Access to electronic hepatitis C medical files by general practitioners

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Summary

Objectives. — Hepatitis C virus (HCV) infection is a recognized public health issue in France. Institutional networks were created to improve healthcare practices and facilitate multidisciplinary care for chronic diseases. The electronic medical file is one of the tools used by the networks to optimize patient care.

Methods. — The main objective of this study was to determine what proportion of general practitioners in the Languedoc-Roussillon region of southern France would be interested in using the electronic medical files for patients with HCV infection. A random sample of 20% of the general practitioners in the region was selected and stratified by administrative district of practice. Among them, a telephone survey identified those interested in the hepatitis electronic medical files and following patients with hepatitis C. A more detailed questionnaire was sent to these interested physicians in order to obtain further information.

Results. — Thirty-seven percent of the general practitioners concerned by the question followed patients with HCV infection. The advantages and disadvantages the physicians associated with use of these files were mostly related to the physician’s age, attendance of continuing education courses and internet access.

Conclusion. — This study highlighted the fact that a significant number of general practitioners would be interested in accessing electronic medical files for patients with HCV infection. Considering these findings it might be useful to propose a working group including general practitioners and specialists in order to develop a concrete project for implementing electronic medical files for patients with HCV infection.

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Résumé

Objectifs. — En France, l’hépatite C est un problème de santé publique. Les réseaux de soins ont été créés par l’état pour favoriser la prise en charge multidisciplinaire des pathologies chroniques. Le dossier informatisé est un outil mettant à profit les technologies modernes pour faciliter et optimiser la prise en charge des patients.

Méthodes. — L’objectif principal de cette enquête était d’estimer la proportion de médecins généralistes intéressés par l’accès au « dossier informatisé Hépatite C en Languedoc-Roussillon ». Nous avons tiré au sort 20 % de la population des médecins généralistes stratifiée par département. Nous avons sélectionné, par une enquête téléphonique, ceux qui suivaient des patients atteints d’hépatite chronique virale C et qui étaient intéressés par cet outil. Puis, un questionnaire leur a été adressé afin de déterminer les avantages et inconvénients que ce dossier informatisé présenterait pour eux.

Résultats. — Trente-sept pour cent des médecins généralistes concernés suivaient des patients infectés par le virus de l’hépatite C et étaient intéressés par l’accès au dossier informatisé. Les avantages et inconvénients mis en avant étaient liés principalement à l’âge du médecin, au suivi ou non de formations médicales continues et à la présence ou non d’une connexion internet.

Conclusion. — Une part non négligeable de médecins généralistes est potentiellement intéressée par un dossier informatisé. Elle doit servir de base à une concertation commune entre médecins spécialistes et généralistes pour concrétiser ce projet dans de bonnes conditions.

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Introduction

In 2005, the French health authorities asked patients to choose their primary care physician among practicing physicians. The vast majority (95%) chose a general practitioner who has to deal with a diversity of management situations in a complex environment of specialized medical care. Faced with this general trend, the public authorities issued diverse regulations including the ordinances of 24 April 1996 [1] describing the need for a new type of healthcare organization based on networks. The goal was to provide the patient with uninterrupted care via a coordinated network where the most useful competencies are rapidly implemented, irrespective of the professional status of the practitioner. The electronic medical file was designed for this purpose. This electronic tool was designed to improve communication between professionals by avoiding the problem of geographical distance and thus promote better coordination. It should guarantee uninterrupted care, avoid redundant examinations and enable access to new protocols and therapeutic options. The database generated by the system could be used to evaluate medical practices, monitor epidemics and as an information source for clinical research.

In France, hepatitis C virus (HCV) infection is a public health priority. The prevalence of HCV infection is approximately 0.65%. After the initial infection, 80% of infected people develop chronic hepatitis which would warrant treatment in one out of two cases [2]. Because chronic HCV infection is known to progress to cirrhosis and hepatocellular carcinoma, the French health authorities developed an anti-HCV program in 1999 and later reinforced the plan with anti-hepatitis B and C campaigns [3,4]. Screening and adapted management can reduce the incidence and severity of complications [5,6]. As is noted for many chronic diseases, psychological support is as important as physical intervention. Multidisciplinary management is crucial [7]. Thus, in order to improve the diagnosis of severe disease, the Superior Health Authority (HAS [1]) recommends use of Fibrotest or FibroScan for the initial work-up of patients with untreated HCV infection [8].

