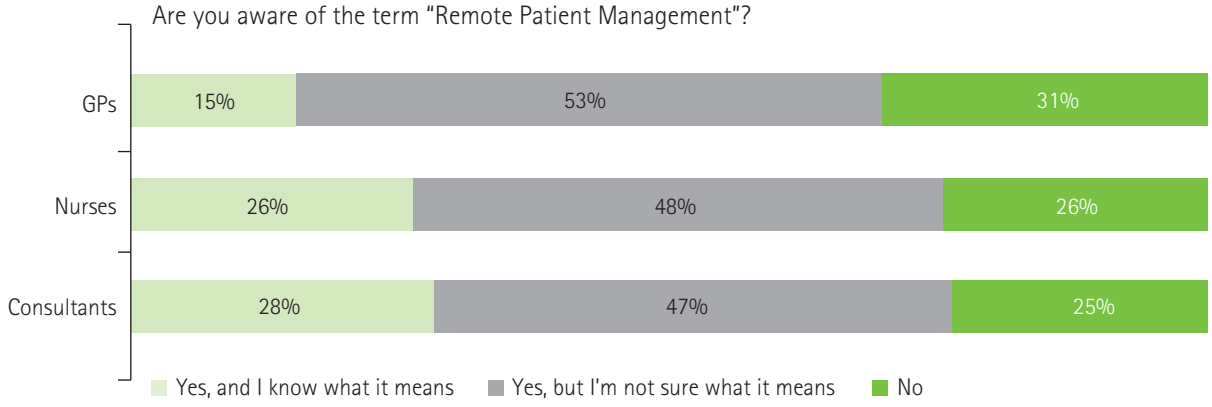
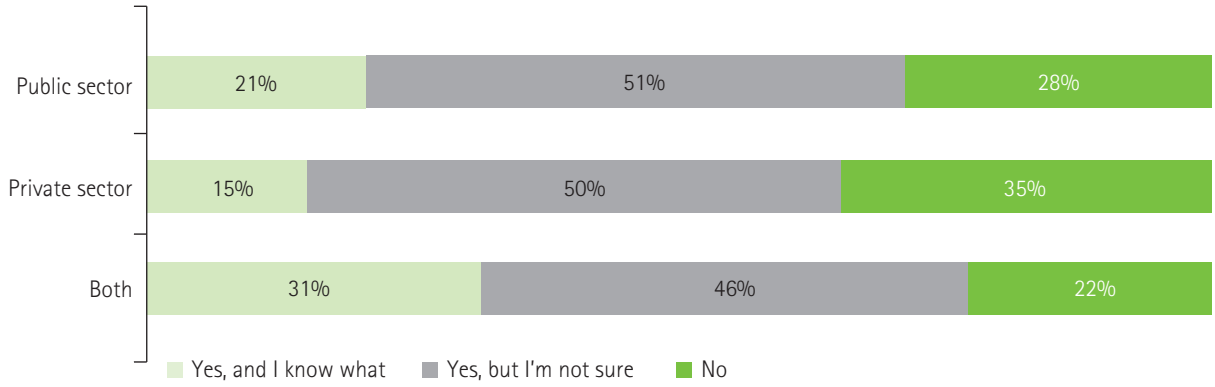


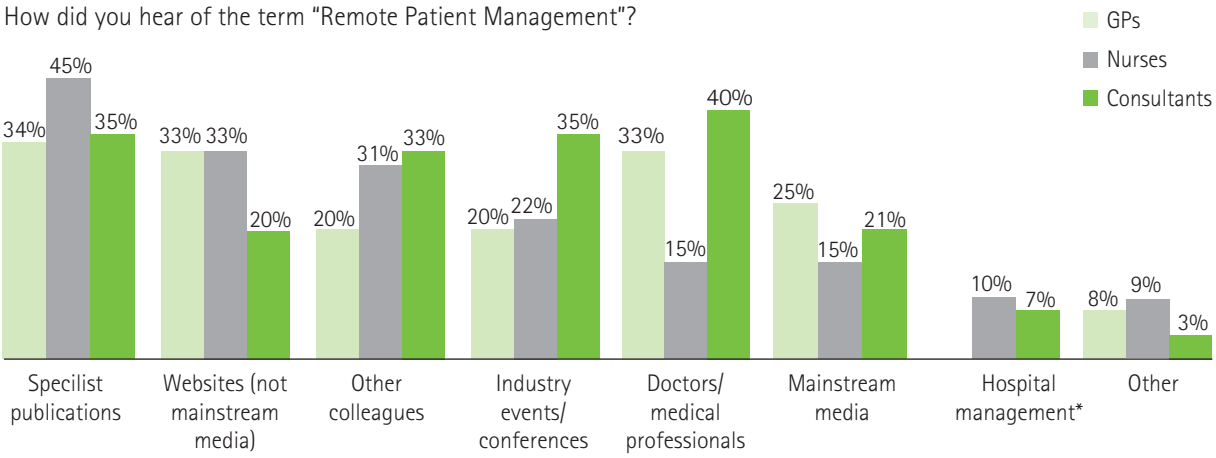
Figure 3. Awareness and understanding of Remote Patient Management depending on the sector HCPs work in



This lack of awareness could be explained by the fact that there was little information available to healthcare professionals about Remote Patient Management at the time. In our survey, more than 70% of hospital consultants and around 80% of nurses and GPs said that there was currently not enough information on Remote Patient Management available for doctors (see Figure 7, Section 1.2.3). Therefore, providing clear, transparent information on Remote Patient Management should be the first essential step toward overcoming the problem of the poor understanding and lack of awareness of Remote Patient Management among medical professionals.

We also aimed to explore how HCPs had learned about Remote Patient Management and whether there was one source that provided the most information about it. The HCPs who had heard of Remote Patient Management had learned about the term from wide variety of sources such as specialist publications, websites, other colleagues, and medical professionals, as well as industry events and conferences. There was no single source that prevailed over the rest when it came to informing all the HCPs about Remote Patient Management. However, specialist publications appeared to be the source from which nurses heard the most about Remote Patient Management, whereas doctors and other medical professionals were the main source for hospital consultants (see Figure 4).

Figure 4. Sources of Remote Patient Management information acquisition



1.2.2. Do healthcare professionals use Remote Patient Management and how open would they be to testing it if it were an option?

Finding 2

Remote Patient Management is currently available to very few HCPs (around 8%). However, the vast majority of HCPs (around 80%-90%) said they were open to testing Remote Patient Management if it were an option. HCPs also said they believed that more than a third of their patients would be willing to use Remote Patient Management to manage their condition.

As mentioned above, the vast majority of HCPs had heard about Remote Patient Management. However, was Remote Patient Management available for HCPs in Spain and how many of them chose to use it? We asked medical professionals to state whether Remote Patient Management was currently available to them and, if so, whether they chose to use it to manage their patients' condition. We also asked HCPs about their readiness to use the system if it were available in the future.

Our findings suggest that the availability of the Remote Patient Management is very limited in Spain. Very few HCPs said they used Remote Patient Management to manage their patients' condition. While around 10% of nurses and 11% of hospital consultants claimed they were using Remote Patient Management, the use of Remote Patient Management was three times lower among GPs. Only 3% of local doctors said they were using Remote Patient Management (see Figure 5). Once again, we confirmed that GPs were the category of HCPs that not only knew the least about Remote Patient Management, but also claimed that Remote Patient Management was not available to them.

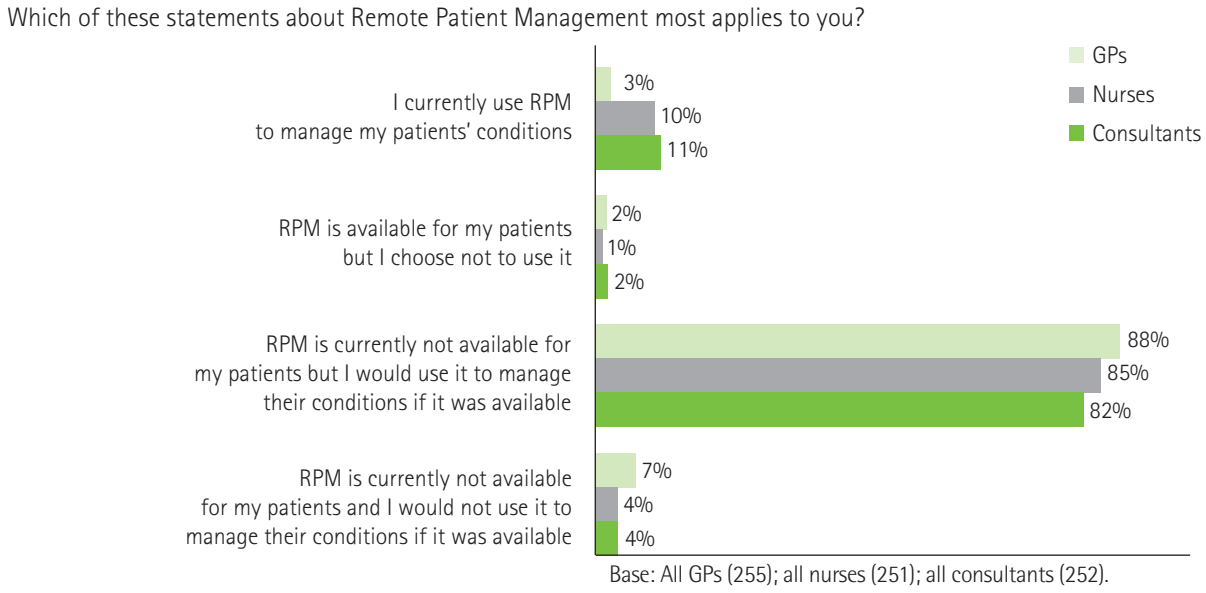
However, there was not much resistance to using Remote Patient Management. Only around 2% of HCPs chose not to use Remote Patient Management at all, even if it was available to them and their patients at the moment. In addition, 7% of GPs and 4% of nurses and consultants showed their scepticism about the possibility of using Remote Patient Management if it were available to them in the future (see Figure 5). They said they would not use it even if it were an option. Interestingly, this scepticism increased when the HCPs worked in the private sector compared to the public sector. As shown in Figure 6, almost 10% of the HCPs who worked in private sector said they would not use Remote Patient Management to manage their patients' condition if it were an option compared to 6% of those who worked in the public sector and to only 2% of HCPs who worked in both sectors. As mentioned above, GPs was the category of HCPs that was the most sceptical about Remote Patient Management. This scepticism increased was greater when the GPs worked in the private sector compared to those working in the public sector. 14% of GPs, 7% of consultants and 8% of nurses in the private sector said they would not use Remote Patient Management to manage their patients' condition if it were available, compared to 7%, 5% and 4%, respectively, of those working in public sector.

In spite of the fact that the vast majority of HCPs (80%-90%) said Remote Patient Management was not currently available for their patients, they seemed to be very positive about Remote Patient Management and were open to testing it to manage their patients' condition if it were an option. Interestingly, although HCPs said they were ready to use Remote Patient Management, they were more sceptical about their patients' ability to adopt Remote Patient Management. GPs, consultants and nurses said they believed only approximately 35%-43% of their patients would be willing and able to use Remote Patient Management. This can be explained by the fact that,

from the medical professionals' point of view, coping with the technology for Remote Patient Management seemed to be a greater issue for patients than for HCPs. For example, 67% of nurses agreed that the Remote Patient Management technology would be easy for healthcare professionals to use, whereas they felt it would be difficult for their patients. It is important to note, however, that doctors' scepticism about the low number of patients willing and able to use Remote Patient Management was not shared by the patients themselves. The patients were more open and positive about the adoption of Remote Patient Management than the HCPs believed them to be. Around 70% of patients said they would consider using Remote Patient Management if they were offered the option (for details, see Section 1.3.2).

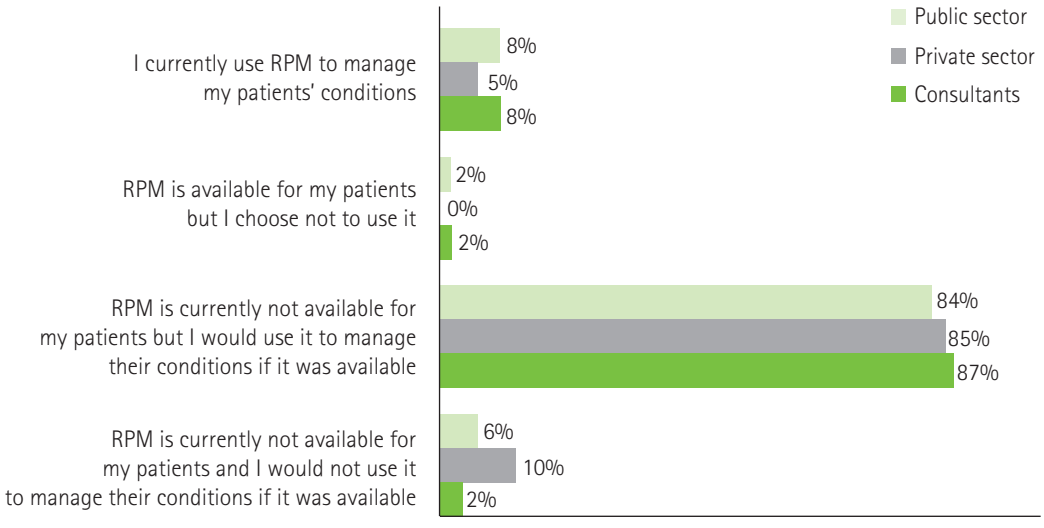
Overall, these data suggest that Remote Patient Management generates interest among HCPs and that they are eager to try it if it is available. Remote Patient Management should therefore be suggested as a potential method for patient management, as we believe HCPs would be willing to try it out.

