Attitudes and behaviors related to the introduction of electronic health records among Austrian and German citizens

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\textbf{A B S T R A C T}

\textbf{Background:} Acceptance by citizens seems to be crucial for the future success of an electronic health record (EHR) in Germany and Austria. We analyzed citizens’ knowledge and expectations about the concept and contents of an EHR. We also addressed possible fears and barriers, and we investigated desired EHR functionalities relevant to citizens in the Austrian and German population.

\textbf{Methods:} Standardized interviews of a convenience sample of 203 Austrian and 293 German citizens recruited in two metropolises.

\textbf{Results:} Up to three-quarter of the interviewed citizens already collect and store medical documents at home, mostly in paper-based form. No respondents had already used an Internet-based personal health record. Between 80% and 90% of respondents were supportive of the idea of an electronic exchange of health-related data between healthcare providers as core functionality of an EHR. However, many respondents formulated concerns with regard to data protection and data security within an EHR. The EHR functionalities most supported by respondents included the electronic vaccination record, online information on doctors and hospitals, and the administration of appointments and reminders.

\textbf{Conclusion:} The results indicate a generally positive attitude towards the EHR. However, the study shows that data protection is an issue for many citizens, and that despite strong media discussion, there are information deficits with regard to the national EHR initiatives.

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\section{1. Background}

Ongoing medical progress leads to an increase in medical knowledge. This rising amount and complexity of medical knowledge leads to an increase in specialization of health professionals, and to a strong need to exchange information between healthcare providers [1].

The concept of an electronic health record (EHR) sets out to close the gap between institution-specific patient data and a comprehensive, probably lifelong, collection of patient’s health and healthcare data [2] that supports information...
exchange between healthcare providers. For this paper, we want to understand the term EHR as a trans-institutional, digital repository of information regarding the health status of a subject of care [3].

Within the concept of the EHR, the patient is understood as an active partner who is accessing, adding and managing health-related data. The active integration of the patient is said to support the quality of care as well as the compliance of the patient [4, 5]. An EHR that allows the patient to actively manage his/her data is also called a personal health record (PHR). Waegemann distinguishes five types of PHRs, such as off-line personal health records, that are often paper-based and comprise copies of clinical documents; web-based personal health records; and provider-based personal health records where hospitals and other providers make some of the patient’s health information available for the patient [6]. For this paper, we want to understand the term PHR as that part of the EHR that is accessible to the patient.

The patient thus takes a prominent position for the success of the future implementation of an EHR. Therefore, it seems important that, apart from institutional requirements and health professional related requirements, the patients’ needs are also taken into account, both as an EHR user and receiver of EHR-based patient care. As the acceptance by patients and citizens is crucial for the future success of the EHR, it is mandatory to address those issues early enough to identify expectations and barriers that can then be dealt with during future EHR implementations.

Both in Austria and Germany, initiatives are under way to implement nationwide EHRs. In both countries, patients are expected to be a relevant future user group. However, at the moment it is unclear as to how well patients (or more generally, citizens) are informed of the concept of an EHR, how they judge the basic idea of the EHR, which fears and barriers may currently exist, and which functionality citizens see as important. While those questions have partly been addressed for other countries [7–9], a comprehensive investigation from Germany and Austria is missing.

Our study takes place in two large cities in Austria and Germany, which are countries with a comparable life standard and health care structures, but that have different roadmaps and concepts with regard to a nationwide EHR.

The objective of the present paper is, on the basis of a survey of citizens in both countries, to analyze citizens’ knowledge about the concept of an EHR, to address the possible fears and barriers with regard to the EHR, and to investigate the desired EHR functionality.

2. Status of the electronic health record in Austria and Germany

The following remarks provide a brief overview of the current situation with regard to the implementation efforts of the electronic health record in the two countries of the present study.

2.1. The EHR in Austria

Every citizen in Austria already possesses a smart card issued by insurance companies. This e-card contains basic administrative information and is used for patient identification and for check of insurance coverage both in inpatient and outpatient areas. In 2005, the health reformation law (Gesundheitsreformgesetz) [10] provided the initial basis for the introduction of an electronic health record in Austria. The law explicitly defined the goal of EHR introduction but a specific timeframe for the introduction is not defined in the law. EHR is here understood as health-related information that is shared on demand between healthcare institutions, using a central EHR directory service to locate and access clinical documents. In the public media, the term ELGA (Elektronische Gesundheitsakte, electronic health record) is used to name this Austrian EHR concept. For the patient-related view, the name “patient portal” is in use.

