Benchmarking Deployment of eHealth among General Practitioners (2018)

EXECUTIVE SUMMARY

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Authors
Francisco Lupiáñez-Villanueva, Axelle Devaux and Jose A. Valverde (Editors)
Francisco Lupiáñez-Villanueva, Frans Folkvord and Clara Faulí (Authors)
Marlene Altenhofer, Lucy Hocking and Amelia Harshfield (Contributors)

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## Abbreviations and acronyms

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<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>DG CONNECT</td>
<td>Directorate-General for Communications Networks, Content and Technology</td>
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<tr>
<td>EHR</td>
<td>Electronic Health Record</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>GP</td>
<td>general practitioner</td>
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<tr>
<td>HIE</td>
<td>Health Information Exchange</td>
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<tr>
<td>ICT</td>
<td>information and communication technology</td>
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<tr>
<td>NHS</td>
<td>national health service</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PHR</td>
<td>Personal Health Record</td>
</tr>
</tbody>
</table>
1 Introduction and background

The European Commission seeks to understand and measure the current use of information and communication technology (ICT) and eHealth applications by general practitioners (GPs) in the European Union (EU), as well as changes in uptake over time. Two studies benchmarking the use of eHealth by GPs in Europe had been conducted to date: Dobrev et al. (2008) and Codagnone and Lupiáñez-Villanueva (2013b). RAND Europe, together with Open Evidence and BDI Research, were commissioned by the Directorate-General for Communications Networks, Content and Technology (DG CONNECT) to undertake the third benchmarking study, which aimed to: (1) measure the use of ICT and eHealth applications by GPs in 27 EU member states since 2013, (2) analyse the main drivers of and barriers to eHealth adoption in primary healthcare, and (3) compare how the levels of adoption, drivers and barriers have evolved since 2013 (Codagnone and Lupiáñez-Villanueva 2013a, 2013b).

This document is the executive summary of the final report of the study. The final report and the executive summary are accompanied by country profiles for each member state surveyed.

2 Study design and analysis

This mixed-methods study consisted of two main elements:

- A literature review on factors influencing the adoption and use of ICT in primary care.
- A survey of GPs in 27 EU countries.

The literature review followed a rapid evidence assessment approach and aimed to provide an update to the literature review findings presented in the second eHealth benchmarking study, as well as to identify whether the questions on the drivers, impacts and barriers to eHealth included in the questionnaire are still valid or, instead, require an update.

For the survey of GPs, we used the same approach and the same questionnaire as were used for the second eHealth benchmarking study. The questionnaire covers socio-demographics and general characteristics of surveyed GPs, as well as the availability and use of eHealth functionalities, and it addresses attitudes to, perceived barriers to and perceived impacts of ICT adoption. Questions on availability and use of eHealth functionalities are divided into four categories of ICT in healthcare, as defined by the Organisation for Economic Co-operation and Development (OECD) (OECD 2015): Electronic Health Records (EHRs), Health Information Exchange (HIE), Telehealth and Personal Health Records (PHRs).

The survey was conducted between January and June 2018. Across the 27 EU countries analysed, a final sample of 5,793 GPs was randomly selected, with an overall sampling error of ±1.30%. Univariate and multivariate statistical analysis were conducted to analyse the survey data. To gain a better understanding of the difference between availability and use of the different eHealth functionalities, we created new variables, which are general measures of how well a functionality is adopted. These variables combine answers to questions on the availability and use of a functionality on a scale of 0 to 4 (0 = not aware (‘do not know’ answers), 1 = do not have it, 2 = have it and do not use it, 3 = use it occasionally, 4 = use it routinely). We used these variables to develop composite indicators for each of the four

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1 All 28 member states as of 2018, except for the Netherlands. The Nationaal ICT Instituut in de Zorg (shortened to Nictiz), the national centre of expertise for eHealth in the Netherlands, was conducting an official monitoring eHealth survey during the same period covered by this study. Access to the GPs in this country was restricted by the Dutch authorities to avoid interference with the national survey.
eHealth categories to show the adoption of each category, as well as a composite index\textsuperscript{2} to show the overall adoption of eHealth, which combines the results of the four composite indicators.

Finally, we analysed responses to questions on perceived impacts of and barriers to eHealth, using a non-hierarchical cluster analysis. We used these two sets of variables (i.e. impacts and barriers) to develop a typology of four GP attitudinal profiles: Realist, Enthusiast, Indifferent and Reluctant.