Hepatitis C networks were instituted to respond to this need [9,10]. Each network is organized around a reference pole. An evaluation of network operations in 2002 [11] demonstrated that one of the biggest problems was the overly hospital-centered aspect of care. Multidisciplinary management being one of the key elements, it was recognized that the participation of general practitioners should be encouraged [12,13].

The electronic medical file was introduced into the Languedoc-Roussillon hepatitis C network in 2004 [14], but at the present time only gastroenterologists have direct access. Participants can login for read-write access with a password obtained after enrolment in the Languedoc-Roussillon association for the study of viral hepatitis (AEHV-LR [2]). The database uses a sequential network number to ensure confidential information. The electronic medical file provides epidemiological data recorded on the clinical follow-up chart and in the hospital consultation chart. Since October 2005, the AEHV-LR is in charge of database studies and validates protocols. On May 31, 2006, the database included 3280 persons followed by 40 gastroenterologists (27 private practitioners and 13 hospital physicians). General practitioners were allowed to enroll patients with a positive serology or provide clinical or therapeutic follow-up input after treatment was initiated by a specialist. This avoided overlap or any gap in the treatment chain since the essential examination was duly recorded. The purpose of the present study, was to estimate the proportion of general practitioners who would be interested in accessing the electronic medical files of the hepatitis C network. The

1 Haute Autorité de santé.
secondary objectives were to identify the characteristic social and demographic features of the general practitioners following patients with HCV infection who are interested in using the electronic medical files and to determine what the interested physicians considered were the advantages and disadvantages of using the electronic medical files in their routine practice.

Materials and methods

Study protocol

A survey was conducted among a random sample of general practitioners practicing in the Languedoc-Roussillon region in 2006. There were two phases.

1/First each physician was contacted by phone. After an initial presentation, the role and the contents of the electronic medical file were briefly described. Social and demographic data were then collected and two questions were asked as follow:

1- Do you have patients with hepatitis C?
   A: No — none of my patients have hepatitis C.
   B: Yes, I have patients with hepatitis C but a specialist handles the infectious problem.
   C: Yes, I perform and coordinated follow-up with a specialist.
   D: Yes, this is an interesting proposal.

2- Would you be interested in having access to an electronic medical file to improve patient management?
   A: No, I’m not interested because I have so few patients with HCV infection.
   B: No, I’m not interested because involvement in the network would be too much hassle.
   C: No, I’m not interested because involvement in the network would be too much hassle.
   D: Yes, I have patients with hepatitis C but a specialist handles the infectious problem.

2/If the physician responded B or C to question 1 and A to question 2, a second questionnaire was sent by mail with a return envelope. We thus selected physicians who followed patients with HCV infection and who were interested in using an electronic medical file to improve patient management. The questionnaire was sent 10 days after the phone interview. The purpose was to evaluate, among the interested physicians, the expected advantages and disadvantages of using the electronic medical file.

The questionnaire was not anonymous so the physician could be recalled if needed. Physicians were recalled once if the questionnaire was not returned within one month. Data were collected by interview and the role and contents of the electronic medical file were briefly described. Social and demographic data were then collected and two questions were asked as follow:

1- Do you have patients with hepatitis C?
   A: No — none of my patients have hepatitis C.
   B: Yes, I have patients with hepatitis C but a specialist handles the infectious problem.
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   C: No, I’m not interested because involvement in the network would be too much hassle.
   D: Yes, I have patients with hepatitis C but a specialist handles the infectious problem.

The study began on March 1, 2006. Inclusion with a first telephone questionnaire continued through May 15, 2006. The second questionnaire was mailed all along this inclusion period. Recalls were made from April 1 through June 28, 2006. All questionnaires received before the end of August 2006 were taken into consideration.

Medical population concerned

Among the 674 physician selected at random (84 in Aude, 170 in Gard, 285 in Hérault, 15 in Lozère, 120 in Pyrénées Orientales), 103 were not concerned by the survey and 509 responded (89% of the concerned physicians) (Fig. 1). The social and demographic data concerning the responding physicians and their mode of practice were comparable with data available from the regional health authorities (DRASS4) (Table 1).

