

SUMMARY OF THE DOCTORAL DISSERTATION

„MANAGEMENT OF MEDICAL SERVICES IN INFORMATIONAL SOCIETY”

The doctoral dissertation with the title „MANAGEMENT OF MEDICAL SERVICES IN INFORMATIONAL SOCIETY” of postgraduate, Mrs. Adina Bălan, having as research mentor Mr. Univ. Prof. dr. LASCU RÎCU, is organized in five chapters and ends with the bibliography as follows:

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The informational content of the thesis issued can be synthetized by the following key words:

- Informational society; Technology of information and communications;
- The New Economy; Communication; Information exchange;
- Cyberspace; Internet; Global interconnection;
- Generation of medical knowledge;
- Integration, Interoperation, Standardization, Open systems;
- Electronic Health File;
- Telemedicine; Online Virtual Clinic;

- Bureaucracy and the family doctor;
- Patient satisfaction; Quality of medical service;
- Support systems of medical decision;
- Management based on knowledge;
- Workflow in medical services;
- Diagnose; Management of change; Re-engineering;
- Integrated informational system; medical electronic recording; efficient informational infrastructure; e-prescription.

The reasons for the elaboration of this thesis are multiple, therefore, I started from the fact that *in Romania there is not yet a system capable to fulfill the needs of all implications* (medical personnel, patients, providers of medical services), there is still a great number of inaccuracies, therefore it must be provided a complete solution which could provide information about a person medical history or to provide demographic data.

The scope of the research consists in conceiving, creating and implementing a management strategy using modern instruments for the medical services from the health system in Romania for the improvement and efficiency of the quality of services provided to patients from both the entire health system, as well at the level of a family medical cabinet.

The objectives of the paper:

- The presentation of the thesis object system: medical services in informational society;
- The analyze of the health system informational flow;
- The identification of weak and strong points of the health system;
- The presentation of real measures which aim the improvement of the quality for the medical services, as well as the use of TIC in the entire health system;
- The elaboration of a real management strategy which will operate inside the family medical cabinet, ensuring long term competitiveness.

The synthesis of the main parts from the doctoral dissertation

I approached the subject for the doctoral dissertation “Management of medical services in informational society” starting from the entire health system up to the level of a family medical cabinet, because the center of the health system is the primary assistance medical service, and the *definitive mutations* for this beginning of century, *the role of management* in the informational era in the context of change and of the economy based on knowledge are major. I took into consideration that the modern management (the main way for economic growth) and the sanitary organizations in the informational era must be directed towards the individual, *the patient being the object and the subject of the management in the family medicine*, the primary source of data for the health system.

The transformation, as we all know, is the dominant feature for this century, which modifies the entire existence of the individual and the management philosophy, so that the

entire management system, especially the persons taking the decisions, must acknowledge over the role of transformation in any conceptual construction, because the transformation generates a new approach, *the management based on knowledge*. The medical knowledge and their impact over the patient and over the sanitary organizations generate a new force in the world, the capital of knowledge, which will amplify the transformation.

The doctoral dissertation transmits a character of originality, actuality and for its elaboration I followed a series of structural, basic objectives:

- ✓The identification of essential mutations generated by the effects of the transformations inside the informational era, especially the ones with an impact in the increase of the individual health standard;
- ✓The identification of informational components implicated in the management of medical services;
- ✓The proposal of modern solutions for the performance and the efficiency of the management of medical services using TIC for the entire health system;
- ✓The performance of a scientific research documented using information and indispensable data, for the approach of management in family medicine.

The entire data fund and information resulted from the scientific research, was based on reference and actual bibliography in the domain which aims the essential transformations and mutations from the informational era and in the predictable future, as well as sources of world organizations.

