Article 9-1 of the Law of the Republic of Kazakhstan
"About copyright
and related rights "
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Abstract of computer program

entitled

KeyNEXT Healthcare Suite

Full Name*(if it is indicated in the identity document)* **author (s):** _____

Object creation date: 06/01/2020

Field of application

Healthcare

Purpose

The purpose of the system is to combine a patient's medical record into digital documents so that authorized users can access patient records in real time in digital format.

In addition to terminology, the KEY'NEXT software suite covers the entire medical history, medications, allergies, radiographic images, treatment plans and laboratory results of patients, as well as medical bills and stocks / inventories.

KEY'NEXT offers many benefits - it helps provide better patient care and automates various practice tasks. It also allows physicians to exchange information with each other remotely and in real time, ensuring that every physician dealing with a patient has an up-to-date, complete, and reliable med. This patient's card.

Functionality

By offering an efficient way to maintain standard clinical and medical patient information in electronic format, electronic health record software helps to streamline several functions that are integral to running practice and increasing income. The main purposes of using electronic health recording software are listed below:

- Patient Health Information: All critical patient health data must be included in the EMR - the information must be sufficient to make more informed decisions and effectively analyze the relevant data.
- Result management: Reports from different laboratories and radiologists need to be collected and submitted in order to get unambiguous results in one moment.
- Order management: Recipes created and available in electronic format help eliminate illegible handwriting errors - orders are generated automatically Improved decision support: Clinical performance can be improved with reminders and alerts.

Helping service providers with issues such as drug interactions, outbreak detection and evidence-based guidelines lead to better patient safety decisions.

- Uninterrupted communication channel: As an interoperable system that allows patients, multiple providers and laboratories to connect securely, the EEZ system coordinates patient care efforts: Patients have the right to modify and manage their health information and are provided with educational materials
- Administrative steps: Regular health care activities can be automated with electronic health record software, helping the administrative department with day-to-day administrative tasks such as scheduling appointments, checking eligibility, and more.
- Reporting: This feature provides a standardized reporting system that meets your compliance needs

Program KEY'NEXT complex and its subsystems

- Inquiry Office

This module is designed to answer questions from visitors, patients and patients' relatives when they arrive at the hospital. Information on ward numbers, internal telephones, etc. can be provided. doctors and hospital staff. You can ask a question about the service, room / bed of any patient whose name is listed.

- Patient registration

Patient registration is the management of a patient registration function duplicated across multiple legacy clinical systems with a single patient registration module that can function as the Master Patient Index (MPI). Before making patient records, you can automatically ask if this patient already has a record and a medical record in the hospital.

- Reception, checkout and transfer

The functionality will allow to provide inpatient and outpatient treatment, the movement of inpatient beds and wards, as well as the patient's discharge from the hospital.

- Electronic medical records

The EMR user will be able to view prescriptions and prescriptions with the possibility of prescribing their renewal, can also view the entire medical history of patients, in the future they can view the results of laboratory studies, PACS images and diagnostic tests.

- Referral for reception

The referral allows hospital staff to manage and schedule patient appointments in multiple departments, such as cardiology, dermatology, etc., as well as schedule appointments for examinations such as radiology, laboratory tests. The planning module allows the relevant departments and physicians to make decisions on the priority of appointments based on the clinical condition.

- Outpatient patient

A patient can go to the hospital for several services. In case a patient wants to receive advice through an outpatient department (AO), AO modules facilitate the processes with the help of the system. The AO module is integrated with the assignment processes in the system to manage queues. The module also provides the ability to display and update the list of waiting patients on an electronic sign. While waiting in line, patients can also be called to the medical office to check vital signs, and the system will also provide support for recording this data. The patient's medical information is also available online to the attending physician on his computers, subject to access verification using a digital signature / password. Physicians can also record a patient visit in the system through the AO module using several options. For example,

- Inpatient patient

This module is designed to carry out the necessary procedures from the moment of hospitalization of the patient to the moment of discharge, maintaining the necessary documentation. This module is designed to include the procedures required for departments such as some special services and the intensive care unit.