Figure 5. Availability of Remote Patient Management to HCPs



Base: All GPs (255); all nurses (251); all consultants (252).

Figure 6. Availability of Remote Patient Management by sector



Base: All GPs (255); all nurses (251); all consultants (252).

1.2.3. What are the main benefits Remote Patient Management generates for medical professionals?

Finding 3

HCPs believe Remote Patient Management could bring a number of benefits: the vast majority of HCPs said they thought that Remote Patient Management could improve the quality of care, as it encourages patients to take greater care of their health and to detect changes in their chronic conditions earlier. They also said it could help reduce patient overcrowding at hospitals and reduce visits for monitoring vital measures.

We also aimed to understand whether the HCPs viewed Remote Patient Management as a beneficial tool and, if so, what key benefits they thought Remote Patient Management could generate for them. We assessed the potential benefits in two ways. First, during our survey, we presented the HCPs with several statements about Remote Patient Management and asked them to say whether they agreed or disagreed with them (see question 5 on the main questionnaire in Appendices 1.5- 1.7 for the list of the statements each HCPs evaluated). Second, we listed 8 to 9 factors (depending on the type/category of healthcare professional) that could be potential benefits of Remote Patient Management and asked the HCPs to select the ones that applied to them from this closed list. The potential benefits included the following:

a) Earlier detection of changes in patients' conditions

b) Encouraging patients to take greater responsibility for their own health

c) A reduction in the time I spend managing patients with a chronic diseases or conditions

d) Enabling medical staff to follow patients' progress more closely

e) Easier and more flexible contact with patients

f) Reducing patient overcrowding

g) Reducing my hospital's costs (*note: asked of hospital consultants only)*

h) Reducing the number of patients who visit hospital just to have their measurements taken

i) Better control of clinical episodes and decompensation

Overall, we found that the majority of HCPs perceived Remote Patient Management to be a beneficial tool and believed that Remote Patient Management could bring most of the benefits listed in the survey. Our results suggest that the potential benefits of Remote Patient Management perceived by HCPs could be divided into two main categories: improvement of the quality of patient care and better management of the patient base in hospitals.

We found that the majority of the HCPs (more than 85%) believed that Remote Patient Management could improve the quality of care and provide major benefits for their patients (see Figure 7, Panel A). The HCPs were therefore not only open to testing Remote Patient Management, but also saw it as a useful tool for better management of patient conditions. The vast majority of HCPs (70%-80%) said it could encourage patients to take greater responsibility for their health and detect changes in their chronic condition earlier (see Figure 8). These are important benefits, as they also increase patient involvement in taking responsibility for their own health. Moreover, 75% of nurses said they believed that patients with chronic conditions could be safely managed

through Remote Patient Management (see Figure 7, Panel B). Overall, Remote Patient Management was viewed as a tool that could improve the quality of care provided to patients.

The HCPs also said that Remote Patient Management could bring more efficient management to healthcare institutions. Around 85% of the HCPs said they believed that Remote Patient Management offered a good way for medical professionals to send information to their patients with chronic conditions (see Figure 7, Panel A). In addition, reducing the number of patients who visit hospital just to have their measurements taken, reducing overcrowding and providing better control of clinical episodes and decompensation were among the factors listed by 60%-80% of nurses, GPs and consultants as potential benefits of Remote Patient Management. These are the factors that could improve management of the patient base and therefore the efficiency of the hospital. Importantly, accomodating regular appointments for patients with chronic conditions is one of the biggest issues that nurses, GPs and consultants have to deal with in the workplace (mentioned by at least 20% of the HCPs). Therefore, Remote Patient Management could help address this issue by reducing unnecessary visits to hospital and thus improve efficiency.

These findings reveal not only that the HCPs were open to testing Remote Patient Management if it were available, but also that they perceived a number of major benefits Remote Patient Management could bring to improve the quality of patient care and increase the efficiency of the healthcare system. It is important to note that the benefits mentioned here were prompted to participants (i.e. participants had to choose from a closed list of benefits). The HCPs may have perceived other benefits of Remote Patient Management that were not listed on our questionnaire.

Figure 7. Opinions on Remote Patient Management

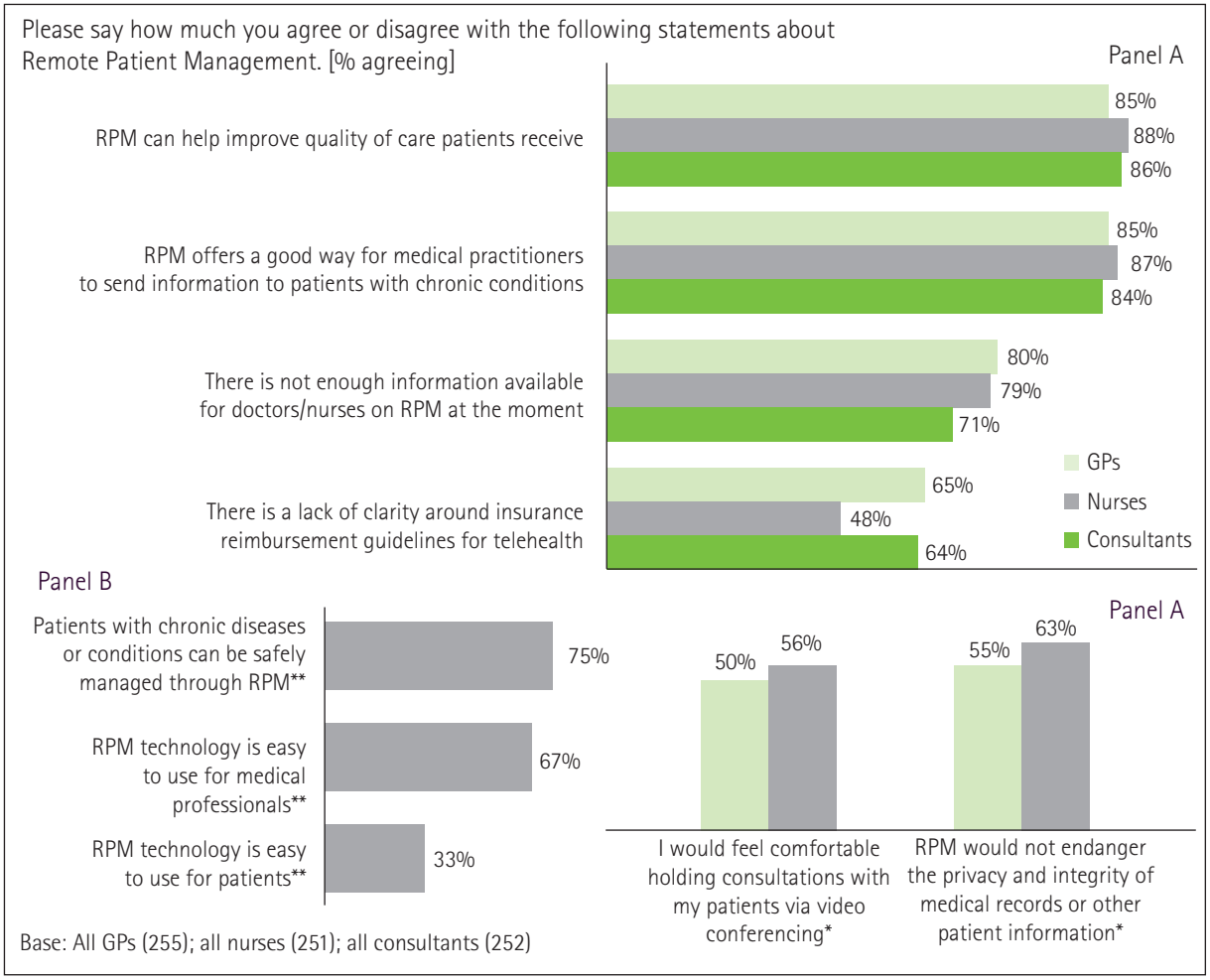
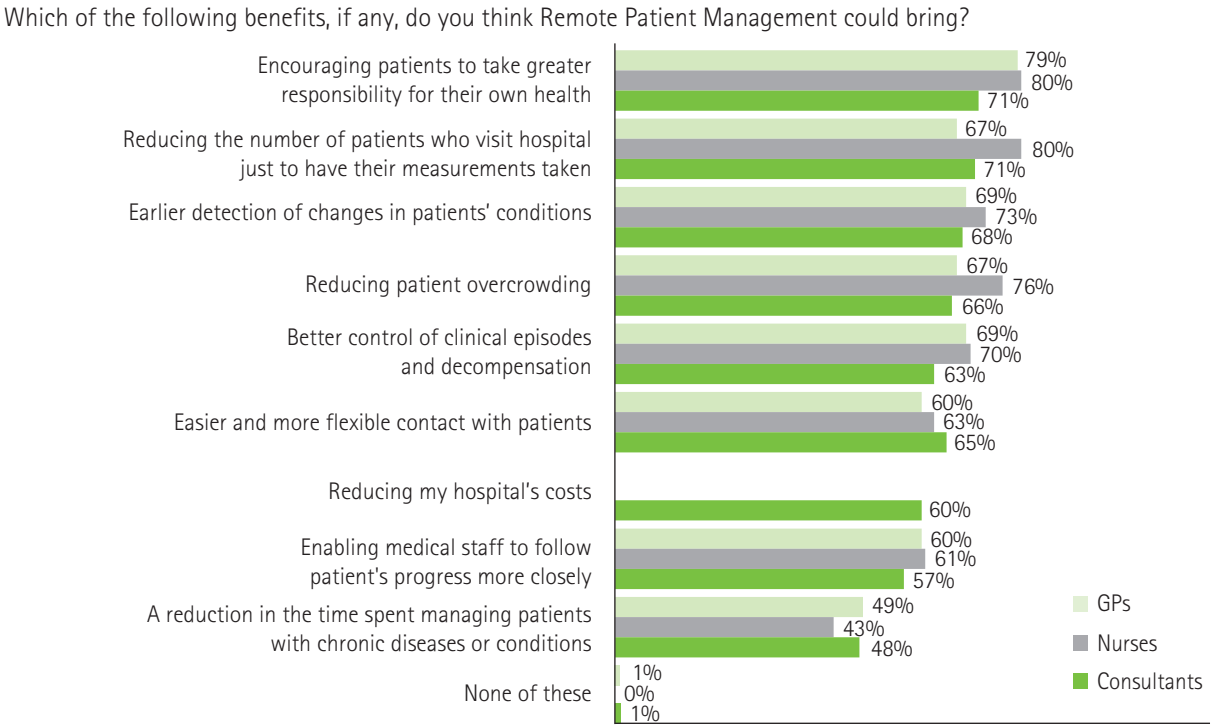


Figure 8. Remote Patient Management benefits by category



1.2.4. What are the possible barriers to wider adoption of Remote Patient Management?

Finding 4

Remote Patient Management also generates a number of concerns: although they recognized the benefits of Remote Patient Management, only a little more than half of the doctors and consultants felt comfortable using videoconferencing. Moreover, the HCPs said they believed that patients' lack of access to, knowledge of and confidence in technology could be the biggest potential barrier for using Remote Patient Management. Other concerns also shared by a majority of the HCPs were patients having less personal contact with doctors, the current contracting system, the uncertainty about potential increased liability, the cost and privacy.

Though the HCPs said they were open to testing Remote Patient Management if it were an option and saw a number of major benefits the system could bring, it is also important to identify the potential barriers to adoption of Remote Patient Management from the point of view of medical professionals and to reduce them in order to improve the use of Remote Patient Management. To this end, we provided the HCPs with a closed list of 11 items that could be considered potential barriers for Remote Patient Management adoption and asked them to state how big each of the barriers was to wider use of Remote Patient Management. The respondents were provided with the following list of potential barriers:

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Patient concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

j) Uncertainty about potential increased liability from medical professionals not paying sufficient attention to Remote Patient Management data

k) The current contracting system, which currently pays treatment based up on physical patient visits and does not consider extra payments for Remote Patient Management

The responses were given on a 4-point scale (a very big barrier, a fairly big barrier, a fairly small barrier, not a barrier at all). We also gave the respondents the chance not to state any opinion ("don't know" option).

