

Abstract

Electronic Health Centre (eHC): a Web Site for Continuing Education of General Practitioners

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The Electronic Health Centre (eHC) is aimed as an Internet service for continuing medical education of general practitioners (GPs) at the national level. It integrates education, access to the relevant and trusted information sources and group communication in order to meet the needs of both daily work and continuing education at home. The project goal is to establish information infrastructure that will enable and support the individual activities of GPs and their collaborators on continuing education and communication, focusing on problems of daily practice. In the future, it is planned to integrate eHC into the existing accreditation system. The very first version of eHC was launched in the fall of 2000 and hosted at the Andrija Štampar School of Public Health server, URL:<http://www.snz.hr/edz>. The project was accepted and supported by a one-year grant from the Ministry of Science and Technology of the Republic of Croatia within the framework of IT Implementation in October 2001. In order to fulfil eHC objectives the content has been structured in several modules: Teaching room, Links, Address book, Forum, Counselling for patients, Calendar of events, and Contacts. Gradually, new components would be added depending on the interest, such as teleconferences, streamed video, chat, etc. Registration procedure for module Forum would be necessary and its implementation is now under way. It is necessary to ensure secrecy - hiding of data about the patients from the patients (although cases are presented without personal data).



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Aim

The Electronic Health Center (eHC) is aimed as an Internet service for general practitioners (GPs) that integrates continuing medical education, access to relevant and trusted information sources and group communication in order to meet the needs of both daily work and continuing education at home.

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Background

The idea of **eHC** was conceived by Hrvoje Iveković, M.D., a young medical doctor experienced as general practitioner in re-integrated Tovarnik. The proposal for this project was made during his postgraduate study in public health. At the end of this course each student is obliged to design and propose a project that might be implemented with reasonable efforts.

The very first version of **eHC** was launched in the fall 2000 and hosted at the **Andrija Štampar School of Public Health** server at <http://www.snz.hr/eDZ>

The project was supported by one-year grant from Croatian Ministry of Science and Technology within the framework Information Technology Implementation.



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Requirements

The GPs are seeing in their daily practice cases from all medical fields and frequently are faced with borderline medical problems and social issues (e.g. social, economic, familial, occupational and other).

They must be lifelong learners and keep up with the exploding medical knowledge.

Acting at local and regional level as "gate-keepers" in health care system they are supposed to have not only broad and solid medical knowledge but also be acquainted with health care infrastructure and interrelations on a regional level.



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Requirements

The majority of traditional forms of continuing medical education require too much time or absence from work place, sometimes are inefficient, expensive or even unavailable to GPs (courses, congresses, workshops, visits to centers of excellence, library searches, etc.). On the other hand there are a huge amount of web-pages but they are mainly written in English, differ in quality and searching is time-consuming.

GP needs relevant informations for daily work and continuous medical education at home by an acceptable effort.

Requirements

The user requirements regarding structure, content and feasibility of internet service for CME have been very carefully investigated within the PostDoc project. The PostDoc project was a similar project in the Euroregion Maastricht (NL) - Liege/Hasselt (B) - Aachen (D) . The user requirements regarding structure, content and feasibility of internet service for CME have been very carefully investigated within this project:

GPs' demands:

- Well-structured and indexed content
- Use of native language access to scientific and professional literature

Problems encountered:

- Regional differences in medicine and health care
- Expensive construction of multimedia applications
- Co-operation between designers, medical experts, GPs and their organizations
- Use of native language access to scientific and professional literature



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Situation in Croatia

The situation for Croatian GPs is even worse: until recently they were brought together in the so-called "health centers", and today (after privatization of primary health care) they are "scattered around" and "atomized" each one in his or her own practice, very often unable to communicate with each other or with their colleagues specialists. The traditional organization disappeared and the new type of association (group practice) is not yet established: a GP lacks communication and can hardly, or even not at all, be out of work place for educational purposes (especially one who lives in remote area).



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Licensing system

There are nearly 3000 physicians (general/family practitioner, outpatient pediatricians and gynecologist) working at primary health care level in Croatia.

Mandatory licensing system for all physicians was introduced in 1997 and includes credits given by the Croatian Medical Chamber for participation in traditional forms of CME (congresses, symposia, professional meetings, CME courses, workshops, lectures, study visits, publishing in professional and scientific journals, master and doctor degrees and specialization) but computer-based or Internet-based education/training is not yet recognized as a CME activity.



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Objectives

Particularly, eHC will enable and facilitate:

- access to scientific and professional literature
- presentation of case studies for group consultation
- exchange of experiences and opinions
- teleconsultation with peers and experts
- discussion, formulation and consultation of diagnostic and therapeutic guidelines
- acquisition and use of educational materials
- acquisition and exchange of materials for patient education
- professional association activities
- information on scientific and professional meetings and events

The use of eHC should foster quality assurance of
general/family practice.

