

Exploitation of Electronic Medical Records Data in Primary Health Care. Resistances and Solutions. Study in Eight Walloon Health Care Centres.

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Abstract. Introduction : The Electronic Medical Records (EMR), used every day for primary health care may constitute an instrument for gathering locally usable data to improve the quality of care and, on a larger scale, be a basis of epidemiological data. In spite of a policy of promotion of the EMR made by the Federation of French-speaking Belgian "Medical Houses", its use remains very marginal.

Methods : Eight Medical Houses, motivated by computerization of medical records have been met. Quantitative indicators of use of the EMR have been assessed. A qualitative assessment of the resistances to computerization, and solutions which can be brought, has been realized through the technique of the nominal group.

Results : The use of the EMR remains slight, allowing for exceptions. The proposed solutions could be put together in 5 categories : ethics, training, search for sense, practice and interdisciplinarity.

Discussion : The practitioners are willing to computerize if they get immediate advantages (knowledge of their patients and their team operating). They expressed the need of having a tool easy to use, that doesn't make them lose time and that has respect for their specificity of work and organization (interdisciplinary and self-managed teams). They expressed the need of an external support, under the form of adapted training and supervision for the data management. Ethical concerns (security, data transfer, place of the computer in the relationship with the patient) are surprisingly not present enough.

Keywords: MeSH: Ambulatory Care Facilities/organization & administration; Attitude of Health Personnel; Attitude to Computers; Belgium; Humans; Medical Records Systems, Computerized/utilization; Primary Health Care/organization & administration

Non MeSH : Nominal Group.

Introduction

The use of structured records for each patient in primary health care makes it possible to follow his story for a length of time and, in theory, to work towards giving him the most appropriated care. The epidemiological database which can be gained from the aggregation of those individual records is considerable and can be valorised [1, 2], and constitutes the base of a Health Information System.

The Federation of French-speaking Belgian Medical Houses (FMH) has been developing for some years an interdisciplinary Electronic Medical Record (EMR). It is established in 40 French-speaking teams and 6 Dutch-speaking ones. The professional's motivation to enter in an approach of gathering clinical data from the consultations is determining for the durability of the action and the quality of the data. In spite of some

different encouragements and personalized teams meetings [3], the use of EMR seems to remain very slight, and the quality of some collected data very insufficient in the sight of what could be done [4].

The objectives of this work were:

- To assess of indicators of the present use of the FMH's EMR.
- To define, with the participation of the users, the content of an action program for Medical Houses with having in mind the removing of the resistances to the data collection in Primary Care through the use of EMR.

Methods

1. Setting

A two hours meeting on their workplace has been proposed to eight Walloons teams who , at their demand, had enjoyed in 2002-2003 actions of promotion of the use of EMR. All accepted. Those teams had been on an inclusive basis financed by the insurance companies, and they worked in self-management. The used software (PRICARE 3.2.23) records the meetings with the patients under the form of contacts bound to one or more episodes of care (ICPC-1 classified).

The meetings (May 2004) consisted, on the one hand, in a quantitative measure on their database and, on the other hand, in a qualitative estimation of the resistances on the use of the EMR and the solutions which could be brought. The technique of the nominal group, validated for problem identification and needs, and for hierarchical organization of solutions has been used [5, 6]. In order to work on a positive formulation of the problems, the question was focused on the considered solutions: **“How can we beat the present blockings to valorise the data our EMR can contain ?”**

2. Quantitative Measures

Three quantitative indicators of the use of the EMR have been measured:

- The proportion of patient met in 2003 with at least 1 episode of care in their record, which expressed the minimum frequency of use of the EMR.
- The number of episodes per patient during 2003, per profession, expressing the intensity of use of the EMR.
- The comparison of the number of (sub)-contact noted in the EMR (recorded clinical activities) with the number of performed acts (real activity), per professional area.

Those indicators have been previously standardized in 4 reference teams (further called REF1 to REF4). The last two indicators have been confronted with the measures of Okkes et al. [7] for the doctors.