A feasibility study was commissioned to develop the first concepts for an EHR implementation [11]. The first results of the study were presented at the end of 2006, in turn describing the present legal, scientific, organizational, and functional situation as well as the directions for a basic EHR architecture and functionality. In mid-2007, a master plan for an Austrian EHR was developed [12]. This master plan describes the creation of a central document meta-index which helps to search and retrieve medical documents of all participating institutions. Based on this document registry, the master plan describes the following EHR core functions: exchange of lab reports, radiology reports, discharge letters, and medication information between institutions. Later, a patient portal should support the citizen to access his/her clinical documents, and also to add health-related information.

At the end of 2007, the detailed planning of all the components commenced. At the moment, all the results are being discussed by the commission for state health (Bundesgesundheitskommission). No final decision had been taken regarding the actual implementation of an EHR in Austria, and no detailed plans or prototypes for the patient portal are available yet.

Apart from the efforts taken by the state, there are several concrete initiatives establishing prototypes of an EHR in Austria, such as H.ELGA [13] or health@net [14]. These projects closely cooperate with public initiatives, but share a more scientific view on the EHR.

The opinions of health professionals with regard to the Austrian EHR initiatives are mixed—major organizations of health professionals such as physicians and pharmacists are quite critical, fearing increased transparency, cost pressure, and reduced confidentiality of patient data [15, 16]. Whereas hospital operators or public bodies definitely have a positive attitude towards the introduction of an EHR as they expect mid-term a positive impact on costs and quality of patient treatment. In the public media, however, the EHR initiative has not yet been in the center of larger critical discussions.

2.2. The EHR in Germany

In Germany, the development of an EHR is currently not a national initiative but a free market. However, as a first step towards an EHR and as part of Germany’s strategic e-health intentions, the German law (Book V of the German Social Welfare Code) claimed the introduction of an electronic health card for all German citizens by 2006. This card should, as a
2. Do citizens already use any kind of computer-based PHR?

3. Are they familiar to the term EHR, and if yes, how do they understand this term?

4. After being given a short definition by the interviewer: do the citizens support the general idea of an EHR, which is exchange of health-related documents between providers?

5. What functionality within an EHR would they see as relevant for themselves?

6. Which concerns or fears exist with regard to introducing and using an EHR?

3.2. Data collection

To find answers to our study questions, fully standardized interviews with citizens were conducted in Austria in the city of Innsbruck in Tyrol in December 2007 as well as in Germany in the city of Heidelberg in May 2008. The interviews comprised 6 open and 18 closed questions, which were based on previously designed and tested interview guidelines.

The interview guidelines were thematically grouped in four areas of interest:

- Questions about demographic data (such as sex and age) and the use of IT (5 questions).
- Questions about the private collection of medical documents including the type of storage, type of documents, and reasons for storing (7 questions).
- Questions concerning the concept of EHR and desired functionalities (12 questions).

The interviews were carried out by groups of two people. In total about 24 groups (11 in Germany and 13 in Austria) were conducting the interviews. To assure uniform interview conditions, guidelines for the interviewers were developed and tested, describing the rules as to how to pose the questions and how to document the answers. Furthermore, all interviewers were trained together in pretest interviews to reduce intercoder variability. The interviews were carried out in public areas such as shopping centers, pedestrian zones, train stations, and universities. Pedestrians were addressed and asked whether they would be willing to participate in a 10-min interview on the topic of EHR. Selection of pedestrians was done based on their age, to get a sample that is representative to the age distribution of the population. The age of an interviewee was estimated by the interviewers before each interview. People of a certain age were invited to participate in the interviews as long as the planned number for each age-group was not reached. The Tyrolean population was stratified according to the age distribution published by Statistic Austria in their demographic yearbook of 2006 [19]. The German population was stratified according to the age distribution of the urban district of Heidelberg published by the Statistical Office of Baden-Württemberg [20].

