Conference paper

Computerisation of general practice in the Republic of Croatia: experience gained in general practice use

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Introduction

Out of 2500 general practitioners (GPs) engaged in primary health care (PHC) in Croatia, approximately 60% use a computer on a daily basis, and view this tool as a comprehensive support for their everyday medical practice. High-quality healthcare professionals are aware of the fact that properly-kept and well-organised medical records (MRs) represent the prerequisite for achieving a high level of performance in the PHC setting. Despite attempting to catch up with developed countries' PHC computerisation process, a long road is still ahead of us. The patient has always been, and still is the very centre of any healthcare system, so the care provided to preserve his/her health still remains vital in all its segments. MRs with balanced structured and coded data as well as free text represents a necessary and inevitable part of any medical practice. High-quality MRs improve the quality of health care, and organisation of a GP’s work. In addition, they allow more support of financial transactions and accountancy, as well as better communication.
with other facilities/institutions. From 1996 to 2004, more than 80% of GPs in Croatia concluded individual contracts with the Croatian Institute of Health Insurance (CIHI), with a special emphasis on financial transactions and accountancy, relating to self-controlled expenditure dealing with prescriptions and referrals to specialists from other backgrounds.

The initial steps regarding electronic medical records (EMRs) were not simple. Lacking any receptive mechanisms and validated control mechanisms, the CIHI set out the requirement for double entering. The systems, which once used to be very plain and simple, failed to comply with the criteria considered necessary for a well-kept archive. In time, these systems had been upgraded and improved to meet the needs of GPs; however, even nowadays, not a single program has fully accomplished that mission. Regarding the new requirements imposed by the CIHI, the Ministry of Health and the Croatian Institute of Public Health, it is expected that the number of computer users working in primary care will rapidly increase. GPs experienced in computerisation of their offices are representatives of the elite that fights a battle for a program of as high quality as possible; this is a battle for the good of all physicians and the profession itself. However, the family medicine professional society does not recognise the importance of its involvement in development and improvement of computer programs for GPs’ offices. There are several vendors offering programs on the Croatian market. GPs expect a good program to comply with the course of medical practice in a GP’s office without taking extra time. It should not slow practice down. It should include simplicity of data entering (structured and coded data), reuse of routinely-collected data, optimal balance of free text and narrative, tools for effective searching for data, and appropriate data protection from both unauthorised access and theft (standards for security/confidentiality, or non-transferable data) as well as catastrophes. Being available to a series of employees involved both within and outside the healthcare system, data might be abused by insurance companies, employers, and other undesirable third parties, and even evolve into blackmail. Other aspects of personal data safety should also be guaranteed. Programs must in addition be designed to meet clinicians’ needs. They should enable searches for lists of patients according to various criteria such as diagnosis, therapy, or vaccinations pending, as well as providing reminders. These functions have been shown to improve the management of chronic illnesses, as well as that of more acute conditions, by using decision support. Having up-to-date, research-based information to help us through the decision-making process, has the potential to eliminate errors and improve the quality of care provided. Finally, each well-established program should comprise an invoice-generating system, and offer good background maintenance capable of making rapid and efficient changes in each and every segment concerned.

The experience of one GP

Long ago, back in 1997, when I (BBM) took a decision to leave family medicine practice based in an outpatient clinic (where I had worked for 20 years), and to start my own private practice, I also decided to stop using paper and switch to EMRs. Paper records had failed to meet my needs in a number of aspects. The paper MR is poorly laid out, and over time is prone to wear and tear, while many valuable data end up lost either when transferring records from one physician to another, or due to untidy record keeping. I had some experience with a computer at home, but was completely unfamiliar with the EMR systems offered on the market at that time. My judgement of the quality of a program was based on some quite simple parameters: the simplicity of data entering, the simplicity of program use, and the importance of vendors promoting and offering certain programs. Subconsciously, I judged the vendors by their persuasiveness in claiming that the program they offered should be considered a top-quality product.

My first experience with computerisation

Reaching a decision, I subsequently bought two computers, one for me, and one for my nurse, and hired an expert to link them together in a network. In order to ensure a high standard of performance, on the occasion of purchasing and linking these computers together as a network, I consulted a Bachelor Engineer in Electrotechnics. The program/system had been installed, and I had completed a short targeted course, and started to work. At that very point, the problem emerged. In the first few months, I had been forced to keep double entries, both electronic and paper, since at that time the CIHI lacked both technological resources capable of receiving data in an electronic format, and personnel qualified to manage such data. The information system, that is, the program I had purchased, was supposed to be networked with the one used by my nurse; unfortunately, that option was in fact lacking, and all the work fell on the doctor’s shoulders. The application in use deprived the nurse from independently performing the activities she was actually qualified to carry out in the first place, such as continuous therapy recording, entering laboratory and other test results into EMRs, inspecting wounds
before re-bandaging, and vaccinating. Her role within the system was reduced to opening the EMR for a patient on his/her first visit, and scheduling visits. Teamwork is one of the critical parameters in family practice, implying the active participation of a nurse at each and every step of the process. Her expertise is partly neglected due to a huge burden imposed on her by administrative work, while a well-established EMR system manages substantially to lift that burden from her shoulders and leaves her with the possibility of taking a more active part in healthcare provision. The highest level of effectiveness achieved by nurses in preventive care provision has been demonstrated in studies launched on the basis of electronic health records. This line of work is continued with medical care, the preparation of a patient for a physical examination to be carried out in the doctor’s office, and entering laboratory and other test results into the EMR.