\section{Main findings}

\subsection{Descriptive findings}

\subsubsection{General characteristics}

Across the 27 EU countries analysed, a final sample of 5,793 GPs was selected:

- 50\% of respondents are male and 50\% female.
- 45\% of respondents are 55 years of age or older, 27\% between 46 and 55 years, 18\% between 36 and 45 years and 10\% are 35 years or younger.
- 39\% of respondents are self-employed working alone in a practice, 30\% work as a salaried GP in a health centre and 22\% are self-employed working in a group practice.
- 37\% of respondents work in large cities, 36\% in rural towns and 27\% in medium- to small-sized cities.

\subsubsection{Electronic health records}

Figure 1 shows the adoption of the 25 EHR functionalities presented in the survey. There are no significant differences compared with 2013.

\footnote{\textsuperscript{2} A composite index is formed when individual indicators are compiled into a single index on the basis of an underlying conceptual model with the support of the empirical exploration of the dataset.}
### 3.1.3 Health information exchange

Figure 2 shows the adoption of 15 HIE functionalities presented in the survey. Routine use of certifying sick leaves has increased from 47% in 2013 to 58% in 2018, and routine use of transferring prescriptions to pharmacists has increased from 24% in 2013 to 43% in 2018.
3.1.4 Telehealth

Figure 3 shows the adoption of the HIE functionalities presented in the survey. There are no significant differences compared with 2013.

<table>
<thead>
<tr>
<th>Function</th>
<th>2018</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive laboratory reports</td>
<td>21%</td>
<td>9%</td>
</tr>
<tr>
<td>Certify sick leaves</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>Transfer prescriptions to pharmacists</td>
<td>43%</td>
<td>3%</td>
</tr>
<tr>
<td>Send/receive referral and discharge letters</td>
<td>42%</td>
<td>11%</td>
</tr>
<tr>
<td>Patient appointment requests</td>
<td>44%</td>
<td>15%</td>
</tr>
<tr>
<td>Certify disabilities</td>
<td>52%</td>
<td>10%</td>
</tr>
<tr>
<td>Receive and send laboratory reports and share them with other healthcare professionals/providers</td>
<td>49%</td>
<td>15%</td>
</tr>
<tr>
<td>Exchange medical patient data with other healthcare professionals and professionals</td>
<td>46%</td>
<td>19%</td>
</tr>
<tr>
<td>Exchange patient medication lists with other healthcare professionals/providers</td>
<td>54%</td>
<td>13%</td>
</tr>
<tr>
<td>Exchange radiology reports with other healthcare professionals/providers</td>
<td>56%</td>
<td>13%</td>
</tr>
<tr>
<td>Order supplies for your practice</td>
<td>52%</td>
<td>10%</td>
</tr>
<tr>
<td>Exchange administrative patient data with reimbursers or other care providers</td>
<td>54%</td>
<td>9%</td>
</tr>
<tr>
<td>Interact with patients by email about health-related issues</td>
<td>50%</td>
<td>19%</td>
</tr>
<tr>
<td>Make appointments at other care providers on your patients’ behalf</td>
<td>63%</td>
<td>17%</td>
</tr>
<tr>
<td>Exchange medical patient data with any healthcare provider in other countries</td>
<td>72%</td>
<td>8%</td>
</tr>
</tbody>
</table>

3.1.5 Personal health records

Figure 4 shows the adoption of the PHR functionalities presented in the survey. Changes compared with 2013 were found for the functions to request appointments (2018: 24%, 2013: 13%) and to request renewals or prescriptions (2018: 22%, 2013: 13%).
3.2 eHealth adoption

3.2.1 Electronic health record adoption

The EHR composite indicator combines 23 functionalities across five subdimensions. The EHR composite indicator shows that EHRs are fully available across the 27 EU countries; in some countries there is almost full adoption. The EHR composite indicator score for the EU in 2018 is 3.196, which is an increase compared with the 2013 score of 2.989.

While we found increases in the adoption of EHRs since 2013 across all member states, the extent of the increase varied. The largest increase was found for Lithuania, where the EHR composite indicator score increased by 0.790 points, from 1.393 in 2013 to 2.183 in 2018 (however, despite this increase, Lithuania still has the lowest EHR adoption score among all analysed countries).