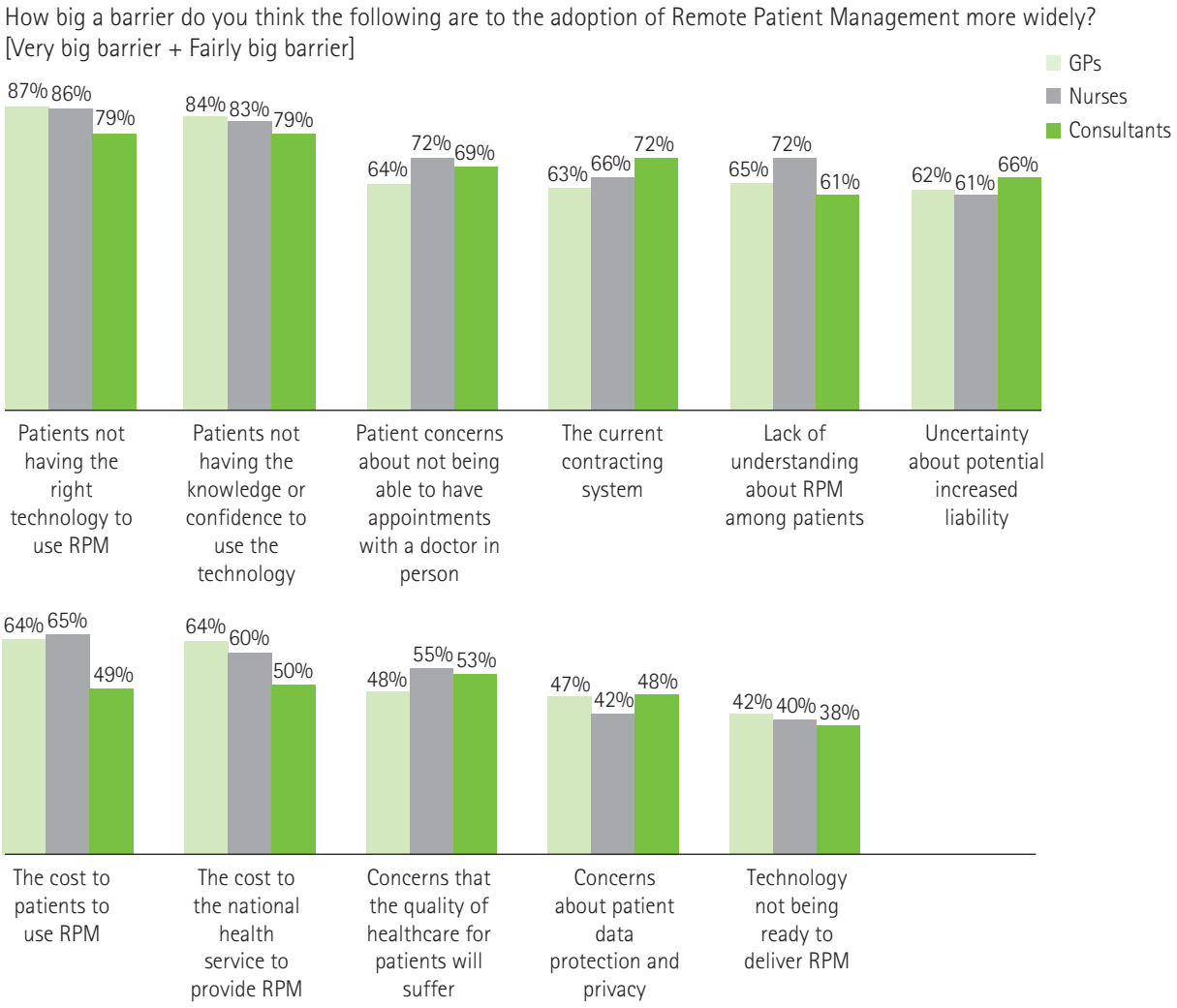
The two biggest barriers considered by more than 80% of HCPs to be "very big" or "fairly big" were patients not having the right technology and patients not having the knowledge or confidence to use the system (see Figure 9). Interestingly, these were barriers that concerned the patients rather than HCPs themselves or the Remote Patient Management system in general. These concerns were consistent with the beliefs of nurses about the inability of most of their patients to use the technology mentioned above (see Section 1.2.3, Figure 7, Panel B).

Importantly, these beliefs were also shared by patients. Patients participating in the survey also viewed technology or their own knowledge of technology as potential barriers that might prevent them from using Remote Patient Management or that could hinder wider adoption of the system. We will discuss these findings in more detail in Section 1.3.4 below.

Another barrier perceived by HCPs as big or fairly big for adoption of Remote Patient Management was possible patient concerns about not being able to have appointments with a doctor in person. This concern of HCPs was also shared by patients participating in the survey, as it was often brought up as a point of concern in the focus groups. This barrier could also be connected to the other concern of HCPs about patients' lack understanding of Remote Patient Management. Offering clear, relevant, timely and transparent information about Remote Patient Management to both HCPs and patients (e.g. by explaining the technology and stressing the fact that Remote Patient Management would not be used to replace personal appointments, but would be implemented in addition to personal appointments with doctors) could minimize these concerns and make Remote Patient Management a trustworthy system for both medical professionals and patients.

Other barriers viewed as big or relatively big that were also shared by the majority of the HCPs (more than 50%) were the current contracting system, uncertainty about potential increased liability and the cost to patients and the national health service (see Figure 9).

Figure 9. Remote Patient Management implementation barriers



Providing the relevant technology for delivering Remote Patient Management and patient data protection and privacy seemed to be of less concern to the HCPs than the barriers mentioned above. However, we would stress that the importance of these concerns should not be underestimated. Though less than half of the HCPs mentioned privacy as a big or relatively big barrier, a large group of them (more than 40%) still considered this point to be a possible concern. Moreover, more than 40% of the hospital consultants and GPs also said they would not feel comfortable holding consultations with their patients using videoconferencing, and only a little more than half agreed that Remote Patient Management would not endanger the privacy or integrity of medical records or other patient information (see Section 1.2.3, Figure 7, Panel C). Given that the privacy and integrity of patient data is a major issue in most developed countries, including Spain, this problem needs to be addressed when promoting Remote Patient Management. Otherwise, it may become a big barrier for wider adoption of Remote Patient Management. Providing transparent information about Remote Patient Management emphasizing its security and the protection of patients' private data should help minimize this barrier.

1.2.5. What can be done to encourage patients reluctant to use Remote Patient Management to use it for their condition?

Finding 5

There is a need for increased information on Remote Patient Management to improve understanding of the system. Moreover, reassuring and supporting patients to use Remote Patient Management is a vital part of successfully introducing and using the system.

Previous sections suggest that, in general, Remote Patient Management was viewed positively and most of the HCPs were open to testing it if it were available. However, as noted in Section 1.2.4, the HCPs believed there were several concerns that could limit wider adoption of Remote Patient Management. We therefore aimed to explore what could be done to minimize the concerns of medical professionals about adoption of Remote Patient Management by their patients. We also used the responses of the HCPs to understand what medical professionals thought could be done to encourage patients reluctant to use Remote Patient Management to adopt it for their condition. The HCPs had to select one of five possible items in a closed list. If they believed none applied or there was a better option, they could also provide the other option. More specifically, the HCPs had to choose one of the following:

a) Providing more information to patients about how Remote Patient Management works

b) Encouraging patients who use Remote Patient Management to recommend it to other patients

c) Providing support to patients so they feel comfortable using the technology

d) Reassuring patients that it will not undermine the effectiveness of their treatment

e) Reassuring patients about their data protection and privacy

f) Other [please specify]

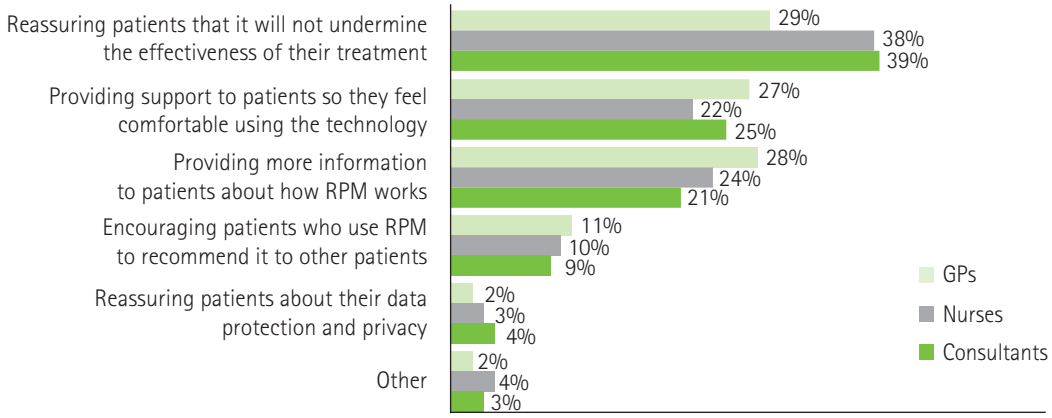
We found that around 40% of the nurses and hospital consultants and 30% of the GPs said the most efficient way to encourage patients to use Remote Patient Management was to reassure them that Remote Patient Management would not undermine the effectiveness of their treatment. Providing more information to patients about how Remote Patient Management worked and providing support to patients so they felt comfortable using the technology were the next two most important encouragement tools suggested by the nurses and consultants. More than 20% of the nurses and consultants and around 30% of the GPs mentioned each of these items as methods that could be applied to increase the use of Remote Patient Management (see Figure 10).

Other items such as reassuring patients about the privacy of their data and encouraging patients who used Remote Patient Management to recommend it to other patients were seen as much less important by the HCPs for promoting Remote Patient Management among reluctant patients. Though privacy was seen as a less important issue to address when promoting Remote Patient Management among reluctant patients, we would once again stress that this problem should not be underestimated, as more than 40% of the patients perceived privacy and data protection as a big or fairly big barrier for Remote Patient Management adoption (see Section 1.3.4 for more details).

Overall, providing relevant information about Remote Patient Management to reassure patients that it will not undermine the effectiveness of their treatment and supporting patients who feel less comfortable about using the technology are important steps that should be undertaken to encourage wider use of Remote Patient Management in Spain.

Figure 10. Encouraging patients to use Remote Patient Management

Which of the following do you think would do the most to encourage patients who would be reluctant to use Remote Patient Management to use it for their condition?



1.3. Results: Patients

This part of the report covers patient responses about Remote Patient Management. Patients are one of the parties directly involved in Remote Patient Management and their opinions are therefore crucial if the system is to become more widespread. We aimed to assess the same issues regarding Remote Patient Management as was done with the HCPs. In our survey, we tried to understand whether patients were aware of the term and whether they used Remote Patient Management or would be willing to use it in the future. We also aimed to assess the potential benefits and barriers Remote Patient Management could have for patients and to explore possible tools to encourage patients to use Remote Patient Management more widely.

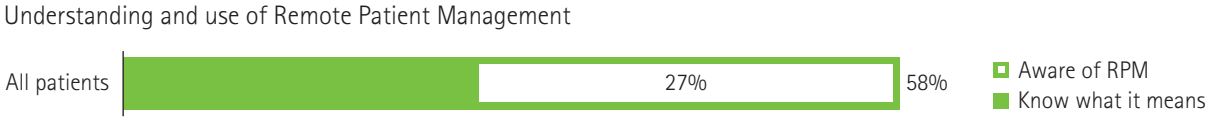
Finding 6

Around 40% of the patients said they were not aware of the term. Moreover, only about a quarter claimed to understand its exact meaning. They said that little information was available about Remote Patient Management at the moment.

1.3.1. Are patients aware of Remote Patient Management?

We asked patients whether they were aware of Remote Patient Management and whether they knew what it meant. We found that a little more than 40% of the patients were not aware of the term at all (see Figure 11 below). Therefore, although the majority of the patients had heard of the term, a relatively large proportion of them were still not aware of Remote Patient Management and this proportion should not be ignored. In addition, 30% of those who had heard of the term were not sure of its exact meaning. Therefore, medical professionals (especially consultants and nurses) seemed to be slightly more aware of Remote Patient Management than their patients (73% vs. 58%, respectively).

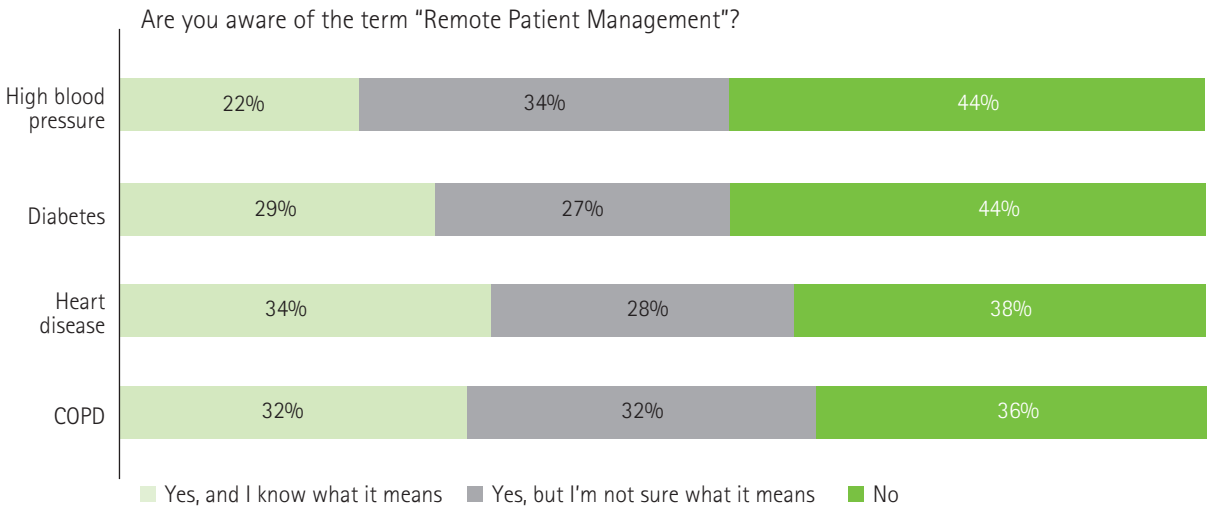
Figure 11. Understanding and use of Remote Patient Management



The focus groups we conducted confirmed the survey findings. Most of the patients in the focus groups had not heard of Remote Patient Management. A small number felt it sounded familiar, but were unsure of its meaning. Only one respondent out of 16 in the focus groups, having read about Remote Patient Management in the media, had a clear idea of what it entailed.