3. Qualitative Analysis

The content of discussions and votes in nominal group have been fully transcribed. The priority rank of the verbatims of each team has been calculated immediately by totalising the points and has been discussed with the participants. The semantic content has been analysed later, and closely related with the objective data of the databases.

Results

1. Indicators of Use of the EMR

1.1. Proportion of Patients met in 2003 with at least One Episode of Care in their Record.

One team (Nr 7) has a very high frequency of use of the EMR (96%) and 2 others (Nr 4 and 6) have surpassed the stage of isolated testing and are probably rising users (61% and 49%). The others have an occasional use or isolated users in their team (0.1 to 12%).

1.2. Number of Episodes Created by Patient during 2003.

The intensity of use varies between 2.3 and 3.6 new episodes per patient and per year in the reference teams, a little more than in the measures by Okkes (1.3 to 2.5 new episode per year, according to different countries). The two rising teams are also in that standard and team 7 exceeds it (4 new episode per year).

1.3. Professions who Incode Episodes.

Everywhere, the doctors are responsible for the creation of more than 95% of the episodes, except in one team where physiotherapists does it nearly exclusively.

1.4. Proportion of Sub-Contacts with Patients Noted in the EMR: Table I.

Only team Nr 7 uses EMR to note consultations in every professional area. The behaviour of practitioners of the reference teams is rather heterogeneous, specially by the paramedical personal. A part of the doctors record more than in the measures by Okkes et al.

Table I

Nr Team	Doctors			Physiotherapists			Nurses		
	Incoded sub-contacts	Performed acts	Relation contacts / acts	Incoded sub-contacts	Performed acts	Relation contacts / acts	Incoded sub-contacts	Performed acts	Relation contacts / acts
7	11408	5638	2.02	635	1252	0.51	197	626	0.31
REF1	10507	17595	0.60	2205	6182	0.36	0	4414	0.00
REF2	5534	3020	1.83	5	582	0.01	1	178	0.01
REF3	10890	8299	1.31	4313	3251	1.33	731	1515	0.48
REF4	13238	4938	2.68	620	1662	0.37	1534	1826	0.84
Okkes			1.1 to 1.7						

2. Analysis of Content of the Nominal Groups

We met 57 practitioners, among them 24 doctors, 12 receptionists, 6 physiotherapists, 6 administrative clerks, 5 nurses, 2 psychologists and 2 social workers.

The 178 verbatims produced by the 8 groups after the stage of clarification have been classified in 5 categories of items; they split rather differently according to the teams.

Item “ethics”, 14 verbatims (lowest priorities): confidential aspect and data security, therapist/patient relation to be protected, difficult relation of some therapists with medical informatics.

Item “training”, 21 verbatims (average priority): fundamental training to data processing, forming to logical reasoning (supposed or real) of computerized records, practical organization of those formings: pleasant, continuous, on the spot.

Item “search for sense”, 49 verbatims (rank of priority in the high average): local output, statistics, and desire for using them in plans aiming at increasing quality of care; possible data sharing, essentially to compare with other practitioners or for common actions; specific forming to reach these objectives; a greater motivation: exchanges with happy users, explanation of the meaning of epidemiology, of public health.

Item “practice”, 72 verbatims (average to high priority). Half of it had to do with the software improvement. The other half concerned solutions linked to the internal organization or to the time spent to the use of computers (training, data recording).

Item “interdisciplinarity”, 21 verbatims (high priority): a better coordination between professional sectors, work where everyone feels supported by a collective effort, carrying out of projects.

Discussion

Data collection in a regional epidemiological aim is a short range objective accessible to some teams. Its quality must still be validated.

A local use of the consultation data in the aim of quality of care improvement should be generalized. The practical solutions imagined by the teams we met may constitute the basis of a support action program.

1. Results of the Intervention

The quantitative measures on the databases of the visited teams have confirmed the slight use of EMR. Three teams on eight however have made the first step towards a computerization of their data and this on various stages; an interdisciplinary use seems possible.