The full interview guidelines as well as the guidelines for the interviewers are available upon request from the corresponding author. The questioning took approximately 10 min per interviewee. In total, 495 people were questioned, 203 in Austria and 292 in Germany. The number of cases or the reasons for rejection to participate in the interviews was not documented.
Table 1 – Age distribution of interviewees. Austria: $n = 203$; Germany: $n = 292$.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>40 20%</td>
<td>68 23%</td>
</tr>
<tr>
<td>26–45</td>
<td>92 45%</td>
<td>99 34%</td>
</tr>
<tr>
<td>46–65</td>
<td>65 32%</td>
<td>90 31%</td>
</tr>
<tr>
<td>&gt;65</td>
<td>6 3%</td>
<td>35 12%</td>
</tr>
</tbody>
</table>

Innsbruck

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>40 20%</td>
<td>68 23%</td>
</tr>
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<td>65 32%</td>
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</tr>
<tr>
<td>&gt;65</td>
<td>6 3%</td>
<td>35 12%</td>
</tr>
</tbody>
</table>

Heidelberg

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>40 20%</td>
<td>68 23%</td>
</tr>
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<td>26–45</td>
<td>92 45%</td>
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</tr>
<tr>
<td>46–65</td>
<td>65 32%</td>
<td>90 31%</td>
</tr>
<tr>
<td>&gt;65</td>
<td>6 3%</td>
<td>35 12%</td>
</tr>
</tbody>
</table>

Total

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>107 52%</td>
<td>168 57%</td>
</tr>
<tr>
<td>26–45</td>
<td>191 94%</td>
<td>223 76%</td>
</tr>
<tr>
<td>46–65</td>
<td>156 76%</td>
<td>216 74%</td>
</tr>
<tr>
<td>&gt;65</td>
<td>41 20%</td>
<td>34 11%</td>
</tr>
</tbody>
</table>

3.3. Data analysis

The analysis of the collected data was carried out using descriptive statistics methods via SPSS Statistics Version 17 and Microsoft Excel 2003. Answers to the open questions were grouped according to the techniques of the content analysis as described by Mayring [21]. This qualitative analysis was supervised by CDK and AH. To assure the comparability of results, the grouping was performed by two independent coders, in which it was subsequently controlled and adjusted if deemed necessary.

4. Results

The following section addresses the results from the current two studies from Germany and Austria and compares them. The data is presented according to the structure of the interview guidelines.

4.1. Demographic data

In the course of the Austrian study, 203 interviews were carried out (female: $n = 101$, male: $n = 102$). The German sample comprised 292 interviews (female: $n = 160$, male: $n = 132$). The age distribution of the interviewees is shown in Table 1 below.

The majority of people questioned (85% in Innsbruck, 73% in Heidelberg) were from the same city or from the region nearby.

4.2. Private collection of medical documents

Table 2 shows that 75% resp. 47% collect and store medical documents at home. Those who answered “no” were asked to give reasons for not collecting such data. Participants that gave an answer here stated that they never obtained any data from their caregivers (A: 18%, $n = 9$, D: 16%, $n = 22$) or that there is no need, as all the relevant data is already stored by the caregivers themselves (A: 12%, $n = 6$, D: 5%, $n = 7$).

The data that is most frequently stored at home are medical findings, medical images, invoices, and doctors’ letters (see Table 3 for details).

Major reasons for the collection of medical data at home are shown below in Table 4.

The interviewees were also questioned about the way they store medical data at home. The majority of people use traditional paper-based tools to store their data (for example copies in a folder). Only 11% store their data using at least partially electronically (for example images additionally stored on a CD). Nearly none of the interviewees stored their data solely electronically. See Table 5 for details.

The major reasons for collecting documents either in paper-based or in electronic form mentioned by the respondents were that they were already provided in the respective form by the health care providers. Further reasons for collecting documents in paper-based form were that paper is easier to use, habit, too little computer knowledge, and privacy concerns.

4.3. The electronic health record

The respondents were questioned about their specific knowledge regarding the electronic health record (see Table 6). Detailed analysis revealed that very young people and older

Table 2 – “Do you collect and store medical documents such as medical reports or images at home?”