We found that there were differences in patient awareness about Remote Patient Management based on their condition. Patients with high blood pressure and diabetes had heard about Remote Patient Management less and knew the exact meaning of the term less than those with heart disease and COPD (see Figure 12).

Figure 12. Awareness of Remote Patient Management by condition



Moreover, participants' demographic characteristics had an influence on how aware they were of the term. For example, the patients with a higher income had greater awareness and understood the meaning of Remote Patient Management more than those with a lower income (see Figure 13). The reasons for this are not apparent and are therefore worth investigating further.

In addition, more patients from the central, north-western and eastern regions of Spain than from the southern and north-eastern regions and from Madrid had not heard of Remote Patient Management. Overall, patients in the central region were the least aware of the meaning of Remote Patient Management (see Figure 14).

This low awareness and, more importantly, the lack of the understanding of the meaning of the term could be due to the very limited information currently available to the public about Remote Patient Management. Like the HCPs, the patients said they felt they did not have enough information about the system. More than 65% of the patients agreed that there was not enough information available for patients about Remote Patient Management at the time.

Those who had heard about Remote Patient Management learned about it from a wide variety of sources, the most popular one being mainstream media (46% of the patients had heard about Remote Patient Management from this source), followed by information from doctors and medical professionals (30% of patients reporting obtaining information on Remote Patient Management from this source) (see Figure 15 below).

Figure 13. Remote Patient Management awareness by income group

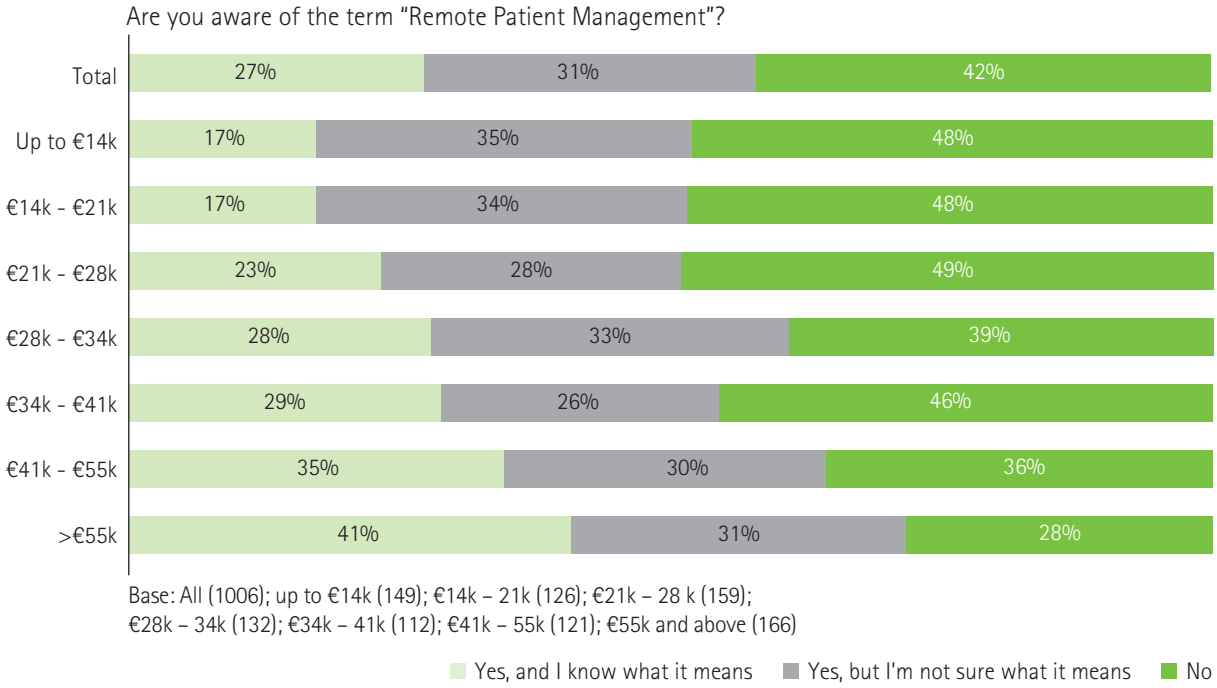


Figure 14. Remote Patient Management awareness by region

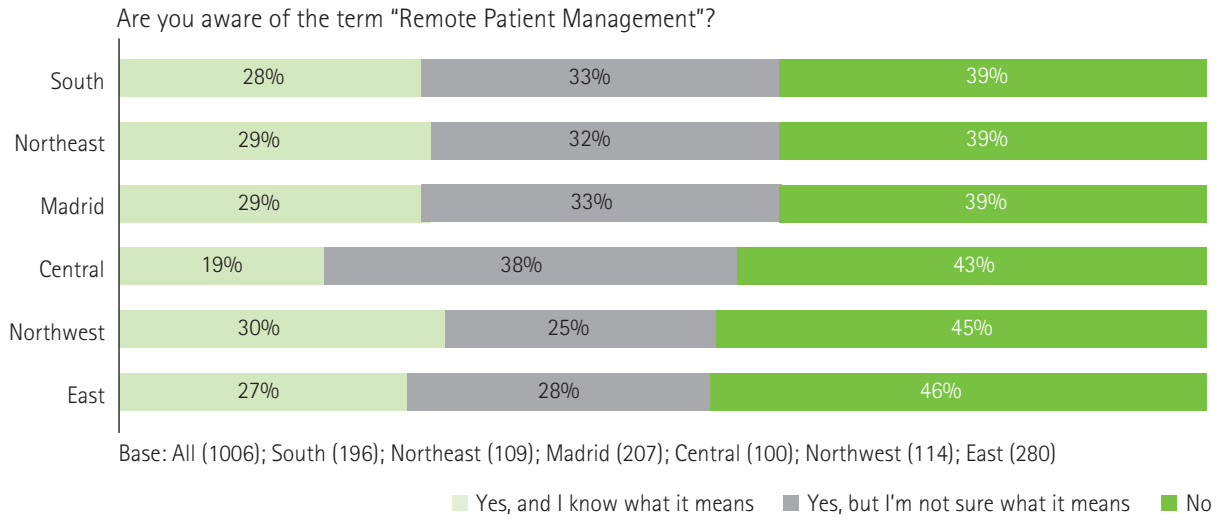
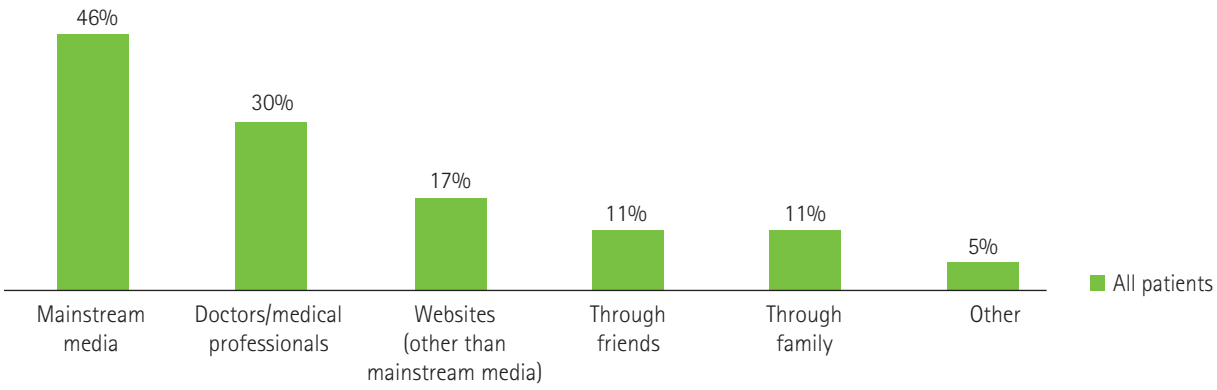


Figure 15. Most popular sources of information acquisition

How did you hear of the term "Remote Patient Management"?



In general, although the majority of the patients and HCPs had heard about Remote Patient Management, their awareness of the term was still relatively low, especially among the patients. Moreover, very few of them knew the exact meaning of the term. It is apparent that there is currently a lack of information on Remote Patient Management available to medical professionals and patients. Therefore, there is a need to provide such information. It is also important to note that, when providing information about Remote Patient Management, special attention should be paid to patients with high blood pressure and diabetes, those with low incomes and those who reside in the eastern, north-western and central regions of Spain, as these groups have the least knowledge of Remote Patient Management.

1.3.2. Do patients use Remote Patient Management to manage their condition?

Finding 7

Very few patients were using Remote Patient Management at the time of the survey (around 7%), but another 70% said they would consider using it if they were offered such an option.

We asked the patients participating in our survey whether they had been offered, were currently using or would consider using Remote Patient Management to manage their condition. Less than one fifth of all the patients (only around 15%) had been offered to use Remote Patient Management to manage their condition. Of this number, similar proportions said they would opt for and against the use of Remote Patient Management to manage their condition. 7% of respondents stated that they currently used Remote Patient Management, while another 8% responded they had been offered Remote Patient Management but did not use it at the moment (see Figure 16). These percentages varied a little depending on patients' condition. As shown in Figure 16, whereas only 11% of the patients with high blood pressure said they had been offered Remote Patient Management (5% opted to use it and 6% opted not to use it), around 17% to 20% of the patients with other conditions (diabetes, heart disease and COPD) had been offered the option of using Remote Patient Management. Therefore, it appears that patients with high blood pressure were offered Remote Patient Management the least overall. The reason for this is not clear, but this should be taken into consideration when developing a plan to provide patients with information about Remote Patient Management. Patients with high blood pressure

should also be paid special attention, as this group has currently been offered Remote Patient Management the least. Of the patients with diabetes, heart disease and COPD, the patients with heart disease were more prone to using Remote Patient Management (12% using vs. 8% not using), whereas the patients with COPD were more sceptical about using Remote Patient Management when they were offered this option (13% opted against and 7% opted to use it).

It is important to stress, however, that the vast majority of patients, i.e. approximately three quarters of all the patients surveyed, had not been offered the option of Remote Patient Management. Therefore, we also aimed to understand whether the patients who had not been offered the use of Remote Patient Management would be open to trying it to manage their condition if it were an option. Like the HCPs, the patients seemed to be optimistic about using Remote Patient Management if they were offered such a system. Although 69% said they had not been offered such an option, they said they would consider using Remote Patient Management for managing their condition if it were offered to them (see Figure 16). This percentage did not vary much depending on patients' condition, i.e. all the patients were similarly positive about using the system.

Only an average of 16% of the patients said that they would not consider using Remote Patient Management even if it were offered to them. This scepticism about using Remote Patient Management varied depending on patients' condition. The patients with high blood pressure were the most sceptical about using Remote Patient Management (20% said they would not use it even if it were offered to them), while only 12% of the patients with heart disease and 10% of the COPD patients would not consider using Remote Patient Management if it were an option.

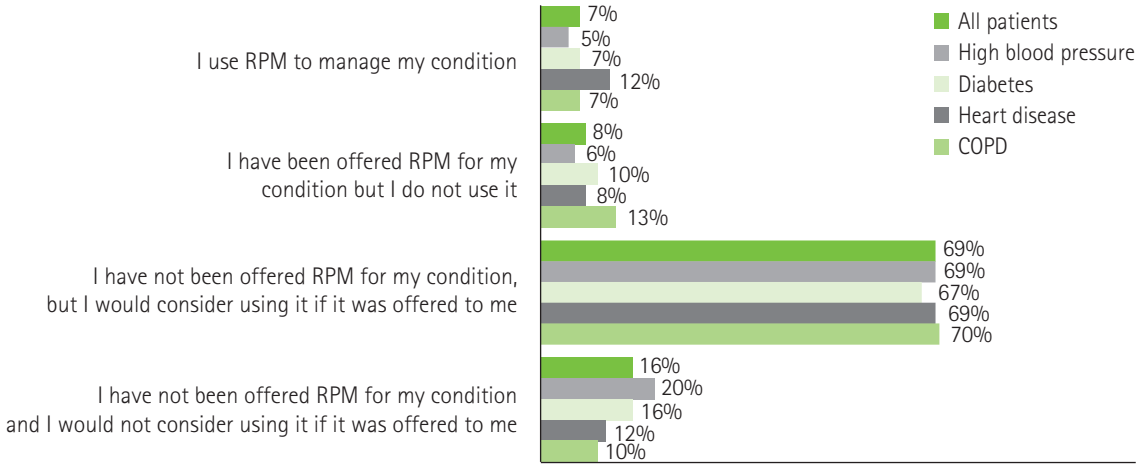
Overall, the patients seemed to be quite positive and optimistic about the possibility of using Remote Patient Management. In total, more than 75% of the patients were either open to trying Remote Patient Management if it were an option (69%) or were using it at the time (7%). These numbers were consistent with the figures for the HCPs and can therefore be viewed as rather reliable. However, it is important to pay special attention to the attitudes of patients with high blood pressure regarding Remote Patient Management. This group of patients was using Remote Patient Management the least and was also more reluctant to use Remote Patient Management in the future. The reasons behind this scepticism must be understood so it can be addressed if necessary.