Reuse of routinely-collected data

While using the system day after day, I started to recognise some of its additional disadvantages. Data entry was fairly simple; however, searches turned out to be very complicated. For example, while attempting to view simultaneously all data on the laboratory test results filed in a certain period of time, I was unable to do it. Consequently, I was prevented from validating and analysing the data in question in order to follow my patients up, and improve my performance. In order to view all the results I was interested in, I had to open record by record, and check on the results of each visit. The other inadequacy of the program I did not recognise immediately. The program’s vendor was unwilling to fulfil my requirements for upgrading the program in use. He was more concerned with promoting and selling the current version of the program than with upgrading it, so that a few months later I decided to stop using the program.

Giving it a second chance

By that time I had become more experienced and knew a lot more about what a suitable system should offer on its menu. I managed to find a new system, which seemed to me to be the best quality of them all. I enthusiastically faced the challenge, but ran into a problem again. The data I had entered into the first system’s database turned out to be non-transferable to another system. It did not occur to me that the vendor might make things so difficult for a user who had decided to switch to another vendor’s program/application. So I was forced to make a paper printout of all the data entrusted to the EMR of each and every patient, and put them in the existing paper folders. I had no other option but to enter patients’ data manually into the database created within the newly-purchased program (including even the personal identification number of each of my patients; that is nowadays considered privileged information, but was in use back then: the program was originally designed to allow patients’ entries at referrals, using a magnetic card). Provided that I do not count the enormous efforts I had engaged in at the very beginning, I can state that the second system was of much better quality. Entering data was far simpler, and all data entries could be reused based on the entry groups (laboratory test results, X-ray findings, hospitalisations, sick leave), while the nurse was provided with the ability to record continuous therapy, services provided in her domain (vaccination, wound dressing and care), and new test results, and was able to schedule visits. I could also initiate a patient’s data search based on chronic illnesses from which he/she had suffered, or specific medications.

Decision support: reminders

However, the program could not serve as a reminder of services still pending, such as vaccinations, and lacked both the appropriate form to be used during correspondence with the advisory clinicians to whom the patient had been referred, and the protective system to be observed with certain types of entries, as well as some other clinical decisions.

Recording structured and coded data

So, as compared to the first system, the new program was more satisfactory in a number of aspects, and responded better to the needs of continuous medical data recording, systematisation, use of nurse’s work, reporting, invoice generating, and searching of data entries made by the nurse.

Technology to support primary care informatics

In the next five years of using that system, it ultimately became clear that the vendor failed to fulfil virtually all of his contracting obligations. He neglected to refresh the system and adapt it to my current needs in a timely manner. Two years ago, owing to the analyses I performed on the remainder of the available systems, and based on the contacts I had established with my colleagues, I realised that all the systems offered on the
Croatian market have more or less similar technical characteristics.

The latest experience

My current system is still very simple, in fact far too simple, and lacks any additional quality-improving advantages. It lacks a sufficiently elaborate system of recording drugs that are currently in use, the possibility of follow-up for sick leaves, data protection functionality (in terms of restricting availability to the physician only), as well as the possibility of merging individual patients based on their family membership. Putting aside all its disadvantages, and constantly using this program, I came up with a wish to use data entries for the purpose of evaluation of my work and for scientific research. Direct transfer of the data into other programs was not originally foreseen as an option. On top of these requirements, I also felt the need to have certain medical data at hand, to use them as an aid in my work, even though I am deeply aware that data searches undertaken during consultations taking more than 1–2 minutes substantially reduce the usefulness of the data tracked. Furthermore, some studies also suggest that health information technology has a positive impact on physician–patient interactions related to communication concerning medical issues, and lacks any significant negative effects on other issues to be addressed during the time available for patients. The leaders of Croatian Family Medicine practitioners, supported by the Ministry of Health, have developed some kind of Croatian standard, applicable to the programs employed within the PHC frame. The program I currently use deviates from the EMR pattern that should be guaranteed by this Croatian standard. However, an obligation that would bind all the parties concerned to harmonise each and every program available on the Croatian market with the Croatian standard set forth for the programs employed in primary care is still non-existent.

Conclusion

By presenting my own experience on computerisation, gained in personal use in general practice, and seeking for an adequate computer system, capable of meeting the needs of a family physician, we would like to stipulate that such a solution will only emerge from the active participation of the healthcare professionals concerned, that is, from an intensive collaboration of GPs. In addition to the common administrative functions and adequate data and system protection, the information system used in the GP office should fulfill the following requirements: it should be simple to use; it should network the physician and his/her nurse; it should permit searching based on various criteria; it should facilitate the use of data for the purposes of evaluation, performance improvement, and scientific research; it should permit the export of data to other standard formats, subsequently enabling even sophisticated data analyses; it should permit the linkage of family records. Currently, the valid Croatian standard may serve as a basis that should be constantly perfected and upgraded in line with the input given by the healthcare professionals and the needs emerging in the PHC setting. The reference standard should be evaluated in a real-life practice.

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CONFLICTS OF INTEREST
None.

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