

Pharmatica - Supporting the complex pharmaceutical information needs in the changing healthcare sector

How to effectively distribute and use pharmaceutical information has long been the main concern of the healthcare sector. In medical practice it is often said that knowledge is powerful medicine, for it is the quality of information that determines the quality of diagnosis and therapy. Pharmaceutical application information by nature is highly complex and specialized knowledge. Newly discovered and developed new drugs are getting ever more complicated so that it is difficult for healthcare professionals to keep themselves current.

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Pharmatica is a joint research project participated by Erasmus University (the Research Institute for Decision & IS, Business Faculty, and Medical School) and St. Gallen University (Institute of Information Management). The purpose of this project is to develop an information platform that provides those who use pharmaceutical information with integrated and better structured information for more effective use in various fields of information application. This paper summarises and reports the main findings from the first phase of the project.

The pharmaceutical market is very different from common consumer goods markets. First, the main pharmaceutical information consumers (i.e. the doctors) are not the pharmaceutical product consumers (i.e. the patients). In other words, the doctors are purchasing decision makers for the patients. Figure 1 shows the information flows between various parties in the healthcare sector. The Pharmatica project particularly focuses primarily the information flows around the physicians who are the main information users.

Secondly, the pharmaceutical market has traditionally been regulated and cost insensitive. The branded pharmaceutical market is historically an oligopoly with enormous profit due to the patent protection to the branded drugs. In The Netherlands, for instance, the manufactures

are free to set up their own drug prices. The huge investment on R&D for new drug development can simply be passed on to patients who are paid by the government healthcare programs or the pharmaceutical company-sponsored insurance companies.

The Relevance of the Information Distribution Process

The complexity and cost-insensitive nature of pharmaceuticals also cause, at least partially, the inefficiency in the information distribution process. The traditional way of marketing pharmaceuticals and distributing pharmaceutical information is sales representatives visits to the general physicians. While there are some advantages of this method such as personal contacts and interactive communication, this involves time-consuming and high-cost activities for both the sales representatives and the doctors. The high price of pharmaceuticals has raised wide concern of the efficiency of medical care in the health community, which also often causes tension between the commercial promotion of pharmaceuticals and the practice of pharmaceutical medicine. Recently the Dutch government has promoted a campaign of cost-effec-

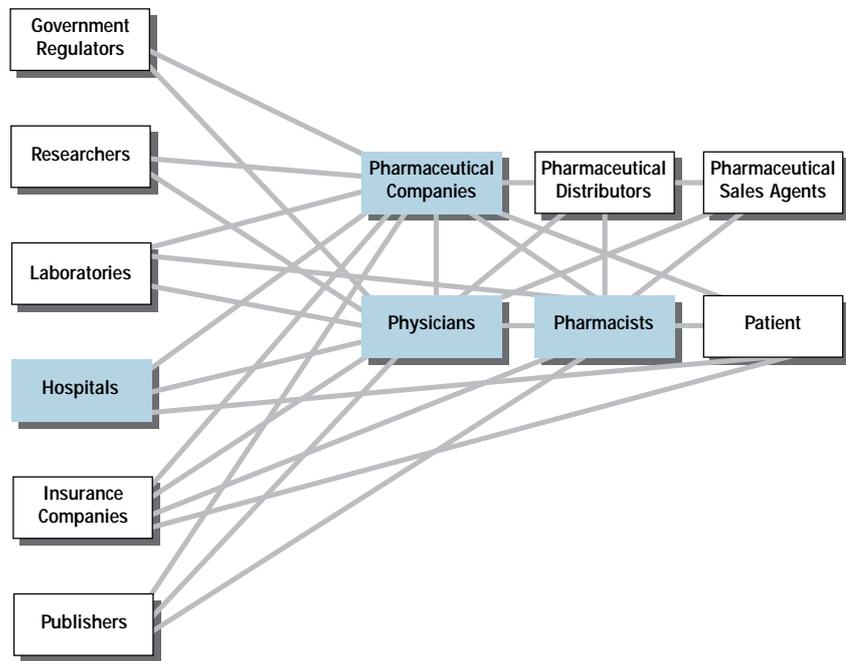


Figure 1
The healthcare sector and the information flows between the parties

Project Description

tive medical care. A heated discussion is going on about a new legislation aiming at up to 20% reduction of drug price. One of the proposed measures is the substitution of branded drugs with cheaper generic drugs.

In the medical practice a physician typically needs pharmaceutical information on the indication and availability of drugs, administration of the drugs, dosing, length of the treatment, etc. With the rapid development and breakthroughs in pharmacy science and technology, drugs and the associated drug application information are getting ever more complex. This not only increases the information demand by the general physicians, but it also places more risk and liability to the physicians, manufactures and other parties in the medical sector. Furthermore, the latest medical science development is a shift from individual drug-based treatments to more complex multiple drug treatments. In addition, the government cost-reduction campaign requires healthcare professionals to be more cost conscious in their prescriptions, which adds and emphasises economic dimension to the information needs.

In the dynamic healthcare environment the role that pharmacists play are also changing. General physicians are experts in medical science and focus on proven knowledge and experiences, while the pharmacists are specialised in the science of pharmacy. Both knowledge domains are essential in the modern medical practice. The emerging prescription pattern in the Dutch healthcare is that physicians and pharmacists are jointly making prescription decisions: often the doctors make the generic decisions and the pharmacists decide the brand of the drug. It is interesting to note that the purchasing group of pharmaceuticals is being enlarged from the individual doctors to the combination of the two professional groups.

Together, these changes in healthcare indicate a strong need for the integration of information and knowledge of pharmaceuticals. Currently a number of experimental projects are going on in the medical field in order to, apart from the planned cost reduction of healthcare, support the healthcare professionals to better cope with the increasing complexity of pharmaceutical information and the need for knowledge integration. The Dutch FTO discussion groups (Pharmacy-therapy discussion project) is a typical example in this regard.

Goals of the Project

Based on our findings so far as well as with the identified information needs of the pharmaceutical information system, the next phase of Pharmatica project is planned to (1) design the best way of structuring, integrating the relevant information resources at a high level integration of the relevant information resources, and (2) representing it to the users, e.g. the FTO discussion groups. The key element of the system design is not the individual information elements or the information links from one component to the other, but a value-added knowledge component: the overall information structure that integrates various information resources and the suitable navigation capability that enables the users to view and use multiple information resources in the way they desire. The goal is to build a prototypical pharmaceutical information platform system on the Web including pharmaceutical product comparison, doctor - pharma company/research interaction and trading features and to study it under the perspective of network redesign and changing forms of interaction in electronic commerce. By doing so, we expect to provide the healthcare professionals with new opportunity for high leverage utilization of the complex and dynamic pharmaceutical application information, and ultimately, for a more effective and efficient healthcare.