Introduction to Theory in Healthcare Informatics

[Author Name(s), First M. Last, Omit Titles and Degrees]

[Institutional Affiliation(s)]

Electronic health records (EHRs) are easier to read than the paper charts of the past, but many complain that healthcare providers are focusing too much on the computer screen instead of the patient. Currently, statements from the highest tribunes are heard that in the very near future the process of introducing medical information systems will go at full speed, recording to a doctor will be easily accessible via the Internet, and medical records will be kept exclusively in electronic form.

When discussing problems related to electronic medical records, very often they rely on international standards and rich experience existing in foreign practice. However, in our opinion, the problem of transition from the paper-based method of keeping medical documentation to electronic one is not fully resolved anywhere in the world. A variety of international standards, often competing with each other even within the same organization that develops them (for example, HL7 versions 2 and 3), as well as the failure of a number of large projects (for example, in the UK) indicate that the problem of an electronic medical record is far from being resolved. And in this matter it is impossible to talk about a serious lag in US (Tan, 2005). All major countries are on relatively starting positions, and our traditional rival of the United States is developing a global health informatization project almost parallel to our course. It is also important to emphasize that the problem of electronic medical records has very large “national characteristics” and is extremely closely connected with the features of the health care system in a particular country. Therefore, it is not necessary to talk about any “direct” transfer of the experience of other countries.

Today, even the question of what an “Electronic Medical Record” is not always easy to answer. The purpose of this article is to determine the principles of organization of electronic medical records at all levels (bottom to top), ensuring the maximum usefulness of this new electronic tool for patients and health care workers. We basically put patients in the first place and pay them a lot of attention in this article. Maybe it would be worthwhile to write a separate article for the Patient and Information Technology journal, but as long as it is not there, the “patient” topics have to be covered in the journal for doctors.

At the same time, it is taken for granted that the indicated tasks will be solved if the appropriate funds are allocated, an appropriate IT infrastructure is created in each health care facility , computers and office equipment are purchased, and appropriate software is developed and implemented. However, the best technological solutions will not be demanded if the majority of potential users will remain practically unprepared for working with new technologies or, even worse, will not understand, and what this will give directly to the end user.

The problem is not only to organize training and the "elimination of computer illiteracy." In the end, as experience shows, even people of very old age, if they have a desire, after a few weeks, work with any information systems quite tolerably. The problem is that a significant number of health workers have no desire to use even the most wonderful and modern means of automation or how and in what way these tools will help the health workers themselves, and some even resist the introduction of new technologies.

An electronic medical record (EHR) is presented as a repository of familiar documents, but on electronic media. Hence the fear that instead of the usual pen, and most likely, in addition to maintaining paper documentation, you will have to make a large amount of text information using the keyboard, which for inexperienced users seems to be absolutely unaffordable (Jha, et.al. 2009).

This issue is particularly acute for the doctors of district polyclinics and dispensaries - a typical outpatient appointment at 10-15 minutes per person and a queue of 20 or more patients outside the door. To understand how it is possible to remove these concerns, it is necessary to determine what the electronic medical record should be and, in general, electronic medical records. In the concept of development of information technologies in medicine, the maintenance of an electronic medical record is spelled out in one line without decoding and detailing (Brown, et.al. 2012).

Nevertheless, even the simplest “tools” for the formation of texts of examinations protocols, extracts or doctor's conclusions - such as pre-prepared “templates” for typical cases, the “copy” / “paste” functions from previously formed documents of doctors' workplaces already allow quickly and with minimal text input using the keyboard to form a well-readable documents. In the future, these texts can be viewed on the screen or printed. If necessary, using the "contextual search" you can make a quick enough sample or find the desired fragment of the document.