It is also important to note that the patients participating in the focus groups stressed that, although they perceived Remote Patient Management to be quite beneficial, they would need more information before committing themselves to use the system. This confirms our previous findings that providing more information about Remote Patient Management is a necessary condition for wider adoption.

On the other hand, it is important to understand why one fourth of patients did not want to use Remote Patient Management. Further research is necessary to shed light on the reasons why patients currently do not or would not consider Remote Patient Management as an option to treat their condition. Such research will increase our understanding of the perceived drawbacks or barriers of Remote Patient Management and will also improve Remote Patient Management implementation and communication on the topic to the public with the aim of wider adoption.

Figure 16. Patients' use of Remote Patient Management

Which of these statements about Remote Patient Management most applies to you?



1.3.3. What are the perceived benefits of Remote Patient Management for patients?

Finding 8

The patients perceived a number of potential benefits in Remote Patient Management. Like the HCPs, they said they believed that Remote Patient Management could improve the quality of care and help them manage their condition more effectively. They said Remote Patient Management could be especially useful for patients who wanted to reduce the number of trips to hospital and save time managing their condition.

As noted in the previous section, the vast majority of the patients said they would use Remote Patient Management if it were an option. We tried to understand the potential benefits of Remote Patient Management perceived by the patients and whether those benefits were consistent with the ones mentioned by the medical professionals.

We assessed the patients' attitudes of the possible benefits of Remote Patient Management through two different questions on the survey and through the participants' comments about Remote Patient Management in the two focus groups. The first question on the survey asked patients to agree or disagree with several statements about Remote Patient Management. The statements included positive and negative aspects of Remote Patient Management. As we are now examining the benefits of Remote Patient Management, we will discuss the response options that considered the positive sides of Remote Patient Management only. In the next section of the report, we will analyse the negative aspects of Remote Patient Management and will discuss the options that included the drawbacks of Remote Patient Management. The positive options were:

a) I think Remote Patient Management would be an effective way to manage my chronic condition

b) I would feel comfortable having consultations with my doctor via videoconferencing (using a phone or a computer)

c) Remote Patient Management can help improve the quality of care patients receive

The answers were given on a 6-point scale: 1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree, 6 don't know (see Appendix 5 for the exact phrasing of the question and response options).

Again, we confirmed the finding that the patients had a relatively positive attitude toward Remote Patient Management. 67% of the patients agreed that Remote Patient Management could help improve the quality of care patients received. Overall, the percentages of agreement were similar for the four different chronic conditions, though patients with COPD and heart disease were a bit more optimistic about how much the quality of their care would improve than those with high blood pressure and diabetes (74%-73% vs. 64%-65%, respectively). In addition, 62% of all the patients believed remote Remote Patient Management would be an effective way to manage their chronic condition. Once again, the patients with COPD were more optimistic than the other patients. Moreover, 60% of the respondents said they would feel comfortable having consultations with their doctor via videoconferencing (using a phone or a computer).

In the second question on the survey, we directly assessed each of the four potential benefits of Remote Patient Management suggested by the experts. The patients had to decide which of the four benefits on a closed list they thought they would gain from Remote Patient Management. The patients were asked to select as many benefits as they wanted. They were also given the option not to select any. The following benefits were listed:

- an improvement in my own and my family's quality of life
- helping me to take better care of myself and my condition
- avoiding unnecessary trips to hospital
- saving me time in managing my chronic conditions by avoiding trips to hospital

We found that Remote Patient Management was viewed as a tool for improving the patients' medical condition rather than as a source of improvement of their general quality of life. The greatest benefits the patients perceived came from avoiding unnecessary trips to hospital, which also helped them save time (more than 50% mentioned each of these benefits) (see Figure 17). Another 47% said they felt that Remote Patient Management could help them take better care of themselves and their condition. Only around 30% said they believed Remote Patient Management had a more global positive impact, i.e. it could improve their own and their families' lives (see Figure 17). Similarly to previous findings, the patients with COPD and heart disease viewed Remote Patient Management as more beneficial than those with high blood pressure and diabetes. Consistent with previous findings, the patients with a low income were also less likely to identify the benefits of Remote Patient Management than those with a higher income.

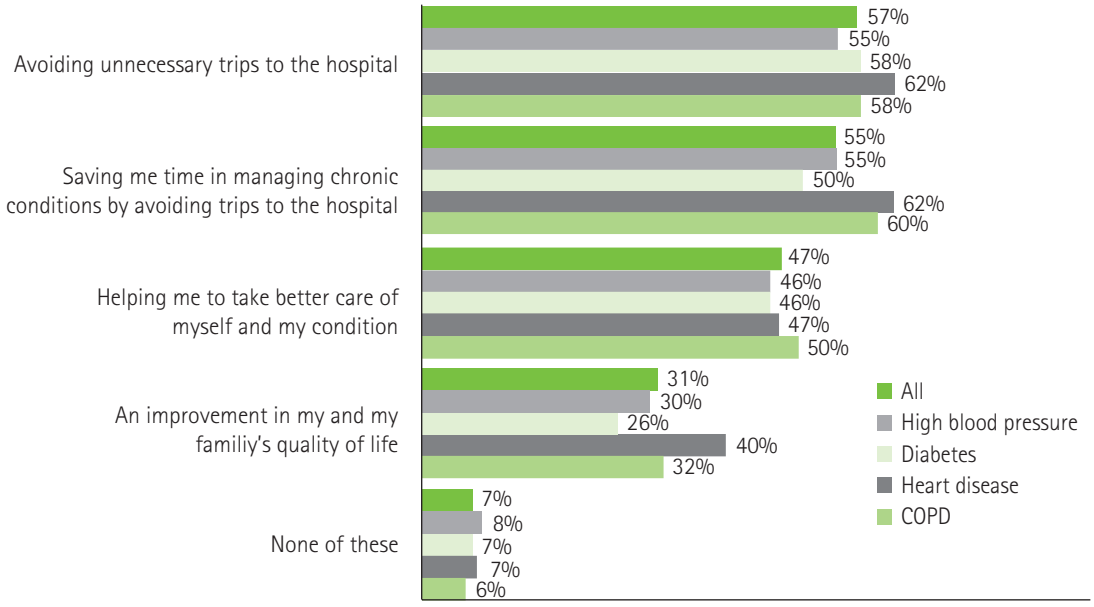
These answers on the survey were consistent with the beliefs of the patients who participated in the two focus groups. Time and convenience were believed to be the biggest benefits for focus groups participants. "I think it's very convenient" and "You'll have greater control and management of your condition" were typical comments about Remote Patient Management. The patients instinctively associated Remote Patient Management with time savings. Most felt that it would enable them to avoid going to the doctor just to have their measurements taken, which

would save them time. "You invest a lot of time [going to the doctor], so this product would provide time savings" suggested participants. They felt that working people would particularly benefit from Remote Patient Management, given that doctor's appointments could take half the working day. Patients in the focus groups believed "It will be good for people with jobs". Some participants in the focus groups also felt that Remote Patient Management offered greater reassurance and control of their condition because they could provide their doctor with real-time updates. These updates reassured them that any changes in their condition would be spotted quickly. For example, participants suggested that there would be "No need to wait for the doctor as he gets my results right away. I'd feel more concerned if my doctor saw me three days later". Patients also correctly believed that "The purpose of the system is for follow-up information, not emergencies". It is important to note that the patients in the focus groups were not prompted about the possible benefits of Remote Patient Management and could mention any benefits that came to mind.

Overall, both the patients and doctors perceived Remote Patient Management quite enthusiastically. The medical professionals and patients said they believed that Remote Patient Management could improve the quality of care and could help patients manage their own condition. However, the doctors seemed to be a bit more optimistic than the patients in this regard (85% of the doctors said they believed it could improve the quality of care vs. 67% of the patients). For the patients, the benefits of Remote Patient Management were associated to a greater degree with more efficient management of their chronic condition, time savings and convenience rather than improvement of their general quality of life. Moreover, we found that patients with heart disease and COPD seemed to view Remote Patient Management slightly more positively than those with diabetes and high blood pressure.

Figure 17. Benefits of Remote Patient Management

Which of the following benefits, if any, do you think Remote Patient Management could bring?



1.3.4. What are the barriers of Remote Patient Management perceived by patients that can hinder wider adoption of the system?

Finding 9

The patients had a number of concerns about Remote Patient Management: around 55% were afraid of losing personal contact with medical professionals and more than 45% were concerned Remote Patient Management might be imposed on patients to reduce costs, even if it were not appropriate for the patients. Moreover, as with the HCPs, the patients believed that the lack of access to, knowledge of or confidence in the technology could be the biggest potential barrier to using Remote Patient Management. Minor concerns included cost and privacy issues.

As with the doctors, we asked the patients to assess potential barriers of Remote Patient Management. The patients were provided with the closed list of nine items (potential barriers) and were asked to assess how big each of those barriers was to wider adoption of Remote Patient Management. The following items were provided to the participants:

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

Respondents could choose one of the following responses: a very big barrier, a fairly big barrier, a fairly small barrier, not a barrier at all, don't know (see Appendix 1.8, Question 8).

All of the nine barriers were considered very big or fairly big by at least 38% of respondents, suggesting that all of them are rather significant for wider Remote Patient Management adoption (see Figure 18). This finding suggests that each of these issues needs to be addressed if Remote Patient Management is to be successfully introduced. However, as indicated in Figure 18, the two biggest barriers mentioned by around 70% of the patients as big or fairly big were patients not having the right technology and patients not having the knowledge or confidence to use the system. These two barriers mentioned by the patients were consistent with the two biggest barriers mentioned by the HCPs (see Section 1.2.4 for results). However, one needs to understand the technology issues that worry the doctors and patients the most, as videoconferencing technology was not a point of worry for most of the patients (60%). They said they would feel comfortable having consultations with their doctor via videoconferencing (using a phone or a computer). This is consistent with the attitudes of the medical specialists. As noted

in Section 1.2.3, more than 50% of the hospital consultants and GPs also said they would feel comfortable holding consultations with their patients using videoconferencing. In addition, the participants in the focus groups were not overly concerned about using computers or mobile technology for Remote Patient Management either. They felt relatively comfortable about it and believed that any technological hurdles could be overcome with guidance. Therefore, in order to address these two big concerns regarding technology and knowledge of technology, it is important to understand what kind of technology and issues connected with technology worry the patients and doctors the most.

The concern about technology and patients not being confident and able to use the technology might come from a general misunderstanding of what Remote Patient Management is, how it works and what technology is used. The patients and HCPs might have overestimated the technological needs and knowledge required for wider adoption of the system. Indeed, the third biggest concern suggested by patients was the lack of understanding about Remote Patient Management among patients, which in reality might be the main barrier for wider adoption of Remote Patient Management among HCPs and patients alike, and which further confirms the need to provide the public with more detailed information on Remote Patient Management.