<table>
<thead>
<tr>
<th></th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>151 74.8%</td>
<td>137 46.9%</td>
</tr>
<tr>
<td>No</td>
<td>51 25.2%</td>
<td>155 53.1%</td>
</tr>
<tr>
<td>Total</td>
<td>202 100%</td>
<td>292 100%</td>
</tr>
</tbody>
</table>

Table 3 – Types of medical data collected at home. Percentage is calculated on the basis of those interviewees that indicated that they collect data at home; A: $n = 151$; D: $n = 137$. Multiple answers are possible.

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Austria %</th>
<th>Austria (nominations)</th>
<th>Germany %</th>
<th>Germany (nominations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical images</td>
<td>84%</td>
<td>127</td>
<td>72%</td>
<td>99</td>
</tr>
<tr>
<td>Medical reports</td>
<td>77%</td>
<td>117</td>
<td>51%</td>
<td>70</td>
</tr>
<tr>
<td>Invoices</td>
<td>59%</td>
<td>89</td>
<td>57%</td>
<td>78</td>
</tr>
<tr>
<td>Doctors’ letters</td>
<td>44%</td>
<td>67</td>
<td>47%</td>
<td>65</td>
</tr>
<tr>
<td>Others</td>
<td>21%</td>
<td>32</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total (interviewees)</td>
<td>–</td>
<td>151</td>
<td>–</td>
<td>137</td>
</tr>
</tbody>
</table>
Table 4 – Reasons for the collection of medical data at home, and the rank in each country. Percentage is calculated on the basis of those interviewees that indicated that they collect data at home; A: n = 151; D: n = 137. Multiple answers are possible. Answers were grouped by content analysis of free-text answers.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>For insurance issues</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>My Doctor always hands out images and other documents</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>I want to judge progression of my disease</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>I want to understand the treatment</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>To remind me (for example on appointments, vaccinations)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I changed the Doctor</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Just for curiosity</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>I want to obtain a second-opinion</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>I want to increase my own level of medical knowledge</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Others (for example, “because I may need them”)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>137</td>
</tr>
</tbody>
</table>

Table 5 – Way of collecting medical data at home. Percentage is calculated on the basis of those interviewees that indicated that they collect data at home; A: n = 151; D: n = 136.

<table>
<thead>
<tr>
<th>Method</th>
<th>Austria</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only paper-based</td>
<td>133</td>
<td>120</td>
</tr>
<tr>
<td>Mix of paper- and computer-based</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Total (interviewees)</td>
<td>151</td>
<td>136</td>
</tr>
</tbody>
</table>

people were found to be less familiar with the term electronic health record.

The respondents who felt familiar with the EHR concept were then asked to actually describe the concept of an electronic health record with their own words. Approximately 50% (n = 31) of the Austrian respondents and 56% (n = 53) of the German respondents who previously answered ‘Yes’ were able to do so (for example by referring to a computer-based collection of medical documents). 21% (n = 13) of the Austrian respondents and 37% (n = 35) of the German respondents wrongly associated the concept of an EHR solely with the national administrative health insurance card.

After explaining that an EHR supports the storage and exchange of health-related data, allows providers to access that data with patient consent, and that the patient may access and manage the information shown in the EHR, the respondents were asked if they would allow selected physicians to access parts of their electronic health record? (for example, “only with my consent”, “if data privacy is guaranteed”). Those who disagreed all issued data privacy concerns.

4.4. Functionality of EHRs

To determine the potentially useful functionalities of an EHR for citizens, the respondents were asked to judge seven predefined functionalities on a four-point Likert scale, with electronic vaccination records attaining the largest consent (for details, see Table 8). Respondents were also given the possibility to name additional desired functions that would be favorable for an EHR. In Austria, 10% of all respondents named additional functions, mostly stating “list of allergies and intolerances” and “anamnesis”. In Germany, 22% of all respondents suggested additional functions, such as “accounting and fee information”, “function to rate physicians”, or “diet counseling and planning”.

5. Discussion

5.1. Do citizens show an overall interest to receive, manage and use personal clinical data?

Between half and three-quarter of the interviewed citizens already collect and store medical documents at home (see Table 2), mostly medical images and medical reports. Around one-third of those just do it because “my doctor always hands them out to me”. The other two-third give several reasons for collecting, many of them related to the active manage-
5.2. Do citizens already use any kind of computer-based PHR? If yes, which one? If not, why not?