That is, the tasks of reducing the volume of routine operations for keeping medical records and quickly searching for individual documents or their fragments are solved quite effectively. If each EHC document is detailed, i.e. put it in accordance with the data structure, it is relatively easy to solve the problem of automatically generating any statistical reporting or keep records of medical services provided directly from data stored in an EHR without derived accounting forms, statistical coupons contributed by special allocated operators, etc. Moreover, it becomes possible to carry out a detailed comprehensive analysis of the accumulated data, automatic control of the dynamics of changes in any parameters, search by arbitrary sets of criteria.

Such an EHR is indeed becoming the only necessary and sufficient source of information about the state of health of patients. Tasks of automating the registry, accounting for medical services, keeping medical statistics, creating all kinds of registers for certain groups of patients, etc. It is absolutely logical to communicate with the EHR in a single set of applications that works on a common database.

Unfortunately, these tasks today, as a rule, are implemented by separate, non-ECC and each other applications, with the input of information necessary for their work by specially selected operators using statistical coupons and other approved accounting forms. Moreover, the federal and regional health authorities stubbornly refuse to engage in the development of standards and regulations for information exchange, or even organize this process.

Is this due to lack of skill or training, poor computer system design, or just the nature of computer charting

It is due to lack of skill training. The problem (although the director of the department considers these cases sporadic) is that the electronic recording system may not work well.

I believe that the purpose of information systems is to track all the cars, choosing the best way to “ambulance”, to ensure constant communication between the machine and the substation with the ability to transfer data about the patient's condition. The easiest way is to get electronic medical records for those patients who are undergoing medical examination and according to the plan they visit many doctors at once. And for newborns who can immediately enter the electronic database. And what about the old paper cards, filled with indistinct handwriting of doctors, swollen from information and from glued tests? No one will scan and digitize them: according to Ivakin, "we will not be raising archives, it is too difficult." So only those who have just been born can fully use the advantages of the electronic medical record.

There is also an electronic service called Patient Personal Account. And this is not the same as an electronic medical record: The card is intended for the doctor, and the personal account is for the patient. And he is not supposed to know all the medical information about himself, but only that part of it, which will be determined by medical experts. Sometimes the leadership of the health care facility or decision-makers in the implementation of the IIA, consider that it is necessary to purchase the appropriate equipment and software and teach the users to press the buttons - everything will work at its best.

At the same time, no one is aware that nothing happens by itself, and the introduction of new information technologies will require, at least at the first stage, considerable stress from staff, understanding and mastering often a significant change in the usual business processes. A simple replacement of the “fountain pen” with a computer keyboard or a complete transfer of the usual “paper” workflow into an electronic form gives the exact opposite effect, especially if the “paper workflow” was not implemented quite correctly. As a result, instead of the usual “mess,” a “automated mess” appears, i.e. repeatedly reinforced, because Now you can play any document in unlimited quantities and at any time.

There is as such no ethical issue in tracking system of the EHRs. In the transition to a truly electronic document management part of the "processes" that are very important for the "paper" document management become completely superfluous and vice versa, new " business processes " appear that previously no one suspected, while changing the functional responsibilities of the staff. All this requires not only training in the “how to work?” Part, but also implies “restructuring of thinking”. Underestimation of opportunities provided, ignorance or unwillingness to know about new opportunities, etc. reduces the use of modern computing as a “typewriter”, which also does not add enthusiasm to the staff involved in this process.

In any case, during the implementation of the personnel will require additional efforts, which should at least somehow have compensated - either by increasing standard time receiving, or reduce the load by its redistribution or direct financial incentives.

References

Brown, G. D., Patrick, T. B., & Pasupathy, K. S. (2012). Health informatics: a systems perspective. Health Administration Press.

Jha, A. K., DesRoches, C. M., Campbell, E. G., Donelan, K., Rao, S. R., Ferris, T. G., ... & Blumenthal, D. (2009). Use of electronic health records in US hospitals. New England Journal of Medicine, 360(16), 1628-1638.

Tan, J. (Ed.). (2005). E-health care information systems: an introduction for students and professionals. John Wiley & Sons.