Those teams forms a rather heterogeneous unity as for the solutions they viewed, the priority stage they gave them. Moreover, this little sample only included teams that were very motivated by computerization. The collected results must be considered as a qualitative reflection of the blockings. The measure of quantitative indicators in the reference teams showed differences in behaviour between practitioners: the use rates of the EMR when consulting and the effective interdisciplinary use are rather varying.

1.1. The Practical Side

The very great number of requests viewing the software improvement conveys a certain exasperation of the users. The fear of loosing time because of data processing is very present, specially during the consultation and, to a lesser degree, in forming.

The teams have identified their forming needs, first in basic informatics, then in the logic of medical informatics. The wish of forming to exploit the data strengthen the need of a structured and codified information. The reluctance of using classifications, found in my experience [3, 8] as in literature [9], hasn't been expressed any more in the nominal groups.

1.2. Motivation and Interdisciplinarity

Three points mark the original feature of Belgian Medical Houses. There is a strong demand to see the outcome to learn things about the served patients or about the team organization. This strengthens the importance of the local loop for the quality of collected data [2].

The internal organization of the teams has been recognized as one of the brakes. The self administrative way of working can raise the number of responsible persons of being convinced of the validity of changes [10].

The wish of a local data sharing with a software oriented towards the pure medical logics generates frustrations by the paramedical personal. In those self-managed interdisciplinary teams, what is at stake is as important as having a common language and objectives [11] as those of the liberal networks of home-coordinated care [12]. The data sharing clashes with the differences between the members: facing the technique, facing motivation, facing available time.

1.3. Ethics

As far as the security of the data is concerned, half of the teams seems to have no worry, and that is disturbing. The flaws in security are potentially more important in a bigger network [13]. The question of data transfer for an epidemiological use has not been evoked. The place given to the computer in the relationship with the patient doesn't take an important place in the present worries, but most of the teams are not confronted with this problem.

2. Action Proposals to be Developed

If the objectives are partly shared, the needs of the teams can, at a given moment, clearly differ. The ideal is to create conditions of a distinctive accompaniment in a whole movement.

An audit of the situation of each team before computerization would be useful: knowledge, attitudes and practices of the members, equipment, pursued objectives, time of bringing it to play and available funding. The planning of changes can be inspired by existing programs [14], and the logical follow-up consists in giving that allows solving of identified problems.

The practitioners expressed the need of having a tool easy to use, that doesn't make them lose time and that has respect for their specificity of work and organization (interdisciplinary and self-managed teams), or it will create a deep-seated allergy to machines [15]. It must propose typical interfaces for paramedical professions, structured around the central point of record: the patient's list of episodes. To reach the aim, the users must be more closely associated to the different phases of development.

The practitioners are willing to computerize if they get immediate advantages (knowledge of their patients and their team operating). In spite of a software that is often considered as unapproachable, some teams already use the EMR and treat data. A widely spread information must make it possible to show the obtained results and their impact on practice, as the met difficulties.

The users expressed the need of an external support, under the form of adapted training and supervision for the data management. The forming persons must get closer to their needs and demands, meet them on their workplace. The failure met by the participants, reluctant to accept “glorious” predictions of a radiant future, can be discussed [16, 17].

A support structure has to be made operational, so that it will be possible to propose wholes of requests which give answers to the most frequent questions. If necessary, this structure should also be able to process the data and advise the pertinence of collecting this or that parameter or indicator. The British and Dutch efforts which have been accepted in the 80s in collaboration with the professional organizations [18, 19, 20] have ended-up in large scale projects which favour the data collection in primary care and its feed-back towards the practitioners [21, 22]. The Belgian situation is less favourable, but is developing at the moment in the right direction [23, 24, 25].

The basic principles of computerized data security are different from those which are applicable to a room with files on a note trolley [26]. A piece of information about security strategies, procedures and official requirements is all the more essential since the demand is weak.

Conclusion

The practitioners are willing to improve the quality of care through self evaluation or projects. Specific tools and training have to be developed and proposed. Professional organizations and authorities have a leading part in developing this quality improvement.

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