Citizens mostly use a paper-based form of document collection; no one explicitly stated to use a web-based personal health record (see Table 5). Reasons for dominance of paper were that the providers still mostly provide information on paper, or personal preference for paper. It seems that information is stored in electronic form only when providers provide this already in this form (for example, a CD with medical images was mentioned). At the moment, there seems to be no benefit in scanning paper-based documents to build up an electronic personal health record.

Another smaller study confirmed those results: in a survey of 40 patients visiting an outpatient unit of a large university hospital in Tyrol, 26 respondents collected paper-based documents at home, 4 had both paper-based and electronic data, and 10 did not collect any documents at all. None were found to use a personal health record (PHR) [23].

Other studies have found a higher percentage of PHR usage. For example, a survey of 1285 German Internet users [24] found that 4.5% manage personal health-related information via the Internet, in which more than 80% of those by a personal homepage. 4.1% of the Internet users state that they use a web-based access to personal disease information managed by a medical institution (practice or hospital). The reasons for not doing so included “no interest” followed by “data safety”, and “security concerns” [24]. In this study, however, only Internet users were included, that may have an increased IT knowledge and a preference for computer-based documentation, while our survey included a sample of the overall population, including older people and people without computer knowledge.

Higher numbers of PHR use can also be found in the U.S. Here, a recent investigation estimated – based on a survey of 8714 adults – that approximately 7.3 million U.S. adults already used online PHR systems in 2008, which would only be approximately 2.5% of the overall population [25]. These numbers are, at least at the moment, much higher than in Austria and Europe. A reason may be that many hospitals and other healthcare organizations have established provider-based PHRs, allowing their patients to access selected medical data via the Internet [6]. This is, at least at the moment, not routinely available from Austrian and German healthcare institutions.

5.3. Are respondents familiar to the term EHR, and if yes, how do they understand this term?

Only approximately one-third of all respondents in our study felt familiar with the term EHR (see Table 6), and only half of those possessed a mostly correct understanding of the term. This finding is supported by another larger survey of 8000 German citizens that also noted that the knowledge on existence and possibilities of an electronic health record is very limited [26]. In both countries, the term “EHR” was often confounded with the e-card (the national health insurance card). Objective information on the aims and benefits of a national EHR seems have to be sufficiently communicated.
5.4. Do the citizens support the general idea of an EHR, which is document exchange between providers?

To get an idea whether citizens support the general idea of information exchange, we directly asked whether they personally would allow their physicians to access parts of their electronic health record. In both countries, at least 80% found this to be a good or excellent idea, with Austria showing higher support. This indicates very high support in both countries. Despite the published critical discussion especially by healthcare providers in both countries, citizens seem still to be very supportive of the general idea of information exchange. This result is also supported by a representative German survey of 2000 citizens that came to the conclusion that 70% have a positive attitude towards the introduction of the EHR in Germany [27].

5.5. What functionality would they see as relevant for themselves?

We offered the respondents a list of typical functionalities that may be of benefit for the citizens when accessing information located in an EHR. All proposed functionalities gained the support of at least half of the respondents. The highest acceptance was reached by the electronic vaccination record, online information on doctors and hospitals, and the administration of appointments and reminders. The electronic vaccination record was also mentioned by others, for example by [28] as a central functionality of an electronic health record. The already mentioned survey among 8000 German citizens found comparable high support for the vaccination record (69%) and little support for online consultation (34%). While the other two items (online information and appointment administration) are not typical EHR functions, they would clearly provide the citizens with additional benefits in an integrated health system.

5.6. Which concerns or fears exist with regard to introducing and using an EHR?

A number of unsolicited remarks were made in different parts of the interviews such as: “It is only a question of time until criminals try to make profit of the EHR, for example by searching for all the patients with cancer and then contacting them to offer placebos.” “Health-related data of a politician or other famous people will be systematically searched in the EHR to create a scandal.” “I am strictly against this; data collection should only be done by the GP.” “This will lead to the ‘transparent citizen’.”. In fact, in many interviews, concerns with regard to data privacy were issued. While we did not quantify those concerns, it seems sensible that citizens are aware of the potential risks that shared EHRs may have. This fear may be increased by reports of accidental loss or theft of sensitive clinical data that were reported in recent years [29,30], and by the generally critical discussion on the EHR by health professional organizations in both countries. This concern is also supported by the aforementioned German study [27], where 73% of respondents stated their data protection concerns, as well as by [26] that also noted data security concerns in German citizens. Further data protection concerns are also reported from other populations, for example by a Danish study [8] or a study conducted in New Zealand [35]. Both in Austria and Germany, information initiatives to reduce such concerns are foreseen or under way. In addition, at least in Austria an opt-out possibility is discussed, allowing citizens to decide that their health-related data should not be shared between institutions and health care professionals.