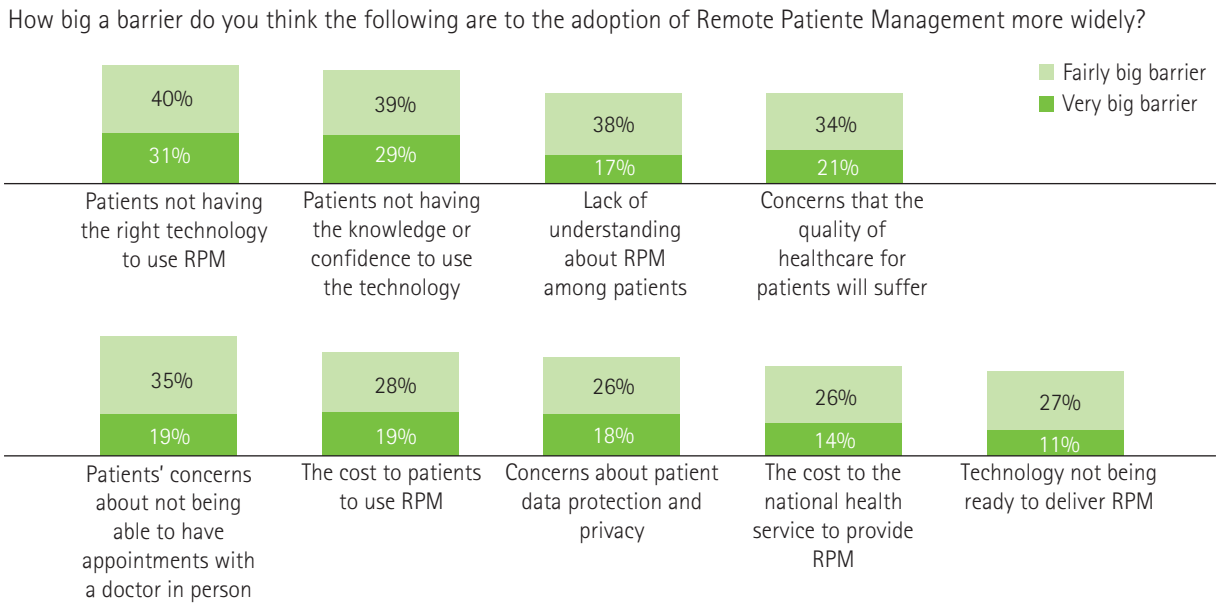
Concerns that the quality of healthcare for patients would suffer and not being able to have appointments with a doctor in person were the other barriers mentioned by the majority of the patients (around 55%) as either very big or fairly big (see Figure 18). Moreover, when asked directly, more than a third of the participants (36%) agreed with the statement that they would be concerned about less face-to-face contact time with medical professionals if they used Remote Patient Management. The loss of personal contact with medical specialists in the case of Remote Patient Management was also a fundamental concern raised by the participants in focus groups. Many believed that Remote Patient Management would replace their relationship with their doctor rather than complement it. Such comments as *"The doctor-patient relationship would be broken which is fundamental"*, *"I do not want to lose the relationship I have with my doctor"* or *"It's less personal, it's more cold"* were not uncommon during the focus group discussions. In that case, many patients would choose not to use Remote Patient Management. Again, these attitudes of the loss of personal relations with medical specialists might come from a misinterpretation or misunderstanding of Remote Patient Management and therefore need to be carefully addressed when promoting Remote Patient Management.

Interestingly, and as noted in the previous section, around 70% of the patients agreed that Remote Patient Management could help improve the quality of care patients receive, while 55% expressed their concern that the quality of healthcare for patients would suffer with the introduction of Remote Patient Management. These two statements might at first seem contradictory. However, the possible explanation for this dual attitude toward Remote Patient Management may be found in the focus group responses. As noted in the previous section, some people believed that Remote Patient Management offered greater reassurance and control of their condition because any changes would be viewed in real time by the doctor and spotted immediately. On the other hand, other patients felt that Remote Patient Management could lead to a loss of control. These patients felt that if they kept a paper record, they could decide when to contact their doctor. In contrast, once they had submitted their measurements using Remote Patient Management, they would have to wait for a response. Confusion over how their results would be monitored and who would monitor them meant the patients were concerned their

measurements would be ignored or not fully understood. We therefore once again confirm the need to provide more information about Remote Patient Management and clearer explanations to patients about how Remote Patient Management works in order to avoid this confusion.

Minor concerns included the cost to patients to use Remote Patient Management and the cost to the national health service to provide Remote Patient Management, as well as patient data protection and privacy. Though less than 50% of the patients mentioned these concerns as big or fairly big barriers, the number of patients concerned with these issues was still quite significant (more than 40%) and should not be underestimated. Moreover, more than 45% of the respondents said they were concerned that Remote Patient Management would be used in order to reduce costs, even when it was not appropriate for patients. These worries and fears expressed by the patients should definitely be clarified and explained during communication campaigns on Remote Patient Management.

Figure 18. Remote Patient Management adoption barriers



1.3.5. What should be done to encourage patients to use Remote Patient Management?

Finding 10

There is a need to provide more information on Remote Patient Management in order to improve understanding of the system. Moreover, an essential part of successful adoption of Remote Patient Management should include reassurance and support for patients to use Remote Patient Management from trustworthy sources (mainly the doctors themselves).

Our data show that patients viewed Remote Patient Management quite positively and enthusiastically. However, our focus groups indicate that many patients would be interested in using Remote Patient Management only after being convinced to take it up initially. The patients in the focus groups thought that Remote Patient Management could be useful to manage their condition, but they needed more information before they would commit to using it.

As noted above, 65% of the patients answering the survey also stated that there was not enough information available for patients about Remote Patient Management. This lack of information might be a source of the misinterpretation, misunderstanding and confusion patients have about Remote Patient Management that might hinder wider adoption of the system. Questions on the level of technology required, mobile coverage in remote areas, the required frequency of updates, the level of personal contact with medical professionals, the cost to patients and the national health service, and data protection all need to be answered for patients to feel comfortable about using Remote Patient Management.

In addition, during the focus groups, the participants said they would need support and reassurance to use the system and that such reassurance could come from a number of sources. The main criteria for believing the source would be that the source was trustworthy. For example, the patients said they would welcome a recommendation from their doctor on whether to use Remote Patient Management, as the doctor would be their trusted source of information. Similarly, they said they would consider messages and explanations from the Ministry of Health to be reliable and credible.

Therefore, providing clear, transparent, detailed and straightforward information from a trustworthy source is the first crucial step toward wider adoption of Remote Patient Management.

Conclusions and Recommendations

There is ample evidence in the scientific literature on the advantages of using mobile technologies and care management programmes in combination to improve the care provided to chronically ill patients while reducing the overall cost of their care by eliminating unnecessary doctor's appointments, unnecessary hospital [re]admissions, engaging patients more actively in their own care and shifting the effort of tracking medical constants or physical and mood changes in patients to lower-cost care providers. Remote Patient Management methods seem best suited for captive chronic patient populations that have long-term relations with their insurers and doctors. This is the case of HMOs and the Veterans Administration in the United States, the NHS in the United Kingdom and different regional health systems in Spain. This study provides answers about the attitudes of Spanish healthcare professionals and chronic patients on the applicability of Remote Patient Management in their provider-patient relationship.

Most of the successful cases studied in the literature use economic models that align financial incentives with providing effective and efficient care, and it is clear that further adoption of Remote Patient Management technologies will continue to be affected by regulatory, legal, privacy, quality and cost issues. We should be aware that, in the cases studied in Spain, the results come from pilot experiments where the patients may have suffered from mild cases of the Hawthorne effect, i.e. the desire to perform better when subject to attention from researchers, doctors or nurses. This indicates that, when the programme is deployed in wider groups, paying attention to the conditions of the deployment process is as important as having successful products or programmes to deploy. Even in cases where the application of some programmes is initially not successful[14], a change in the design or the focus of the programme can completely change the outcome.

We found that the majority of the HCPs and patients had heard of the term "Remote Patient Management", but very few of them understood its exact meaning. In addition, 25%-30% of the HCPs and 40% of the patients were still not aware of the term at all. Moreover, both the medical professionals and patients believed they did not have enough information about Remote Patient Management. Therefore, providing clear, relevant, transparent and timely information about Remote Patient Management is the first essential step to be taken for promotion and successful adoption of Remote Patient Management

However, we also found that different groups of the HCPs and patients had different levels of awareness of the term and different attitudes toward using the system. These different groups should therefore be approached differently. What concerns HCPs, providing information on Remote Patient Management to GPs, should be given special attention, as this group is the least informed about the exact meaning of Remote Patient Management, is currently using Remote Patient Management the least and said they would be the most reluctant to use the system in the future if it were an option.

14. Peikes, D. et al., How changes in Washington University's Medicare Coordinated Care Demonstration Pilot Ultimately Achieved Savings, Health Affairs, 2012.

In addition, we found that the HCPs' place of work affected the level of their awareness about Remote Patient Management and their willingness to try out the system. The HCPs working in the private sector were less aware of the term and less open to using it, even if it were available to treat their patients' condition than those working in public sector. The private-sector GPs were also more worried than the public-sector doctors about the lack of clarity surrounding insurance reimbursement guidelines for telehealth. The HCPs working in both the private and public sectors were the most enthusiastic about Remote Patient Management. Though the number of HCPs who were sceptical about Remote Patient Management was relatively low, we recommend starting promotion of Remote Patient Management in the public sector (where Remote Patient Management finds less resistance) rather than in private sector (where Remote Patient Management is viewed more negatively). In addition, as the HCPs from the private sector viewed Remote Patient Management less enthusiastically than those from public sector, stronger tools and more information on certain aspects of Remote Patient Management might be necessary to convince private-sector medical specialists to use Remote Patient Management. For example, to address the concerns of doctors in the private sector, it is particularly important to provide clear information on insurance reimbursement guidelines for telehealth, as well as reassurance that the privacy and integrity of medical records would not be endangered.

As for patients, those with different health conditions and different demographics had different levels of awareness of the term. The patients with high blood pressure and diabetes were less likely to have heard of Remote Patient Management than those with heart disease and COPD. The patients with a lower income said they were less aware and understood the meaning of Remote Patient Management less than those with a higher income. In addition, more patients from the central, north-western and eastern regions of Spain than from southern and north-eastern regions and from Madrid had not heard of Remote Patient Management. The patients from the central region were the least aware of the meaning of Remote Patient Management. When information is provided on Remote Patient Management, special attention should therefore be paid to the groups that showed the least knowledge of Remote Patient Management. However, it is also recommended that promotion of Remote Patient Management be started among the groups of patients that viewed Remote Patient Management more positively and enthusiastically, i.e. among patients with COPD and heart disease, those having a higher income and those residing in the southern and north-eastern regions of Spain and in Madrid.

Segmentation of public and medical professionals by their degree of awareness is important in order to deliver a successful targeted information/communication campaign on Remote Patient Management. Given that the majority of the patients and medical professionals had heard of the term, information targeted at this segment/group should not be aimed at increasing awareness of the term, but at providing definitions and descriptions of its meaning in addition to an explanation of how Remote Patient Management works. The aim of information campaigns for the groups that had never heard of Remote Patient Management should also be designed to increase awareness.

Furthermore, the source of information plays a crucial role in building trust and confidence in Remote Patient Management among patients. We found that, although the vast majority of the patients and doctors were positive about Remote Patient Management and open to trying it out if it were an option, the patients stressed that they would need more information before they would commit to using the system. Both the patients and medical professionals said they believed that patients needed reassurance in order to adopt Remote Patient Management.

Such reassurance should come from a "trustworthy", reliable source. Therefore, careful selection of the source through which information on Remote Patient Management is provided to patients is essential for successful promotion of Remote Patient Management among patients and to build patients' confidence in the system. For example, information about Remote Patient Management aimed at patients should come from credible source such as medical professionals/doctors visits or the Ministry of Health.

In addition, we found that one fourth of the patients still did not want to use Remote Patient Management. It is important not to ignore this group of patients and to try to understand the reasons behind their scepticism and reluctance to use the system to manage their condition. Further research is necessary to reveal these possible reasons. Such research will increase our understanding of the perceived drawbacks or barriers of Remote Patient Management and will also improve communication on Remote Patient Management for the public with the aim of wider adoption.

The findings show that, in general, Remote Patient Management was viewed positively and enthusiastically by most of the HCPs and patients. Remote Patient Management was associated with a number of important benefits. Both the patients and medical professionals said they believed it could improve the quality of care patients received and increase patients' involvement in managing their own conditions. The HCPs also said they believed that Remote Patient Management could help improve the efficiency of the healthcare system and lead to better management of the patient base in hospitals by reducing the number of patients visiting the hospital just to have their measurements taken, reducing overcrowding and providing better control of clinical episodes and decompensation. These benefits should be stressed when promoting Remote Patient Management among medical professionals and patients, as they increase the system's credibility and highlight its clear advantages. We also suggest starting the promotion of Remote Patient Management among those groups of the HCPs and patients who perceived the greatest number of benefits in the use of Remote Patient Management and who viewed Remote Patient Management the most enthusiastically.

Finally, we found that both the HCPs and patients said they believed that the biggest barriers for using Remote Patient Management were patients not having the right technology and patients not having the knowledge or confidence to use the system. However, the majority of the patients and HCPs said they felt comfortable using videoconferencing and the respondents in the focus groups suggested that they were not overly concerned about using mobile technology or computers. Therefore, to address the two biggest barriers, one needs to understand the technology issues that worry the doctors and patients the most. The barriers may come from a mere misunderstanding of the level of technological knowledge necessary to use the system and both the patients and HCPs may have overestimated the technology and knowledge required for wider adoption of Remote Patient Management. The lack of information on Remote Patient Management and especially on technological issues could be the source of the misinterpretation, misunderstanding and confusion of HCPs and patients about Remote Patient Management. These questions on the level of technology required and the technological literacy of HCPs and patients need to be answered for patients to feel comfortable about using Remote Patient Management. In addition, in order to minimize the technological barrier, it is important to provide support to those patients and HCPs who feel less technologically literate.

Key Recommendations/Lessons

R1. Providing clear, relevant, transparent and timely information about Remote Patient Management is the first essential step to be taken for promotion and successful adoption of Remote Patient Management. Questions on the meaning of Remote Patient Management, its benefits, the level of technology required, the level of personal contact with medical professionals, the cost to patients and the national health service, and data protection all need to be answered for patients to feel comfortable using Remote Patient Management.

