

THE “DOCTOR ELEKS” COMPREHENSIVE MEDICAL INFORMATION SYSTEM

Implementation of the “Doctor ELEKS” Medical Information System guarantees effective medical institution management, increases the quality of medical services, and significantly facilitates the staff’s work.



For the past 15 years, the “Doctor ELEKS” Medical Information System helps medical institutions collect and manage medical information including graphic and video images from different diagnostic equipment. Together with our clients’ needs and requests, our Medical System is constantly developing. Currently, this includes more than 20 subsystems which allow for storage of all the necessary patient information in one place, analysis of the clinic’s activity, generation of financial and statistical reports and planning of the clinic’s activity accordingly, processing of information received from the diagnostic equipment, and editing of document templates. Now, the Medical Information System is successfully used in dozens of clinics not only in Ukraine but also in Poland, Moldova, and Byelorussia. The system is localized to Ukrainian, English, Polish, Romanian, Russian, and Greek.



CUSTOMER

St. Paraskeva Medical Center

INDUSTRY

Health care

CHALLENGE

Taking advantage of automation, our challenge was to streamline and optimize all Medical Center activities associated with the tasks of the call center, physicians, and the diagnostic laboratory. Furthermore, the system had to support a wide spectrum of diagnostic services such as laboratory research, MRI, ultrasound scanning, X-ray, mammography, endoscopy, and the treadmill test.

BUSINESS BENEFITS

- Accurate and efficient data management
- Increase in clinic work productivity
- Working condition improvements for your staff
- Enhancement in the quality of medical services
- Ensuring comfortable conditions for patients
- Reducing service time for patients
- Mobility. Smart Phone/Personal Digital Assistant (PDA) Compatibility

TECHNOLOGIES

MS SQL 2005, 2008, 2012, IIS, Web Service (SOAP), WIN32 client, (.NET Framework 3.5), Web client (ASP. Net 2.0)

STANDARDS:

Interface with HL7 capable medical devices v 2.4- 2.6, DICOM

COMMUNICATION PROTOCOLS:

LIS2A, ASTM E1381-02 (rs232)

OBJECTIVES

- St. Paraskeva Medical Center is one of the best modern hi-tech diagnostic centers; its personnel consist of more than 125 doctors in divergent specialties.
- As of the moment of implementation, the medical center already had a single center for data storage and processing using the 1C: Enterprise system. With the help of this system, all financial and economic activity of the center was registered; that is why one of the biggest tasks was integration of the Medical 1C system.
- Increase in the number of patients necessitated the implementation of single patient registration, centralized data storage, formation of the closed circle of document workflow, and workflow of services rendered to clients.
- Due to the large number of the diagnostic services, the medical center cannot ignore the need to organize one storage place for test results to provide medical staff with fast access to them.
- Physicians of different specialties needed the development of a great number of medical chart templates, taking into account the customized requirements and needs of each physician.
- Creation of medical statistical accounting.
- Operating analysis of the medical center.

DEPLOYMENT PHASES

Eleks opted for Client-Server (In-House Hosted) Deployment Model in St. Paraskeva Medical Center.

Implementation of the medical system in the medical center consisted of two stages: during the course of the first stage, our specialists deployed the information infrastructure (software installation diagnostic center hardware systems). Moreover, we developed and coordinated medical chart templates for examination and reporting. In the course of implementation, the developed templates and reports were verified and specified while working in a real-time mode. The implementation stage is vital for system verification as well as for optimization when unexpected situations occur during the first stage.

AS A RESULT

System implementation took more than six months and resulted in the automation of 100 working places in the clinic. Training of the medical staff had been taking place for nearly two months when more than 120 specialists took the course.

ELEKS developed more than 150 chart templates and nearly 140 reports.

The medical information system consists of nearly 20 subsystems that provided complete system automation.

Scope of services

- Market research
- Initial product design
- Software architecture and full development cycle
- QA and testing
- Technical, marketing, and user documentation
- Implementation and ongoing system support

Electronic Medical Record

The core element of the system is an Electronic Medical Record that contains all patient data, including personal information, medical examination results, laboratory tests and different medical images (X-rays, ultrasounds, etc.). A unique "Tree View Templates" technology decreases the risk of medical errors in documentation while inserting the patient's examination data.