3.2.2 Health information exchange adoption

The HIE composite indicator combines 13 functionalities into three subdimensions. The HIE composite indicator suggests that its adoption is lower than the adoption of EHR. The EU average score in 2018 is 2.070, which is an increase compared with the 2013 score of 1.884.

While we found increases in the adoption of HIE since 2013 across all member states, the extent of the increase varied. The largest increases were found for Croatia (2013: 1.692, 2018: 2.286) and Slovenia (2013: 1.318, 2018: 1.872).

3.2.3 Telehealth adoption

The Telehealth composite indicator is composed of two subdimensions covering four different functionalities. The Telehealth composite indicator shows an increase in Telehealth adoption from 2013 to 2018. The EU average score in 2018 is 1.639, while in 2013 it was 1.383.

While we found increases in the adoption of Telehealth since 2013 across all member states, the extent of the increase varied. The largest increase was found for Croatia, where the Telehealth composite indicator score increased from 1.260 in 2013 to 1.824 in 2018.

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3 The EU average for the EHR, HIE, Telehealth and PHR composite indicator was weighted based on the number of GPs in each country.

4 Except for Bulgaria, where the 2013 EHR composite indicator score was 2.746, which means a decrease of 0.001 points, to 2.745, in 2018; however, given the margin error of the sample, this decrease is not statistically significant.
3.2.4 Personal health record adoption

The PHR composite indicator combines six different functionalities into two subdimensions. The PHR composite indicator shows a large discrepancy between high- and low-performing countries. The EU average score in 2018 is 1.568, which is higher than in 2013, when it was 1.319.

While we found increases in the adoption of PHRs since 2013 across all countries, the extent of the increase varied. The largest increase was found for Finland, where the PHR composite indicator score increased by 1.334 points, from 1.242 in 2013 to 2.576 in 2018. Similarly, the United Kingdom (2013: 1.597, 2018: 2.428) and Sweden (2013: 1.555, 2018: 2.354) had substantial increases.

3.2.5 eHealth composite index of adoption

The overall eHealth adoption average score – the eHealth composite index of adoption – combines results for the four eHealth composite indicators. In 2018, the composite index EU average is 2.131, which indicates an increase since 2013, when the EU average was 1.876.

3.3 eHealth adoption in context

We analysed the organisational- and system-level differences for the composite index and the four composite indicators to show differences by practice type and health system type. On average, eHealth adoption is higher among national health service (NHS) system countries as compared with social insurance and transition countries. Overall, transition countries have lower levels of adoption compared with NHS and social insurance countries, with the exception of Estonia: it is not only ranked among the top five countries across all four eHealth categories and in the overall adoption of eHealth (second highest composite index score), but also had the highest increase in the level of adoption since 2013. In addition, the analysis showed that GPs working in health centres and group practices have higher adoption levels than those working in solo practices or under other arrangements (i.e. freelance and others).

3.4 GP profiles

We conducted a cluster analysis using the data on the perceived impacts of and barriers to ICT adoption in primary care to develop a typology of four GP attitudinal profiles: Realist, Enthusiast, Indifferent and Reluctant.

A cluster analysis using data on the perceived impacts of and barriers to ICT adoption showed that the Realists are the largest group among the GPs surveyed: 36% of GPs represented in the cluster analysis consider both the barriers and impacts as relevant and important when it concerns the adoption of eHealth functionalities. The second largest group are the Enthusiasts: 27% of the GPs in the cluster analysis extol the impacts and disregard the barriers. GPs in the cluster Indifferent (23% of the classified GPs) report that they do not care about either the impacts or the barriers. The smallest group are Reluctant GPs, who place more importance on barriers than on impacts (14% of the classified GPs, 12% of our sample).

We observed some changes between the 2013 and 2018 results. In 2013, 33% of GPs in the classified sample were Indifferent, while in 2018, 23% were in this group. Conversely, Enthusiasts increased from 13% to 27% between 2013 and 2018. This suggests that a large proportion of the GPs became more positive about the drivers and less negative about the barriers in the past five years.

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5 Except for Romania, where the 2013 PHR composite indicator score was 1.232, which means a decrease of 0.046 points, to 1.186, in 2018; however, given the margin error of the sample, this decrease is not statistically significant.
4 References


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