R2. There is a need to facilitate the difussion of results and evidence of successful Remote Patient Management experiences in different regions and settings as well as to motivate their adoption by prospective beneficiaries. It should be taken into consideration that there are important externalities in the adoption of these Remote Patient Management innovations since the sooner they achieve economic scale, the sooner the launching cost will be reduced and the benefits will be realized by a larger number of patients and HCPs. The creation of an independent observatory focused on ehealth and Remote Patient Management with the responsibility to assess the innovations along the dimensions of cost effectiveness, patients' experiences enhancement, and population health advancement could be useful in making Remote Patient Management benefits available in a shorter time to potential beneficiaries.

R3. When providing information on Remote Patient Management, special attention should be paid to increasing awareness of Remote Patient Management among the groups with the least knowledge of Remote Patient Management and its meaning, e.g. GPs, patients with high blood pressure, patients with diabetes, patients with a low income, and those residing in the central, north-western and eastern regions of Spain.

R4. Promotion of Remote Patient Management among HCPs should start in the public sector, as the HCPs working in the public sector were less sceptical about using Remote Patient Management if it were available than those working in the private sector. In addition, stronger tools are necessary to convince HCPs in the private sector to take it up than HCPs in the public sector.

R5. Promotion of Remote Patient Management should start with the patient groups that perceived Remote Patient Management more enthusiastically: patients with COPD, patients with heart disease, those having a higher income and those residing in the southern, north-eastern regions of Spain and in Madrid.

R6. To successfully promote Remote Patient Management among patients and to build patients' trust in the system, information about Remote Patient Management should come from a "trustworthy, reliable and credible source" (e.g. from a medical professional patient visits or from the Ministry of Health.).

R7. There is a need to reassure patients that the introduction of Remote Patient Management will not cause the personal patient-doctor relationship to suffer. Therefore, when promoting Remote Patient Management, a clear message should be sent that Remote Patient Management will be used as a complement, not a replacement of personal appointments/consultations with the doctor.

R8. Clearer information should be provided on the technology and level of knowledge required from patients and HCPs to use Remote Patient Management. Less technologically literate patients and HCPs should be given support to use the technology necessary for Remote Patient Management. The possibility should be considered of offering different levels of system sophistication, personalizing applications to the level patients and caregivers feel comfortable with, and facilitating easy adoption of Remote Patient Management.

R9. Strong privacy protection should be key in the deployment of an Remote Patient Management initiative. Even though most of the professionals and patients did not consider privacy to be a big barrier, the lack of privacy incentives and the possible dissemination of a few cases in which privacy has been breached could produce a backlash that is very difficult to counter.

Figures

Appendices

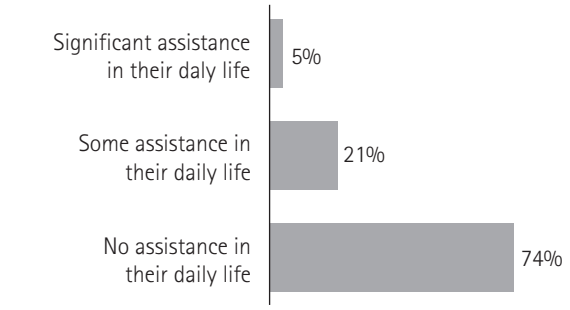
1.4. Supporting Information

Figura A1. Patients' demographic profile

Demographics								
	Total	100%	Region	Canary Islands	3%	Income	Up to €7,000	3%
Gender	Male	67%		Central	10%		€7,001 - €14,000	12%
	Female	33%		East	28%		€14,001 - €21,000	13%
Age	18-24	4%		Madrid	21%		€21,001 - €28,000	16%
	25-34	10%		Northeast	8%		€28,001 - €34,000	13%
	35-44	14%		Northwest	11%		€34,001 - €41,000	11%
	45-54	19%		South	19%		€41,001 - €48,000	6%
	55-64	33%					€48,001 - €55,000	6%
	65+	19%					€55,001 - €62,000	4%
Condition	High blood pressure	41%					€62,001 - €69,000	3%
	Diabetes	32%					€69,001 - €76,000	3%
	Heart disease	16%					€76,001 - €83,000	2%
	COPD	12%					€83,001 or more	5%
							Prefer not to say	4%

Figura A2. Patient conditions

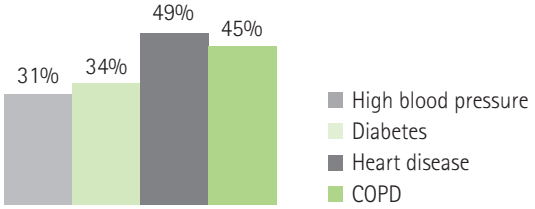
Level of assistance required for their condition



Which sector do they receive their care from?	
Entirely through the public health service	74%
Entirely through the private health service	11%
Provided through the public health service but paid for through private health insurance	3%
Both the public and private health service	12%

Length of time they have had their conditions	
Less than one year	10%
1-2 years	22%
3-5 years	28%
6-9 years	17%
10 years or more	23%

% patients who have sent information to a medical professional using the Internet on their computer



1.5. HCP Questionnaire (GPs or Doctors)

Local Doctors

1. What gender are you?

- ☐ Male
- ☐ Female

2. Which age group do you belong to?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

3. Which region of Spain do you live in?

- ☐ Andalusia
- ☐ Aragon
- ☐ Asturias
- ☐ Balearic Islands
- ☐ Basque Country
- ☐ Canary Islands
- ☐ Cantabria
- ☐ Castilla y León
- ☐ Castilla-La Mancha
- ☐ Catalonia
- ☐ Ceuta
- ☐ Extremadura
- ☐ Galicia
- ☐ La Rioja
- ☐ Madrid
- ☐ Melilla
- ☐ Murcia
- ☐ Navarra
- ☐ Valencia

4. Do you conduct your work in the public health sector, the private health sector, or both?

- ☐ Public sector
- ☐ Private sector
- ☐ Both

5. [If answered "both" in Q4]

Where do you conduct the majority of your work?

- ☐ In the public health sector
- ☐ In the private health sector
- ☐ I split it equally between the private and public health sectors

Main questionnaire

1. Which of these do you think are the biggest issues for your ability to treat patients at the moment? [Please rank your top 3]

- ☐ Too many patients
- ☐ Not enough doctors at my practice
- ☐ Not enough nurses / other support staff at my practice
- ☐ Being able to accommodate patients who have chronic conditions and need regular appointments
- ☐ Being able to respond to emergencies
- ☐ Cleanliness / hygiene

2. Are you aware of the term "Remote Patient Management"?

a) Yes, and I know what it means

b) Yes, but I'm not sure what it means

c) No

For the rest of this questionnaire, please use the following definition of Remote Patient Management:

Remote Patient Management (RPM) enables people with chronic conditions such as diabetes, high blood pressure, heart and respiratory problems to monitor their condition in their own homes and share the results in real time with their doctor.

The device patients use to monitor their condition (e.g. a blood sugar testing machine or a blood pressure monitor) is connected to a mobile phone network. Each time patients test their condition, the findings are sent over the mobile phone network to their doctor's computer. Doctors are able to use this information to see when a condition is improving or deteriorating.

3. [If respondent has heard of Remote Patient Management] How did you hear of the term "Remote Patient Management"?

a) Through doctors / medical professionals

b) Through other colleagues

c) From specialist publications

d) At industry events and conferences

e) From the media

f) From websites on the Internet (other than mainstream media)

g) Other [please specify]

4. Which of these statements about Remote Patient Management most applies to you?

a) I currently use Remote Patient Management to manage my patients' condition

b) Remote Patient Management is available for my patients but I choose not to use it

c) Remote Patient Management is currently not available for my patients but I would use it to manage their condition if it were available

d) Remote Patient Management is currently not available for my patients and I would not use it to manage their condition if it were available

5. Please say how much you agree or disagree with the following statements about Remote Patient Management

[1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree, 6 don't know]

a) There is not enough information available for doctors on Remote Patient Management at the moment

b) Remote Patient Management would not endanger the privacy and integrity of medical records or other patient information

c) I would feel comfortable holding consultations with my patients via videoconferencing

d) Remote Patient Management can help improve the quality of care patients receive

e) Remote Patient Management offers a good way for medical practitioners to send information to patients with chronic conditions

f) There is a lack of clarity around insurance reimbursement guidelines for telehealth

6. Which of the following benefits, if any, do you think Remote Patient Management could bring? [Select all that apply]

a) Earlier detection of changes in patients' conditions

b) Encouraging patients to take greater responsibility for their own health

c) A reduction in the time I spend managing patients with a chronic disease or condition

d) Enabling medical staff to follow patients' progress more closely

e) Easier and more flexible contact with patients

f) Reducing the number of patients who visit hospital just to have their measurements taken

g) Better control of clinical episodes and decompensation

h) Reducing patient overcrowding

7. How big a barrier do you think the following are to the adoption of Remote Patient Management more widely?

[very big barrier, fairly big barrier, fairly small barrier, not a barrier at all, don't know]

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Patient concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

j) Uncertainty about potential increased liability from medical professionals not paying sufficient attention to Remote Patient Management data

k) The current contracting system, which currently pays for treatment based upon physical patient visits and does not consider extra payments for Remote Patient Management

8. Approximately how many of the patients you treat for chronic conditions do you think would be willing and able to use Remote Patient Management to manage their condition?

Please write in the percentage of patients you think would be willing and able in numeric form, e.g. 70%.

9. Which of the following do you think would do the most to encourage patients who are reluctant to use Remote Patient Management to use it for their condition?

a) Providing more information to patients about how Remote Patient Management works

b) Encouraging patients who use Remote Patient Management to recommend it to other patients

c) Providing support to patients so they feel comfortable using the technology

d) Reassuring patients that it will not undermine the effectiveness of their treatment

e) Reassuring patients about their data protection and privacy

f) Other [please specify]

1.6. HCP Questionnaire (Nurses)

Nurses

1. What gender are you?

- ☐ Male
- ☐ Female

2. Which age group do you belong to?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

3. Which region of Spain do you live in?

- ☐ Andalusia
- ☐ Aragon
- ☐ Asturias
- ☐ Balearic Islands
- ☐ Basque Country
- ☐ Canary Islands
- ☐ Cantabria
- ☐ Castilla y León
- ☐ Castilla-La Mancha
- ☐ Catalonia
- ☐ Ceuta
- ☐ Extremadura
- ☐ Galicia
- ☐ La Rioja
- ☐ Madrid
- ☐ Melilla
- ☐ Murcia
- ☐ Navarra
- ☐ Valencia

4. Do you conduct your work in the public health sector, the private health sector, or both?

- ☐ Public sector
- ☐ Private sector
- ☐ Both

5. [If respondent answered "both" in Q4]

Where do you conduct the majority of your work?

- ☐ In the public health sector
- ☐ In the private health sector
- ☐ I split it equally between the private and public health sector

6. Are you based in a hospital or a primary healthcare centre? If you work in both, please select the one you do the majority of your work in

a) In a hospital

b) In a primary healthcare centre

Main questionnaire

1. Which of these do you think are the biggest issues where you work at the moment? [Please rank your top 3]

- ☐ Patient overcrowding / too many patients
- ☐ Not enough doctors / consultants in hospitals
- ☐ Not enough doctors / consultants in primary healthcare centres
- ☐ Not enough nurses
- ☐ Being able to accommodate patients who have chronic conditions and need regular appointments
- ☐ Being able to respond to emergencies
- ☐ Cleanliness / hygiene

2. Are you aware of the term "Remote Patient Management"?

a) Yes, and I know what it means

b) Yes, but I'm not sure what it means

c) No

For the rest of this questionnaire, please use the following definition of Remote Patient Management:

Remote Patient Management (RPM) enables people with chronic conditions such as diabetes, high blood pressure, heart and respiratory problems to monitor their condition in their own homes and share the results in real time with their doctor.

The device patients use to monitor their condition (e.g. a blood sugar testing machine or a blood pressure monitor) is connected to a mobile phone network. Each time patients test their condition, the findings are sent over the mobile phone network to their doctor's computer. Doctors are able to use this information to see when a condition is improving or deteriorating.