Proportion of general practitioners interested in access to the electronic medical files

Among the 571 general practitioners concerned, 210 (36.7% [32.7—40.6]) had patients with HCV infection and stated they felt the electronic medical files would be useful for their follow-up. Compared with the subpopulation of physicians who followed patients with HCV infection 54%

3 Automatisation des listes.

4 Direction régionale des affaires sanitaires et sociales.
Factors explaining interest in the electronic medical file (questionnaire no. 1)

Data available concerned social and demographic variables (Table 2). Interest was two-fold greater among physicians aged 38–47 years (OR = 2.95% IC[1.1—3.6]). Similarly interest was greater among physicians with an exclusively private practice (OR 1.7 [1.05—2.8]).

Description of questionnaire no. 2

On average, the general practitioners had five patients with HCV infection; 69% of these patients had a referral gastroenterologist who, for 35%, participated in a viral hepatitis association (63% did not know the response to this question). The majority (89%) of the general practitioners had a computer, 77.5% had an internet connection in their office, 47% used computer files exclusively to record patient data and 29% computer and paper files.

Perceived difficulties and advantages of electronic medical files (questionnaire no. 2)

Univariate analysis, and when possible multivariate analysis, was performed for each variable in order to determine elements which might be improved and possible explanations for the difficulties and advantages encountered.

A/Factors related to worry about longer consultation time:

One hundred and twenty-one physicians (71.6%) thought that a longer consultation was a problem. At univariate analysis, it was found that only those who had not participated in continuing medical education courses worried about a longer consultation time (p = 0.02).

B/Factors related to data input:

One hundred and twenty-nine physicians (75.9%) felt that data input would be difficult. At multivariate analysis, factors associated with difficult data input were geographical distance from a specialist (OR 1.02 [1—1.05] p = 0.04) and lack of an Internet connection in the general practitioner's office (OR 3.5 [1.1—10.6] p = 0.03).

C/Factors related to desire for a financial compensation:

One hundred and eleven physicians (68.1%) felt a financial compensation was desirable. No factor was found associated with this finding.

D/Factors related to better patient information:

One hundred and fifty-three physicians (87%) felt that the electronic medical file provided better patient information. At multivariate analysis, factors associated with better patient information were, according to the general practitioners, small number of patients followed by the general practitioner for HCV infection (OR 0.9 [0.8—0.98] p = 0.02) and interest of the general practitioner in complementary training on HCV infection (OR 3.6 [1.3—9.6] p = 0.01).

E/Factors related to better patient follow-up:

One hundred and fifty-five physicians (89.1%) felt that patient follow-up would be better with an electronic file. At multivariate analysis, factors associated with better patient follow-up because of the electronic file were presence of a medical secretary (OR 4 [1.1—14.3] p = 0.03), year the general practitioner began practicing (OR 1.1 [1—12] p = 0.002), and a small number of patients followed for HCV infection by the physician (OR 0.85 [0.8—0.9] p = 0.005).

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Factors related to treatment effectiveness and objective evidence of better follow-up:

One hundred and forty-eight physicians (86%) felt that follow-up would be better because of better evaluation. At multivariate analysis, factors associated with better follow-up because of the electronic file were, according to the general practitioners, physician’s attendance of continuing education courses (OR 3.6 [1.2–11.6] \( p = 0.03 \)), small number of HCV infected patients followed by the physician (OR 0.88 [0.8–0.96] \( p = 0.009 \)) and geographic distance from a specialist (OR 0.98 [0.95–0.99] \( p = 0.01 \)).

Discussion

Approximately 37% of the general practitioners concerned in the Languedoc-Roussillon region followed patients with HCV infection and stated their interest in access to an electronic medical file for their patients. This rate reached 54% among the physicians who had a patient with HCV infection. The response rate for concerned physicians was 89%. Only 5.4% of the physicians declined participation in the study.

The physicians were particularly worried about the extra time required to access to the electronic file. This question seemed to be less important for physicians who had attended continuous education courses. Similarly, the problem of data input appeared to be less worrisome for physicians who had an Internet connection and among those who were not far (in time) from a specialist.

Among the advantages of the electronic file cited by the general practitioners, better patient follow-up was particularly important for those who were interested in training on HCV infection and among those who had a secretary. Similarly, evidence-based and more effective management was a more important factor for those who had attended continuing education courses and those who were not far (in time) from a specialist.