Modules

- [Teaching room](#) Module for multimedia educational and training materials, diagnostic and therapeutic guidelines, other learning tools and courses.
- [Forum](#) Module for discussion, consultation with peers and experts, presentation of cases from daily practice, exchange of experience and opinion, group communication, discussion groups, etc.; this module is intended only for physicians and authentication is necessary; it also includes several lists (mailing and web lists).
- [Waiting room](#) Information and guidelines for patient education (e.g. guidelines for cancer prevention or diabetes self-monitoring and control); information are designed for patients (and accessible to them) but they are here primarily to be used (distributed) by physicians; the exchange of these materials is an advantage: it saves efforts for their preparation.
- [Calendar of events](#) Announcements of meetings, congresses, news from professional associations, actualities, etc.
- [Links](#) Links to relevant and reliable information sources like databases, electronic journals, search engines, universities, research centers and institutes, laboratories, national and international organizations, etc.
- [Address book](#) Links to professional and health care organizations at national level (public health institutes, Ministry of health, health insurance, medical associations/societies, hospitals, labs, patient organizations, and other useful links).

There are some additional pages like

- [Project description](#)
[Help](#)
[Registration form](#)
[Contacts](#)

The web-site is open for the public except module Forum which is accessible only for registered medical doctors. Implementation of an authentication procedure for that particular module is under way in order to ensure secrecy - hiding of data about the patients from the patients (although cases should be presented without personal data).



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Results: some examples

Denis Mladinić-Vulić, M.D., pediatrician from Split, prepared [Healthy children visits](#), a set of the recommendations and advices she gives to parents (caretakers) at regular baby check-ups in her pediatrician practice: into the well structured material for parents she included essential and clearly formulated guidelines regarding nutrition, hygiene, child development, vaccinations, prevention of accidents etc., and note of next visit/vaccination term at the end of each visit (at the age of [1](#), [3](#), [6](#), [9](#), [12](#), [15](#), [18](#), [24](#), and [48](#) months). She is also the author of very good and useful materials for care of a patients with [varicella](#) (chickenpox) and [neurodermitis](#).

Another example taken from the same module is A guide for cancer prevention for [males](#) and [females](#), a series of pages with information concerning risk factors, healthy and preventative behavior, and warnings for early detection (including self-inspection) for most common human cancers.



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Results: some examples

Another example from the module [Teaching room](#):

Bojan Jelaković, PhD, M.D., specialist of internal medicine and expert in cardiology, prepared [WHO Guidelines for hypertension treatment](#). He was prepared and waiting to answer users' questions concerning this topic sent by e-mail, but there was no response from users.

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Quality principles

We consider peer review and editorial policy very important.

A very important issue is that of information quality, especially transparency of authorship and sponsorship. We consider the ethical standards created by [Health on the Net Fondation \(HON\)](#) excellent ones and we are following the eight well known HON code of conduct principles for medical and health web sites developers available at <http://www.hon.ch/HONcode/Conduct.html>.

[Electronic Health Center](#) is included in the list of web-sites visited and described by Health on the Net (HON) on March 14, 2001.



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Potentials and concerns

Traditional educational and training largely focuses on enhancing competence (knowledge, skills and attitudes), while Internet-based services like eHC offer the opportunity for self-directed continuous medical education (CME) for lifelong learning from everyday environment. Therefore they are supposed to educate not merely for competence, but for capability (the ability to adapt to change, generate new knowledge, and continuously improve performance) what is necessary in today's complex world.

The question is whether such services have a potential to improve final outcome (i.e. quality of decision making in general practice and thus patients' outcomes). Therefore further evaluation studies should employ methodology for quality measurement.



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Future perspectives

Further development of **eHC** is dependent on results, mainly on usage and acceptance from user side.

Besides the support from users and their organizations the project needs permanent funding.

Although a lot of enthusiastic work has been done so far within the eHC project and special attention was paid to inform and attract the GPs, the response from potential users is very weak.

Collaboration with the **Croatian Medical Chamber** as institution responsible for licensing is desirable in order to establish accreditation of on-line CME courses for both authors and users.



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Conclusions

Web-based **CME** services will be more than just a "fashion" if

- traditional rules of publishing are respected
- end-users can influence their content and see benefits from their use

According to our experience it seems that it is very difficult to attract the GPs and get their attention. Possible reasons are:

- the majority of GPs do not have PCs and access to Internet yet
- barriers are much more of psychological and sociological than economic reasons



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Thank you for your attention!

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