3. [If respondent has heard of Remote Patient Management]
How did you hear of the term "Remote Patient Management"?

a) From a doctor/medical professional

b) From other work colleagues

c) From the hospital management

d) From specialist publications

e) At industry events and conferences

f) From the media

g) From websites on the Internet (other than mainstream media)

h) Other [please specify]

4. Which of these statements about Remote Patient Management most applies to you?

a) I currently use Remote Patient Management to manage my patients' condition

b) Remote Patient Management is available for my patients but I choose not to use it

c) Remote Patient Management is currently not available for my patients but I would use it to manage their condition if it were available

d) Remote Patient Management is currently not available for my patients and I would not use it to manage their condition if it were available

5. Please say how much you agree or disagree with the following statements about Remote Patient Management.

[1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree, 6 don't know]

a) There is not enough information available for nurses about Remote Patient Management at the moment

b) Remote Patient Management can help improve the quality of care patients receive

c) There are clear guidelines and procedures for medical staff around Remote Patient Management

d) Remote Patient Management technology is easy to use for patients

e) Remote Patient Management technology is easy to use for medical professionals

f) Patients with chronic diseases or conditions can be safely managed through Remote Patient Management

g) Remote Patient Management offers a good way for medical practitioners to send information to patients with a chronic conditions

h) There is a lack of clarity around insurance reimbursement guidelines for telehealth

6. Which of the following benefits, if any, do you think Remote Patient Management could bring?

[Select all that apply]

a) Earlier detection of changes in patients' condition

b) Encouraging patients to take greater responsibility for their own health

c) A reduction in the time I spend managing patients with chronic diseases or conditions

d) Reducing the number of patients who visit hospital just to have their measurements taken

e) Reducing patient overcrowding

f) Enabling medical staff to follow patients' progress more closely

g) Easier and more flexible contact with patients

h) Better control of clinical episodes and decompensation

7. How big a barrier do you think the following are to the adoption of Remote Patient Management more widely?

[very big barrier, fairly big barrier, fairly small barrier, not a barrier at all, don't know]

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Patient concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

j) Uncertainty about potential increased liability arising from medical professionals not paying sufficient attention to Remote Patient Management data

k) The current contracting system, which currently pays for treatment based on physical patient visits and does not consider extra payments for Remote Patient Management

8. Approximately how many of the patients you treat for chronic conditions do you think would be willing and able to use Remote Patient Management to manage their condition?

Please write in the percentage of patients you think would be willing and able in number form, e.g. 70%.

9. Which of the following do you think would do the most to encourage patients who would be reluctant to use Remote Patient Management to use it for their condition?

a) Providing more information to patients about how Remote Patient Management works

b) Encouraging patients who use Remote Patient Management to recommend it to other patients

c) Providing support to patients so they feel comfortable using the technology

d) Reassuring patients that it will not undermine the effectiveness of their treatment

e) Reassuring patients about their data protection and privacy

f) Other [please specify]

1.7. HCP Questionnaire (Consultants)

Hospital Consultants

1. Which of the following do you specialize in?

[Full list of consultant specializations].

Only cardiologists, endocrines, internal medicine physicians to proceed

2. What gender are you?

- ☐ Male
- ☐ Female

3. Which age group do you belong to?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

4. Which region of Spain do you live in?

- ☐ Andalusia
- ☐ Aragon
- ☐ Asturias
- ☐ Balearic Islands
- ☐ Basque Country
- ☐ Canary Islands
- ☐ Cantabria
- ☐ Castilla y León
- ☐ Castilla-La Mancha
- ☐ Catalonia
- ☐ Ceuta
- ☐ Extremadura
- ☐ Galicia
- ☐ La Rioja
- ☐ Madrid
- ☐ Melilla
- ☐ Murcia
- ☐ Navarra
- ☐ Valencia

5. Do you conduct your work in the public health sector, the private health sector, or both?

- ☐ Public sector
- ☐ Private sector
- ☐ Both

6. [If respondent answered "both" in Q5]
Where do you conduct the majority of your work?

- ☐ In the public health sector
- ☐ In the private health sector
- ☐ I split it equally between the private and public health sectors

Main questionnaire

1. Which of these do you think are the biggest issues for the hospital wards that you work in at the moment? [Please rank your top 3]

- ☐ Patient overcrowding / too many patients
- ☐ Not enough doctors / consultants
- ☐ Not enough nurses
- ☐ Being able to accommodate patients who have chronic conditions and need regular appointments
- ☐ Being able to respond to emergencies
- ☐ Cleanliness / hygiene

2. Are you aware of the term "Remote Patient Management"?

a) Yes, and I know what it means

b) Yes, but I'm not sure what it means

c) No

For the rest of this questionnaire, please use the following definition of Remote Patient Management:

Remote Patient Management (RPM) enables people with chronic conditions such as diabetes, high blood pressure, heart and respiratory problems to monitor their condition in their own homes and share the results in real time with their doctor.

The device patients use to monitor their condition (e.g. a blood sugar testing machine or a blood pressure monitor) is connected to a mobile phone network. Each time patients test their condition, the findings are sent over the mobile phone network to their doctor's computer. Doctors are able to use this information to see when a condition is improving or deteriorating.

3. [If respondent has heard of Remote Patient Management] How did you hear of the term "Remote Patient Management"?

a) Through doctors / medical professionals

b) Through other colleagues

c) From the hospital management

d) From specialist publications

e) At industry events and conferences

f) From the media

g) From websites on the Internet (other than mainstream media)

h) Other [please specify]

4. Which of these statements about Remote Patient Management most applies to you?

a) I currently use Remote Patient Management to manage my patients' conditions

b) Remote Patient Management is available for my patients but I choose not to use it

d) Remote Patient Management is currently not available for my patients but I would use it to manage their condition if it were available

d) Remote Patient Management is currently not available for my patients and I would not use it to manage their condition if it were available

5. Please say how much you agree or disagree with the following statements about Remote Patient Management.

[1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree, 6 don't know]

a) There is not enough information available for doctors on Remote Patient Management at the moment

b) Remote Patient Management would not endanger the privacy and integrity of medical records or other patient information

c) I would feel comfortable holding consultations with my patients via videoconferencing

d) Remote Patient Management can help improve the quality of care patients receive

e) There is a lack of clarity around insurance reimbursement guidelines for telehealth

f) Remote Patient Management offers a good way for medical practitioners to send information to patients with chronic conditions

6. Which of the following benefits, if any, do you think Remote Patient Management could bring?

[Select all that apply]

a) Earlier detection of changes in patients' condition

b) Encouraging patients to take greater responsibility for their own health

c) A reduction in the time I spend managing patients with a chronic diseases or conditions

d) Enabling medical staff to follow patients' progress more closely

e) Easier and more flexible contact with patients

f) Reducing patient overcrowding

g) Reducing my hospital's costs

h) Reducing the number of patients who visit hospital just to have their measurements taken

i) Better control of clinical episodes and decompensation

7. How big a barrier do you think the following are to the adoption of Remote Patient Management?

[Very big barrier, fairly big barrier, fairly small barrier, not a barrier at all, don't know]

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Patient concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

j) Uncertainty about potential increased liability arising from medical professionals not paying sufficient attention to Remote Patient Management data

k) The contracting system, which currently pays treatment based upon physical patient visits and does not consider extra payments for Remote Patient Management

8. Approximately how many of the patients you treat for chronic conditions do you think would be willing and able to use Remote Patient Management to manage their condition?

Please write in the percentage of patients you think would be willing and able in number form, e.g. 70%.

9. Which of the following do you think would do the most to encourage patients who would be reluctant to use Remote Patient Management to use it for their condition?

a) Providing more information to patients about how Remote Patient Management works

b) Encouraging patients who use Remote Patient Management to recommend it to other patients

c) Providing support to patients so they feel comfortable using the technology

d) Reassuring patients that it will not undermine the effectiveness of their treatment

e) Reassuring patients about their data protection and privacy

f) Other [please specify]

1.8. Patient Questionnaire

Patients

1. What gender are you?

- ☐ Male
- ☐ Female

2. Which age group do you belong to?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

3. Which region of Spain do you live in?

- ☐ Andalusia
- ☐ Aragon
- ☐ Asturias
- ☐ Balearic Islands
- ☐ Basque Country
- ☐ Canary Islands
- ☐ Cantabria
- ☐ Castilla y León
- ☐ Castilla-La Mancha
- ☐ Catalonia
- ☐ Ceuta
- ☐ Extremadura
- ☐ Galicia
- ☐ La Rioja
- ☐ Madrid
- ☐ Melilla
- ☐ Murcia
- ☐ Navarra
- ☐ Valencia

4. Income

5. Please indicate your highest level of studies or those of the home's primary earner.

a) I cannot read or write

b) No studies (unfinished grade school studies)

c) Primary level (primary school certificate, first stage of EGB, around age 10)

d) Secondary level. First cycle (completed compulsory education, or second stage of EGB, or first and second year of ESO-first cycle, up to age 14)

e) Secondary level. Second cycle (Vocational training I and II, Bachiller superior, BUP, third and fourth years of ESO (second cycle) COU, PREU, first and second years of Bachillerato, up to age 18

f) Third level. First cycle (equivalent to a 3-year diploma, 3 years, escuelas universitarias, 3-year technical diploma)

g) 3-year diploma in architecture, education, nursing, law, social work; 3 years of an undergraduate degree; etc.

h) Third level. Second cycle (4- or 5-year university degree); master's degree; doctorate degree, etc.

Questions about patients' condition

6. Which of the following conditions, if any, have you been diagnosed with? ***Please select all those you have been diagnosed with. [All respondents must select at least one from a-d]***

a) High blood pressure

b) Diabetes

c) Heart disease

d) Chronic obstructive pulmonary disease (COPD)

e) Epilepsy

f) Asthma

g) A food allergy

For all of the following questions about your condition, please answer in relation to what you consider to be your main condition

7. Which of the following best describes the assistance you require as a result of your condition?

a) I need significant assistance from family or caregivers in my daily life

b) I need some assistance from family or caregivers in my daily life

c) I do not require any assistance from family or caregivers in my daily life

8. How long have you been diagnosed with your condition / conditions?

a) Less than one year

b) 1-2 years

c) 3-5 years

d) 6-9 years

e) 10 years or more

9. On average, how often do you do the following?

[Every day, a few times a week, once a week, a few times a month, once a month, less often than this, I never do this]

a) Use the Internet on a desktop or laptop computer

b) Use the Internet on a mobile phone or tablet

c) Use a mobile phone to make calls or send text messages

d) Use the Internet on a computer to send information on your health condition to a medical professional

e) Use the Internet on your mobile phone or computer to send information on your health condition to a medical professional

10. How do you receive treatment for your condition(s)?

a) My treatment is provided entirely through the public health service

b) My treatment is provided entirely through the private health service

c) My treatment is provided through the public health service but paid for through private health insurance

d) I receive treatment through both the public and private health service

11. [If answered 'd' in Q10]

Where do you receive the majority of your treatment from?

a) In the public health sector

b) In the private health sector

c) It is split equally between the private and public health sector

Main questionnaire

1. Are you aware of the term "Remote Patient Management"?

a) Yes, and I know what it means

b) Yes, but I'm not sure what it means

c) No

2. For the purposes of this questionnaire, the following definition of Remote Patient Management will be understood:

Remote Patient Management (RPM) enables people with chronic conditions such as diabetes, high blood pressure, heart and respiratory problems to monitor their condition in their own homes and share the results in real time with their doctor.

The device patients use to monitor their condition (e.g. a blood sugar testing machine or a blood pressure monitor) is connected to a mobile phone network. Each time patients test their condition, the findings are sent over the mobile phone network to their doctor's computer. Doctors are able to use this information to see when a condition is improving or deteriorating.

3. [If respondent has heard of Remote Patient Management in Q1]

How did you hear of the term "Remote Patient Management"?

a) Through family

b) Through friends

c) From a doctor/medical professional

d) From the mainstream media

e) From websites on the Internet (other than mainstream media)

f) Other [please specify]

4. Which of these statements about Remote Patient Management apply to you?

a) I use Remote Patient Management to manage my condition

b) I have been offered Remote Patient Management for my condition but I do not use it

c) I have not been offered Remote Patient Management for my condition, but I would consider using it if it were offered to me

d) I have not been offered Remote Patient Management for my conditions and I would not consider using it if it were offered to me

5. Based on what you know, please write in below the words and phrases wich best describe how you feel about Remote Patient Management:

[Open-ended]

6. Please say how much you agree or disagree with the following statements about Remote Patient Management.

[1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree, 6 don't know]

a) I think Remote Patient Management would be an effective way to manage my chronic condition

b) I would feel comfortable having consultations with my doctor via videoconferencing (using a phone or a computer)

c) There is not enough information available for patients about Remote Patient Management at the moment

d) I would be concerned about having less face-to-face contact time with medical professionals if I used Remote Patient Management

e) Remote Patient Management would make me feel like I had less medical support for managing my condition

f) I'm concerned that Remote Patient Management will be used when it is not appropriate for patients in order to reduce costs

g) Remote Patient Management can help improve the quality of care patients receive

7. Which of the following benefits, if any, do you think Remote Patient Management could bring for you?

[Select all that apply]

a) An improvement in my own and my family's quality of life

b) Helping me take better care of myself and my condition

c) Avoiding unnecessary trips to the hospital

d) Saving me time in managing chronic conditions by avoiding trips to the hospital

8. How big a barrier do you think the following are to adoption of Remote Patient Management more widely?

[very big barrier, fairly big barrier, fairly small barrier, not a barrier at all, don't know]

a) Lack of understanding about Remote Patient Management among patients

b) Patients not having the right technology to use Remote Patient Management

c) Patients not having the knowledge or confidence to use the technology

d) The cost to patients to use Remote Patient Management

e) The cost to the national health service to provide Remote Patient Management

f) Technology not being ready to deliver Remote Patient Management

g) Concerns about not being able to have appointments with a doctor in person

h) Concerns that the quality of healthcare for patients will suffer

i) Concerns about patient data protection and privacy

IESE Business School
University of Navarra

Center for Research in Healthcare Innovation Management

Av. Pearson, 21
08034 Barcelona
Spain

www.iese.edu

AN IESE-ACCENTURE INITIATIVE