The good response rate was obtained because the telephone recalls were all made by an intern. With a phone survey, the interview is not anonymous. We wanted to keep the interview short to obtain a maximum response rate. The rate achieved was comparable to that of other telephone surveys on HCV infection conducted among general practitioners in France. It must be noted nevertheless that telephone surveys may become increasingly difficult to per-
Table 2  Social and demographic characteristics of general practitioners interested in using the electronic files (uni- and multivariate analysis).

<table>
<thead>
<tr>
<th>Administrative district of practice</th>
<th>Interested physicians</th>
<th>Non-interested physicians</th>
<th>Pvalue</th>
<th>Pvalue</th>
<th>OR^a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 210 n(%)</td>
<td>n = 299 n(%)</td>
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<td></td>
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<tr>
<td>Administrative district of practice</td>
<td></td>
<td></td>
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<tr>
<td>Aude</td>
<td>19 (9.05)</td>
<td>45 (15.1)</td>
<td>p = 0.088</td>
<td></td>
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<tr>
<td>Gard</td>
<td>61 (29)</td>
<td>76 (25.4)</td>
<td></td>
<td></td>
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<tr>
<td>Hérault</td>
<td>93 (44.3)</td>
<td>116 (38.8)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lozère</td>
<td>2 (0.95)</td>
<td>10 (3.3)</td>
<td></td>
<td></td>
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<tr>
<td>Pyrénées Orientales</td>
<td>35 (16.7)</td>
<td>52 (17.4)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Size of the local population</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>&lt; 5000 inhabitants</td>
<td>65 (30.9)</td>
<td>98 (32.8)</td>
<td></td>
<td></td>
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<tr>
<td>5000 ≤ inhabitants &lt; 10,000</td>
<td>25 (11.9)</td>
<td>37 (12.4)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10,000 ≤ inhabitants &lt; 20,000</td>
<td>16 (7.6)</td>
<td>26 (8.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20,000 ≤ inhabitants &lt; 50,000</td>
<td>10 (4.8)</td>
<td>24 (8)</td>
<td>p = 0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50,000 ≤ inhabitants &lt; 100,000</td>
<td>23 (11)</td>
<td>26 (8.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100,000 ≤ inhabitants &lt; 200,000</td>
<td>34 (16.2)</td>
<td>43 (14.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200,000 ≤ inhabitants &lt; 2,000,000</td>
<td>37 (17.6)</td>
<td>45 (15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of practice^b</td>
<td></td>
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<tr>
<td>Rural</td>
<td>99 (47.1)</td>
<td>150 (50.2)</td>
<td>p = 0.36</td>
<td></td>
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<tr>
<td>Urban</td>
<td>92 (43.8)</td>
<td>114 (38.1)</td>
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<td></td>
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<tr>
<td>Suburban</td>
<td>19 (9.1)</td>
<td>35 (11.7)</td>
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<td></td>
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<tr>
<td>Gender</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>158 (75.2)</td>
<td>211 (70.6)</td>
<td>p = 0.268</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>52 (24.8)</td>
<td>88 (29.4)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age (years) unknown = 5</td>
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<tr>
<td>28–37</td>
<td>21 (10.1)</td>
<td>24 (8.1)</td>
<td>p = 0.098</td>
<td>1.9 [0.9–4]</td>
<td></td>
</tr>
<tr>
<td>38–47</td>
<td>81 (38.9)</td>
<td>80 (27)</td>
<td>p = 0.014</td>
<td>2 [1.15–3.6]</td>
<td></td>
</tr>
<tr>
<td>48–57</td>
<td>80 (38.5)</td>
<td>140 (47.3)</td>
<td>p = 0.017</td>
<td>0.616 [0.7–2]</td>
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<tr>
<td>≥ 58</td>
<td>26 (12.5)</td>
<td>52 (17.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private practice exclusively</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>181 (86.2)</td>
<td>234 (78.3)</td>
<td>p = 0.027</td>
<td>p = 0.031</td>
<td>1.7 [1.05–2.8]</td>
</tr>
<tr>
<td>No</td>
<td>29 (13.8)</td>
<td>65 (21.7)</td>
<td></td>
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</tbody>
</table>

^a Adjustment by gender, age range, and exclusive private practice.