If a new patient is admitted to the hospital, then he is considered inpatient. Detailed information about each patient, together with the room reservation and documents on his case, as well as other details will be saved in the system. After the patient is discharged from the hospital, his discharge from the hospital, together with billing details, if any, is taken over by the system. This module takes over all actions and functions related to hospital management. It should automate day-to-day administrative activities and provide instant access to other modules, leading to better patient care. It provides comprehensive data on patient admission and department management. Availability of beds, collection of advance payments, scheduled appointments, etc. In addition, there are provisions regarding the management of branches:

- Pharmacy

From a clinical point of view, the Pharmacy module manages the dispensing of prescription and / or other non-prescription drugs carried by the hospital pharmacy. Prescriptions are accepted in the pharmacy online, from the terminal of the relevant

department at the request of the doctor. Other departments may also write prescriptions at the pharmacy for their patients. Therefore, the corresponding modules for this purpose are integrated with the Pharmacy module.

- Treatment prescription and prescription

All inpatient departments can schedule and fulfill requests from nurses and pharmacies in the system, while inpatient departments can process requests and entries into the system.

- Radiological information system

The system allows the MO / AO specialist to advise radiological examiners by selecting tests from the HIMS system through the doctor's user interface. Selected examinations and patient information are recorded in the HIMS and automatically sent to the radiology terminal where the radiology module is operating. Any generated test report is available in three interfaces: Statistical record, ward terminal and is automatically saved in the patient's medical record.

- Laboratory Information System

It aims to ensure that all laboratory requests related to the outpatient clinic, clinic and emergency room are fulfilled, and the necessary documentation is maintained.

- Operating room

This module provides physicians and administrators with all the information available for each planned, performed or completed surgery. It includes functions for planning and scheduling operating rooms, material management and material requirements planning, preliminary consultations, documenting the time of the operation (before, during and after the operation) and after the operation. It also includes clinical procedure records, sterilization management and recording.

- Statistics and reporting

The function can provide predefined reports (clinical, administrative, etc.) and dashboards. The solution will be flexible to support reporting of additional metrics, how and when they should be added to reports / dashboards.

- Inventory and stocks

This module is designed to perform storage and input / output procedures for consumables (medicines, consumables and accessories) stored in a warehouse, pharmacy, operating room and laboratories.

It provides hospitals with control of materials in various categories, including warehouse ratio, warehouse-to-unit and unit-to-patient, based on an institution-wide material catalog. Manual control over materials included or not included in purchase

stocks is very difficult and time-consuming. The system was designed to overcome these difficulties.

- Invoice

This module is used to generate invoices that include information on the amounts owed by patients to pay for services provided by the hospital. The invoice is intended to facilitate the processing of batch contracts between the hospital and institutions in the system and to track contracts concluded with employers of patients receiving treatment in the hospital, as well as the prices they contain.

- Cashbox

The module will process payment for medical services and materials of the patient during his treatment.

Main technical characteristics

A complex of programs for organizing and storing digital medical data has been developed. Data is organized and structured, client-server architecture is protected, user privileges are distributed, a high level of application security and data confidentiality is ensured, and user-friendly interfaces are implemented.

Databases used - Oracle, PostgreSql, Mongo. The size of the database depends on existing data from old or legacy systems that can be migrated to our database. In addition, we do not delete any data from the system. This means that all data will be stored forever. The size is limited by the database management system on which the system is running.

The Keynext database is intended for any relational database management system, regardless of the operating system, since any operating system supportsOracle, MySql, PostgreSql, MS SQL, DB2, etc.

Programming language

Programming languages

- Java
- Java Script
- Python

Computer types

Server part.

Server operating system: Linux, Unix, Windows with latest security updates.

Server RAM: Minimum 64GB for database and 128GB for apps and web apps.

Server central processor - any.

Server disk: at least 100 GB for applications and web applications, the size of the database depends on the load and data.

Client side.

Client operating system: Linux, Unix, Windows, supporting standard web browsers.

Client machine RAM: 2 GB minimum.

The client processor is any.

The client-side disk is not critical, because the system is implemented as a web application and does not have additional installations on the client side.