5.7. Comparison between Austria and Germany

Austria and Germany are comparable with regard to health data. For example, they are comparable with regard to life expectancy (D: 79 years vs. A: 79.5 years), total health expenditure (10.7% vs. 10.5% of GDP), hospitals beds (6.4 vs. 6.1 per 1000 inhabitants), and rate of practicing physicians (3.8 vs. 3.5 per 1000 inhabitants) [31]. Only the length of stay is different, with 8.6 in Germany and 5.9 days in Austria [31].

In both Austria and Germany, initiatives are currently under way to implement EHRs. Austria is seeking to introduce a complete, nationwide EHR, whereas Germany is commencing with an e-card as a first step towards a comprehensive EHR infrastructure.

Three-fourth of the Austrian sample, but only half of the German sample, said to collect medical data at home (Table 2). Reasons for this difference can only be guessed. Table 4 shows that in Austria, professionals seem to more frequently hand over documents to their patients. In addition, in Austria, insurance reasons as well as second-opinion are mentioned much more often than in Germany, what may lead to a higher percentage of citizens storing clinical documents. In both countries, though, documents are typically handed-over and stored in paper-based form (Table 5).

The general IT knowledge in the populations is also comparable. In Austria, in 2008, 76% of the private households had a computer, and 69% had Internet access [32]. In Germany, the corresponding numbers (for 2007) were 73% and 65% [33]. The e-readiness index, defined as “the state of a country’s information and communications technology (ICT) infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit” is 8.4 for Austria and 8.0 for Germany [34].

In both Austria and Germany, the term EHR is known to around one-third of respondents (Table 6), and 90% resp. 80% would allow their physicians to access clinical documents from other providers (Table 7). Nevertheless, in both countries, critical discussion on benefits and costs of the IT investment is going on in the media, increased among others by a very critical opinion of the official physicians’ organizations. However, only in Germany, the overall project is years behind its original time schedule which gives rise to further public critic. This may explain why in the German sample, only one-fourth found document exchange an excellent idea, while in Austria, it were 40% (Table 7). The judgment of specific EHR functionality was mostly comparable in both countries.

5.8. Study limitations

The study has several limitations: first, while we interviewed approximately 500 people from both countries and used an age-based stratification, this sample is not representative...
Summary points

“What was already known before our study”

- The acceptance of an electronic health record (EHR) by the citizens and health professionals is crucial for its success.
- Missing information about the preferences and fears of citizens as well as health professionals can lead to major problems in the acceptance of possible EHR/PHR (personal health record) concepts and solutions.
- The preferences of Austrian and German citizens have so far not been investigated in depth with regard to an electronic health record.

“What this study has added”

- In general, Austrian and German citizens have a positive attitude towards the introduction of an EHR, but share certain concerns, e.g., with regard to data protection.
- Citizens wish to actively participate in their medical treatment; they have good notion which EHR functionalities would be of advantage for them.
- There are information deficits with regard to the concept, potential advantages and dangers of national EHR projects.

6. Conclusion

The results of the survey indicate that citizens are interested to manage their health data, but that PHRs are not in use at the moment. With regard to an EHR, a strong majority supports the idea of document exchange between health care providers. However, data protection concerns were often mentioned, and the citizens were often not aware on the correct meaning and functionality of their national EHRs. In addition, the results provide important evidence about the desired functionalities by citizens, which is an important basis for the prioritization of the planned EHR functionalities.

To fully prove the results gathered by the two studies and to achieve representative results for the two countries, further comprehensive studies are necessary. Nevertheless, the studies should act as an important first indicator for the great interest of citizens in EHRs and provide a basis for additional studies.

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