In order to perform such a paper I have chosen, and consulting my grand research mentor, Mr. Univ. Prof. Dr. LASCU RÎCU, an adequate structure which encloses all the elements imposed for the realization and evaluation of a doctoral dissertation: *content*, *introduction*, five chapters, *the actual status of knowledge* in the researched field, a relevant and important content being synthetized in *conclusions* and in *the synthesis of original contributions* (each chapter is ended with personal proposals, the fourth and fifth chapters being personal and original solutions for obtaining the managerial performance in medical services), using also an ample critical apparatus over the health system in Romania, a large *bibliography*, of a certain value and the *summary* of the thesis, all of these being performed according to the pre-established rules and customs.

The conclusions are imperative concerning the re-designing of the management for the medical services by using in the entire health system the technology of information and communication.

In the health system there is needed performance, the transformation of the medical service system by bringing the benefits to the medical science, of the technology of information and communication by all society individuals.

The electronic registration of medical, financial and administrative information, the electronic breaking of such information between the doctors, patients and the ones interested in a safe environment is imperious if the care health systems from the XXIst century wish to be accomplished.

In the 1st chapter “Informational society, society based on knowledge”, starting from the idea that *the technologies of the informational society* speed up the scientific progress, that its support is the technology of information and communication (TIC), which allows the processing and the promotion of the information into the *Cyberspace*, where the spine is the *Internet*, I can say that the development of Romania will not take place outside them.

The explosive increase of “digital” information available through the products of the technology of information and communication means *more efficient medical services, more transparent and faster*, more appropriate to the individuals needs and less expensive.

the knowledge is information with meaning and information which acts, so that the society of knowledge is possible only if it is grafted on the informational society and can not be separated from the later, and at the level of “*management information*” the technologies of the informational society have an integrating character, so that the development will be more and more linked to knowledge, to (human) assimilation capacity and development of these new technologies, to their use in new fields of activity appeared (intelligent products and services: *telemedicine, telework, telejob..*).

The economy based of knowledge or the New Economy is not only digital economy or Internet, it also supposes a *performance management of knowledge* by which the organizations produce new knowledge, used by future generations in which “*the intangible assets become more important than the tangible ones*”. It is a global economy, namely it is accessible to the entire world, interconnected by a system of networks, where territories are exchanged with cyberspaces, markets with networks, the property law with the right of access, and the Internet is a decentralized market, transparent, atomic and fluid, where *the knowledge is the central source*, the electronic networks, data base, informational technologies made up the infrastructure, so that appear new opportunities for the modernization of services of medical assistance, new way of communications between the institutions of the state and individuals.

But, the digital economy supposes an even bigger consume of creation, the existence of certain *flexible and inter-connective standards* to facilitate the integration, the access to a plurality of services (e-health) and applications, placing *the individual user in the center of the society based on knowledge*. The conclusion is that the future of traditional medical services is that of electronic services: e-health.

In 2nd Chapter, “Medical services in informational society” starting from the object system of the thesis I present the health system and the medical services in a family medical cabinet, for which finally I performed the Medica application.

The aging of population, the low rate of births, the transborder health, the dangers or the illnesses connected to unhealthy life stiles determined new policies for health having as strategic objectives: a healthy population which means productivity and economic prosperity.

Medical services represent one of the most important segments of modern society, so that they must know a rapid development, being a domain full of challenges and hopes, it must represent a major part in the public expenditures.

The evolution of the health status is influenced, in a great measure, by the *quality of medical services*, their way of organization, so that for the appreciation of the quality of medical service is objected the evaluation of two sides: *the technical side of the medical service* (the accuracy of the diagnose and treatment process – its quality is determined by comparison to the best medical act practiced to a certain moment) and the *human side of the medical services* (the social and psychological relations created between the patient and the health specialist).

The lack of access to medical services linked to the precarious life standard of a segment of the ensured population, inclusive the existence of co-payments to the medical system from the beneficiaries, the extended expectation for a consultancy, the excessive bureaucracy, lead to the *inefficiency of the medical service*, increasing the waiting time against the offering of a quality consultancy.