^b Categories established using the INSEE definitions for urban areas, urban units.

form due to a lack of time and the fact that physicians complain of being increasingly solicited for phone interviews. Concerning the paper questionnaire, the increasing amount of paper work required of physicians does not facilitate acceptance. There may be a future for mail surveys, despite the spam problem for electronic messages [16]. Our sample was comparable with the population in the ADELI file. We did not have data on the non-concerned physicians. We could have sent them a specific questionnaire, but that was not our main objective. In addition, we assumed that the response rate would be low among non-concerned physicians, which would have had a negative effect on the power of the interpretation of the results.

Thirty-seven percent of the general practitioners in the Languedoc-Roussillon region had patients with HCV infection and were interested in having access to an electronic medical file. We took into consideration the general practitioners who did not respond to the survey but not the physicians who did not have a private practice and as such were not concerned by the question [17]. It is important to study the subpopulation of physicians with HCV-infected patients because these are the physicians who are concerned by the problem in their daily practice. Since they follow these patients, they can tell whether the proposed tool could be helpful, and if so, how. We recorded statements of intent, but the percentage was considerable. We cannot extrapolate these findings to the national level because of regional specificities. Furthermore, this work enabled us to inform, randomly, about 20% of the general practitioner population in our region about the availability of this tool.

Three out of four general practitioners followed patients with HCV infection. Most of the physicians questioned followed their HCV patients in collaboration with a gastroenterologist, confirming the important of common management practices. Nevertheless, there is no precise definition of ‘‘common management practices’’. The goal is that general practitioners would take the lead for screening, follow-up and treatment renewal and that the specialist...
could be called in in the event of doubt or complications. This goal remains to be achieved with the help of the networks and the electronic medical file [18]. At the present time, the electronic file is designed for specialists. Discussion about changes which would be useful to meet the needs of general practitioners will be necessary. A follow-up chart would probably be helpful. A regular coordinated monthly follow-up with the general practitioner could be scheduled, and as needed, a consultation every three or six months with a specialist. The patient’s medical problems other than hepatitis must also be taken into consideration. This raises the problem of multiple patient files for the general practitioner. The physician could however use the electronic follow-up file when the consultation concerns the HCV infection, and the physician’s regular file for intercurrent consultations.

We tried to identify the social and demographic characteristics common among interested physicians. Gender was not significant, but age had an effect: we noted that interest in the electronic file was two-fold greater among general practitioners aged 38–47 years than those aged over 58 years. The place of practice factor could not be analyzed well because of the large number of population categories defined by the national statistic institute (INSEE)5. We tried to apply the INSEE definitions of rural/urban localities, but the complexity of the notion of an urban area or an urban unit, hindered data interpretation [19].

The main worry for the general practitioners was the problem of data input. This point was raised by physicians who did not have an internet connection. Whether they had a computer or not did not appear to be the problem. We found that although 89% of the physicians had a computer, only 47% used an electronic file for patient follow-up. The physicians probably would not use their computer for data input but rather for information transmission. Not having an internet connection might be an obstacle for use of the electronic file, but 77% of the physicians had a connection in their office. In rural areas, the lack of a high rate connection can hinder data input. General practices far from a specialist are rural practices: the area covered is larger and home visits are more frequent, the physician’s regular file for intercurrent consultations.

Logically, the positive points were highlighted by the physicians interested in training on HCV infection and/or the hepatitis C network. The advantages mentioned were “better information” and “better follow-up”. This demonstrates well that general practitioners who are particularly involved with the problem see this tool as an advantage.

In practice, the electronic medical file should be presented to general practitioners by gastroenterologists in different places in the region in order to reach the largest number of practitioners as possible. Once informed, the practitioners could present their worries and desires. Finally, the working groups of general practitioners and specialists should determine whether or not the current file content is useful and whether it could be better targeted while maintaining the double access for the gastroenterologists to provide more precise information and coordinate the work. Use of the electronic file should be favoured: patient management will be improved, better coordinated and evaluated.

Considering that our survey is representative of the general practitioners in the Languedoc-Roussillon region, 1100 to 1368 general practitioners in the region would be potentially interested in access to electronic files for the management of patients with HCV infection. This is a statement of intention, not of adhesion. Nevertheless, these physicians are those interested in new projects and should be contacted to achieve the widest adhesion possible. These results should encourage members of viral hepatitis associations to present their system to general practitioners and optimise their collaboration.

References