Physician

The subsystem allows a physician to easily input data. A wide range of templates guarantees quick document creation. Prompts assist a physician in his/ her work in case of deviation from the norm. Moreover, the system ensures lab data input and video and images record from medical equipment with the possibility to edit and import them into patient documents.

Computerized Physician Order Entry (CPOE)

Entries in the system are based on tree-view templates, which ensure easy and full data input into the system. A convenient ordering allows for the effortless implementation of different requirements on a document structure and content.

Picture Archiving and Communication System (PACS)

The PACS module allows the medical system to integrate with different medical devices at the diagnostic center, such as an MRI, ultrasound scanning, X-ray, mammography, endoscopy, and treadmill test. While examining the patient, the physician can download images and videos from the diagnostic equipment, process them using a built-in graphics editor, and save them to the patient's electronic medical record.

Radiology Information System (RIS)

A radiology information system (RIS) is a vital component within the Hospital Information System (HIS), that is why we provided comprehensive RIS solution for the Medical Center. RIS computerized database is used to store, manipulate, and distribute patient radiological data and imagery.

Clinic Activity Analysis

Clinic Activity Analysis provides access to the analytical and statistical data on services rendered to patients, staff work loads, work efficiency, etc. Due to the available templates, the saved data remain well structured, thus opening new opportunities for their processing and analysis.

Survey

The subsystem allows one to conduct a patient satisfaction survey concerning the services delivered and patient care quality. The survey can fill the waiting time of a patient during the service delay or service delivery.

Communication

The subsystem stores patient contact information and provides medical and advertising information distribution through SMS and e-mail directly from the system.

Scheduling

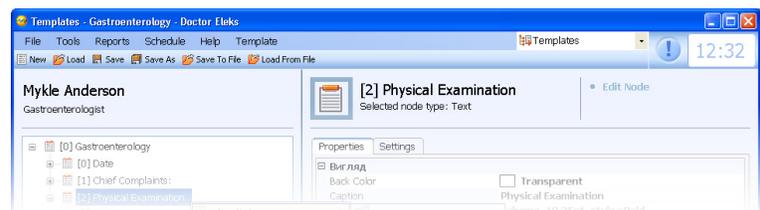
The subsystem is a component of Practice Management System (PMS), ensures quick search of a patient by last name, first name, and date of birth or personal identification number. Furthermore, the system allows for the creation of a new patient record in case of the first contact and appointment registration due to a doctor's timetable. Reception allows one to review the history of a patient's visits.

Billing

Being an integral part of the Practice Management System (PMS), the "Billing" subsystem provides settings to the tree-like services list by creating tariff plans and price lists for services and medicine. The subsystem is intended to form different reports on the delivered services and review the patient's financial condition.

Future Steps

Having successfully implemented the Outpatient Care management system, according to our short-range cooperation plans, ELEKS will implement Inpatient Care management system for St. Paraskeva Medical Center. Additional technical and functional system upgrade are also on the agenda of our cooperation.



TOOL'S ADVANTAGES

- **Usability.** The system is simple, requires no special software training and contains an intuitive graphical interface for inexperienced users.
- **Minimizing medical errors.** Decrease in the risk of medical errors in documentation. Keeping to the recommended sequence of the physician examination.
- **Multilanguage Support.** Localized to English, Russian, Romanian, Ukrainian, Polish, and Greek.
- **Time Effectiveness.** Quick search and retrieval of the patient's information. Unique document workflow for charting, which drives the examination process.
- **Customization.** Fast and easy data input using the built-in document template editor. Quick lab data input using Laboratory Information System (LIS).
- **Security.** High level of document and patient level security, role-based security.
- **Monitoring and Control.** Highlighting data visually in case of abnormality.
- **Interoperability.** Interoperation with medical devices. Image and video processing.
- **Flexibility.** The use of a standard data transmission protocol between the client and server enables the easy creation of client sides for other environments.
- **Reporting, Planning and Analysis**

Testimonial

"I have successful experience in several medical start-ups. In order to ensure success for the institution, all its business processes should have effective IT support."

"Among all the available medical information systems, the largest amount of business processes of our newly-created institution covered Doctor ELEKS. Having the goal of delivering high quality medical services, we are improving our business. In these improvements, Doctor ELEKS is an indicator and at the same time a tool."

Tetyana Mihnova,
CEO of St. Paraskeva Medical Center



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