The simplest way and less expensive to evaluate the quality of health services is to measure the patients satisfaction, so that the values promoted by specialists inside the health system must express *the orientation toward the patient* (the medical service must be secure, efficient, centered on patient, opportune, effective, accessible).

The industry of medical health care needs *intensive, actual and reliable information*, information about the patient (which should accompany him in the entire health system), essential for the provision of medical services, in order to be able to coordinate the organizations and persons implicated in each medical service.

These information are extremely complex, so that the intensity, the complexity and their quantity are considerable challenges in adopting the information technology, an essential condition to enhance the efficiency and to increase the quality of medical services.

The separation almost completely of the primary assistance from the others health services leads to serious *discontinuities in following the evolution of the health status of the patients*, so that the lack of a operational informational system only evidences more the deficiencies in the health system.

The informational applications should allow the vertical integration of services for primary assistance with the special assistance and the one in hospital, so that it can be facilitated the continuity of the medical service in the patient observation.

The health system in Romania is a model based on health insurances, where the medical services are granted based on the contribution o the insurant to the health insurance fund, the primary medical assistance is provided by the family doctor chosen by the beneficiary. It was desired an *emphasis of the role of primary services*, as a first filter in solving the health problems, but due to the existence of the distortions in allocating the resources through the National Health Insurance House, a consumer of important financial resources, which administrative efficiency compared to the costs is debatable, and this was not possible.

The primary medical assistance is essential, fundamental for the health status, it is the most accessible and at a bearable price, is *the first level of contact between the individuals*,

family and the national health system. And because the number of calls from the patients to the family doctors is an indicator which measures the quality of the medical service, they must be capable to approach a lot of health problems. The medical service is efficient if the *family doctor manages the patients affections from the birth and until his death* by knowing the patient history, his hereditary-collateral antecedents, his family history, the factors of risk, the diseases, so that the primary assistance medical services must be brought in the center of the health system through the technology of information and communication.

Pursuant to the analysis of the health system I can say that it is compulsory to produce changes of the environment in four major areas: in *the infrastructure which supports the dispersion and the application of new clinical knowledge* and of technologies, *the infrastructure of the information technology, the payment policies and the preparation of manpower from abroad.*

In the 3rd Chapter “The informational system and the management of medical system in Romania”, starting from the *position of the family doctor into the health system*, I outlined all the interactions of this entity with the system, so that I can establish directions in the management of medical services for a family medical cabinet. The performance of Medica application supposed first of all, the analysis of the informational system for the medical services in Romania finalized with the diagnosis of the existent system and the presentation of weak and strong points.

The deficiencies for this system start from the collection of a *oversized volume of data* which fails to respond to the needs of information for the modern public health, because only a small part of data is now being used in the process of taking a decision.

The flow of data and routine information is made up of the data and information generated inside the health system by the primary data sources (family doctors, hospitals, ambulatories, other providers) and they are now organized in three flows relatively independent.

Each of the persons taking decisions in health (The Ministry of Public health, CNAS) owns exclusivity over their own data, informational applications, formats, standards and supports used differ inside the subsystems, the electronic transmission being inexistent. The data producers – hospitals, family doctors and the compartments inside the County Departments of Public Health – face a double or triple reporting in formats and programs that are not compatible.

Starting from these deficiencies I noted the need to *establish certain national standards* to ease the coding process, the classification of all data, the digital integration, the communication in order to provide the comparison and the compatibility of data and information between different institutions from the system.

The management strategy must have as objective *the improvement of the medical act*, so that the management of medical services in Romania must concentrate on *care episodes*, so that the efforts to improve the quality inside the system could be oriented efficiently.

Unlike the specialists inside the hospital, which perform only a single medical activity, with the hospital management and administration being charged other persons, *the family doctor* must manage and administrate alone his cabinet.

The family doctor, *provider of primary medical services* must promote modern methods for knowledge management, for change, based on support systems for the medical decision, *to coordinate his relations with the other providers of medical services*. But the communication between the specialist doctor from the ambulatory and the family doctor *is deficient because there is not a real coordination between the prevention services provided by the family doctors and the curative ones provided by the specialist doctors* inside the health programs.

The beneficiaries of the data from the family medical cabinet are more interested in the final data obtained than in the modality of obtaining such data, reason for which they promote informational products hardly to integrate in the daily activity of the cabinet, they neglect the finality of the medical service, respectively the patient satisfaction, the data not being used in the medical decision.

At the level of interaction with the patient, the family doctor must center his actions on the approach, optimum resolution of the patient problems, the improvement of communication, the optimum use of time, the provision of accessibility for the patients to the medical assistance, the possibility to make schedules, reduce the time for waiting, increase the quality of services and the degree of patients satisfaction.

The patient management must be done in close relation with the quality management of the medical service.

The bureaucracy in the family medicine is chocking and occupies around two thirds from a family doctor's time. *The present medical act is emptied of content and is replaced with a mass of data reports, which increase unpermitted the time of waiting for the patients and decrease the quality of medical consultancy.*

It is imposed the remodeling of the health system by placing the patient in the center of the system, through integrated health services, based on *relations of continuous care*, where the patients should receive the medical services he needs any time and in various forms, to all levels of assistance. The fundamental element of the system will be the quality of the medical act (which must be safe, opportune, efficient, accessible, centered on patient, equitable).

The informational management can be performed only if the doctor manager, in my opinion uses two modern methods of management, and namely *the management of knowledge and the management of transformation through diagnosis*.

The management of knowledge promotes an approach integrated for the identification, the management and the spreading of informational assets of the organization, and the management of information turns into management of knowledge only through the information technology, the only one which will give the doctor manager the possibility to transform his data in information and finally into medical knowledge, information and

knowledge which can be stored, accessed, used and transmitted to all specialists in health system. The performances of the management must be measured, and this fact will be observed from the ratio cost/ profit, because the information technology is the only one which will decrease the costs and will increase the benefits inside a sanitary organization.

Another concept of the management of transformation mentioned in the thesis is the one of Business Re-engineering, as a revolutionary transformation using the method of diagnosis in the management of information for the system of medical services.

The information technology can be used as a catalyst for the optimization of work processes, because it allows new collaboration and working methods, the use of TIC offering solutions for improving the access to information.

In health I tried to demonstrate that the improvement of the efficiency, but also the development of the safety degree for the medical assistance services is possible through the reengineering process.

In the workflow model the medical service from hospitals, it must be taken into consideration the entire patient cares, because the value of the information used by the doctor is high, the medical service can support directly a special quality treatment.

One of the main reasons for the medical services for modeling the process is to establish the working points for intervention. The information performed important benefits for the doctor, but for the patient satisfaction, the information technology must be integrated in the working process of the clinics.

The informational system of the hospital collects most of the time information for the administration of personal data included in the electronic health file, as the patient name, age, civil status and address, but for the (flow) work in clinical purposes there are needed *detailed information about the patient*, very useful to establish the complexity of the case and, subsequently, the potential risks. In the clinical context it is important the interaction with various medicines, with psycho-social factors which may generate results hard to be anticipated. Depending on the patients' variability, it means that this process can have different results and can be a need of different strategies for the improvement of health results for each patient.

This clinical information, although vital for the working process, *are lacking from the informational system of the hospital*, and their collection allows the automation of the risk evaluation process.

In the 4th Chapter, starting from the necessity for the technology of information and communication in the health system, I presented the TIC solutions for obtaining the managerial performances for the medical services, few Microsoft instruments for the management of information in a family medical cabinet, using the concept of medicine based on the management of patient information. Because the doctor needs daily information concerning the diagnostic, prognostic, treatment and intervention there must be mentioned the medical activity in order to be used in the future. Here intervenes the role of informatics to store unprocessed data at the beginning, turned into information and then by the clinicians,

doctors and specialists turned into knowledge. But for a further used, they must be stored, filed, transmitted, separated and secured. These aspects of the knowledge resulted from facts, evidences can be performed only by informational and communication technologies of the informational society.

As the medical files become electronic (they can help at preventing errors), the hospital managers must take into consideration the fact that the wireless networks can make these files accessible in places where doctors and nurses need them, so that the information about the patient health can be available at any time and anywhere. The wireless systems allow the medical personnel to update the medical files and to place orders right from the patient bed, which may reduce the possible errors.

The subject treated in this thesis is of maximum actuality, and takes into considerations the efforts regarding the transposition of the informational technology into reality, my proposal is to perform informational systems for health through the implementation of the Internet technologies, in a secured way, based on the architecture oriented on services on a global market where the concept of e-health by using the electronic communication to all levels of the health system will organize all the medical care processes.

The evolution of health systems supposes original *interconnection* of information between different hospital systems, so that to ease the exchange of information and the cooperation between the health specialists. Due to the division of medical data in full security and due to the appropriate management instruments, *the information technology is one of the main possibilities for this evolution process*, so that the information for the entire sanitary system supposes *reorganization of own systems of information* and the insurance that they are more and more *opened*.

Moreover, the exchange of data between applications is complex, because they are designed in different periods with discrete technologies, so that the elimination of the “silo” effect implies the definition of common basic references (as divided directories) and the implementation of system architectures which allow the *transversal cooperation*, interoperation and communication between applications.

The integration supposes the interconnection of different applications, specialized, in a larger system, allowing for the synergy between different levels, and the interoperation must give the possibility for a direct integration of the discrete systems which allow a quick and safe access to public health data comparable and to information about the patient located in different places over a large variety of wired or wireless devices. This fact depends *of the standardization of components and services of the system (the health informative system, medical messages, the architecture of electronic medical records and services identified for the patients)*. The objective for this standardization is the facilitation for the exchange of messages between the applications which administrate medical data by *creating an European network*, facilitating the ability to communicate and to exchange clear, secure, real and consistent data with different technological systems of information, software applications,

networks from different stages and the exchange of data as the ones for clinical or operational purposes in the sense that the data should be kept and non-altered.

The insurance that the system of information are opened to external health networks as well as global electronic data of the patient file will lead to the need to implement the interoperation and security solutions by implementing the SOA architectures based on a secured infrastructure which will allow the communication between the existent applications and the new applications.

Romania needs an *integrated informational health system, interoperational, standardized* so that the informational networks to establish connections with hospitals, laboratories, pharmacies, centers of primary medical care and social centers, with a *health system centered on patient*, characterized by the communication in a secured way (standardized systems of messages) for telemedicine services. Romania needs the creation of a *distributed national system, opened* capable to exchange medical data based on certain opened standards based on the *architecture oriented on services*, the distribution of data and distributed security, to use standardized information according to the last international standards.

Another unsolved problem for the family doctors is *the non registration of data in electronic format at the patient level*. The quality for data registration could be provided by the application of a set of rules for each component registered, namely the creation of an *international standard* for an efficient exchange of data, so that the content of registrations to make reference to the *reasons of presentation, the examination content, the investigations prescribed, references, the patient history, personal data*.

The promotion of the patient unique electronic health file at all levels of the health system must be one of the obligatory requirements taking all the measures for securing its confidentiality. There must be developed a national health informational strategy to integrate the informatization of the medical information in a unique form, standardized and coherent.

The medical file, is one of the main instruments for the clinician, so that for the doctor, the patient is not permitted to be a “spontaneous appearance”, he has a history which encloses previous and present diseases, malformations, hereditary-collateral, professional and socio-economical data, medications administrated and the answer to this medications, the dynamics of the results of laboratory analysis performed along the years etc. All these data, secrete that rightfully and exclusively belong to the patient or to his tutor – as the case may be – must be presented, when needed, to the competent medical body, in a minimum time, “live” (on-line), clear and complete. Dusty files from the archives of a medical cabinet or from clinics are of unimportant use on the scene and entirely non useful at distance.

The Electronic Health File (EHF) unique is the only instrument which can manage efficiently the information necessary to the doctor, the one which encloses data with reference to the patient history ant to the past and future investigations, information stored and processed by the *Patient Electronic Health File*. This will permit to such information to be transferred between the health providers, between places of health care and between the

management systems of health data, which will have as a consequence in the increase of the efficiency and productivity for medical services in Europe and a support for health care in general, for the medical-sanitary personnel and for the patients, clients in the process of health care.

And because the health care became a cooperative process (the specialist doctor is not taking care alone of the patient), implicating medical personnel with various qualifications (doctors, nurses, pharmacists and other specialist who, by various activities, uses health files, write summaries of the medical sheet file, letters to the patient etc., perform tests and analysis, register the results into the file and sign, others perform specific treatments or are preoccupied by the patient mental and social status and introduce information linked to these aspects) the information technology will be the only one which will change the culture of the working environment, so that the patient health file must have a unitary, standardized structure.

The Electronic Health File is a data base containing complete medical files for the patients (medical sheet, medical data, examinations, medication etc.) can be accessed by doctors or other authorized persons, extremely useful in emergency situations and by a simple search, the medical personnel can have available all the antecedents and medical data for a certain person.

Starting from the necessity of the Patient Electronic Health File, I noted that the health system must be reorganized from the grounds, decentralized, interconnected with the other European systems, adapted to the change in products made by the knowledge society. In this respect I propose that the Romanian health system to be connected to the *Online Virtual Clinic* – a computerized management system destined to all medical organizations which offer the potential patients the possibility to observe in real time the evolution of their health status, keeping all the patients medical data on the central server. The location and provision of information about the health status in real time can lead to the optimization of the decisive process and, on the other hand, the fact that we can transmit a few parameters of the patient health status can set us in front of the access to complete information which will certainly influence positively the medical act.

In the spotlight of this system are *the patients*, they are the ones which benefit the most of this type of informatization of the activity in hospitals, by quick access and less expensive to high quality care services no matter the location. *By using the telemedicine services* it is optimized the work flows, there are reduced the costs for medical cares, increases the efficiency and together with this one the productivity for of the sanitary organization.

The Online Virtual clinic represents a solution of interoperation, telemedicine and teleconsulting – in the sense of access to information from the patient electronic file or obtaining a consultancy in real time in order to intervene in due time in case of medical emergency, no matter where an European citizen may be. We discuss now about a globalization, about European Union where borders are disappearing and where the citizens

move freely from one country to another, but he also travels with the health problems he may have.

The complexity and the quantity of information which are promoted in the family medical cabinet determined me to use the instruments of information technology: *the performance of an informative system for the management of medical services from a family medical cabinet*, in order to increase the efficiency and to rise the quality of medical services, starting from the idea that the implementation of an architecture for the informational system in health does not consist in the simple installation of computers and connections between these, but the integration and the integrated interconnection.

Starting from the *inexistence of a medical data base*, with medical information, from the birth until the death of each individual and of a management system for the information at the national level in order to be able to facilitate the access to the quickest and best medical care possible for the patient determined me to design the Medica application.

The TIC solutions proposed in the 4th and 5th chapter can increase the quality of the diagnostic and treatment, because they greatly depend on the availability of the relevant and actual information.

The Medica application is the premise to create a national electronic health file where we can store all the medical data of patients because *in the family medical cabinet there are not information about a certain patient in electronic format*, because the medical data are not stored in a standard format at the level of primary medical assistance, which may be transferable in a integrated sanitary assistance system.

The continuity of medical services must be provided at all costs because the relevant information must circulate among all medical bodies, who takes care of the respective patient, and the performance informational systems confer a bigger degree of safety to patients. It is necessary to connect to a national informational network of the main sanitary institutions, and the medical knowledge or the discoveries recently acquired must be transmitted to the medical community in the shortest time possible, so that it is imposed the designing of informational systems integrated to obtain the performance of the management of medical services.

The interconnection of the main institutions from the health system will permit a continuous exchange and very rapid of information between specialist doctors, the access of information about a certain patient to any sanitary unit.

I designed the Medica application for a family medical cabinet because the patients personal information are under the direct control of the family medical cabinets, these being the only ones able to dispose of, depending on the necessities, the access from other sanitary units.

As starting point in the designing of Medica application I took the medical act from the level of a family medical cabinet, which is the medical act generating two types of information: *information concerning the patient status* (they have individual character) and

information referring to the diagnose based on which is taken the medical decision which ends the elementary cycle of the flow of medical information.

The problems I approach refers to the conceiving of a *electronic health file for patients*, the management of the history for each patient of the medical cabinet, all the evidences, primary documents, forms, reports turned from the paper format into the electronic format, with the possibility to transmit them to others specialists inside the health system, so that I hope to bring a resolution to this health phenomenon: the missing information due to the lack of information exchange between the specialist, the lack of standardization for the health file, so that it can be operated in other health systems.

The 5th Chapter “The presentation of Medica application for the management of a medical cabinet” starts with the logics, continues with the presentation and it is ended with the benefits and some other proposals to extend the application.

The Medica application increases the availability and use of information from the health file, facilitates the works of professionals in the health field, improves the quality of information, ease the communication, offers the capacity to use a great volume of information collected in the health files, in the benefit of individuals, as well as in the benefit of the medical community.

The system solves the electronic management of patients and of the entire medical activity performed by the medical personal, generates the evidences from the family medical cabinet, the periodic reports to the Health Insurance Houses and the Directions of Public Health.

The application offers to the family doctors the possibility to save important time for manual calculations, multiple written managements, the manual performance of certain statistics, manual fill in of forms etc. Additionally, the cost of the actual management for the entire activity will be reduced due to the electronic supports to store the information, this fact facilitating also an even quicker transfer of information (in electronic format) between the cabinet and the institutions with which the family doctor is forced to take contact.

The main categories of facilities offered by the application created: the introduction of patients once from a data base provided by CASS, the possibility to keep a correct evidence of the patients insured and non insured, of pregnant women and chronic patients, of vaccinations, exams and medical examinations performed, of laboratory analysis, of investigations, of medicines, of affections, of all documents issued, of a schedule per days of patients for different types of consultancies etc., the use of certain useful information referring to data from the patients electronic health files, medical dictionary, the issuance of all medical documents for CASS, the possibility to commonly use the application for the doctors which share the medical cabinet working in different days or at different hours, or at distance, or from other medical cabinets in the clinic by adding users with personal passwords and with separate data base, the possibility to give a presumptive diagnostic automatically, depending on the selected symptoms in order to direct the doctor etc.

For the extension of Medica application I propose the *electronic transmission of medical receipts from the family medical cabinet to a pharmacy*. In time, the Electronic Service of e-prescription will bring a series of benefits for the patients, the prescription will have a bar code which will contain a unique reference number for the receipt.

The information and communication technology must play a central role in the reorganization of the health care system by automation of clinical, financial and administrative processes, essential for the improvement of quality, for the prevention of medical errors, for the intensification of confidentiality for patients medical data by informational systems all types of patient information (medical and family history, health file, security antecedents, so that any electronic complete medical registration must include hereditary-collateral information, treatments, recommendations, allergies), must be safely protected.

Romania lacks the standards for the collection, storage, communication, processing, analysis and presentation of information from the health system, and the challenges of TIC application in the health care system must not be underestimated, the health being without any doubt one of the, if not the most complex sector of economy, where the number of various types of transactions (patients needs, interactions, medical services) is very high. The implementation of the applications belonging to the information technology will need behavioral adaptations from the patients, doctors and organizations and the Internet will quickly transform a lot of society aspects and a lot of processes linked to health.