

What is ClinicMaster Software?

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ClinicMaster Software

Description

ClinicMaster is an integrated new generation health information management system (HIMS). It automates transactions in the hospital or clinic on a patients' visit basis and daily procedures.

ClinicMaster is an electronic system which allows the medical professional to type notes directly into a computer rather than writing them on paper, with a pen. A patient's medical records are kept in one electronic file, with a unique medical records number. This allows the doctor to have a comprehensive medical file for quick review, with the medical history, medications, allergies, laboratory test results, etc.

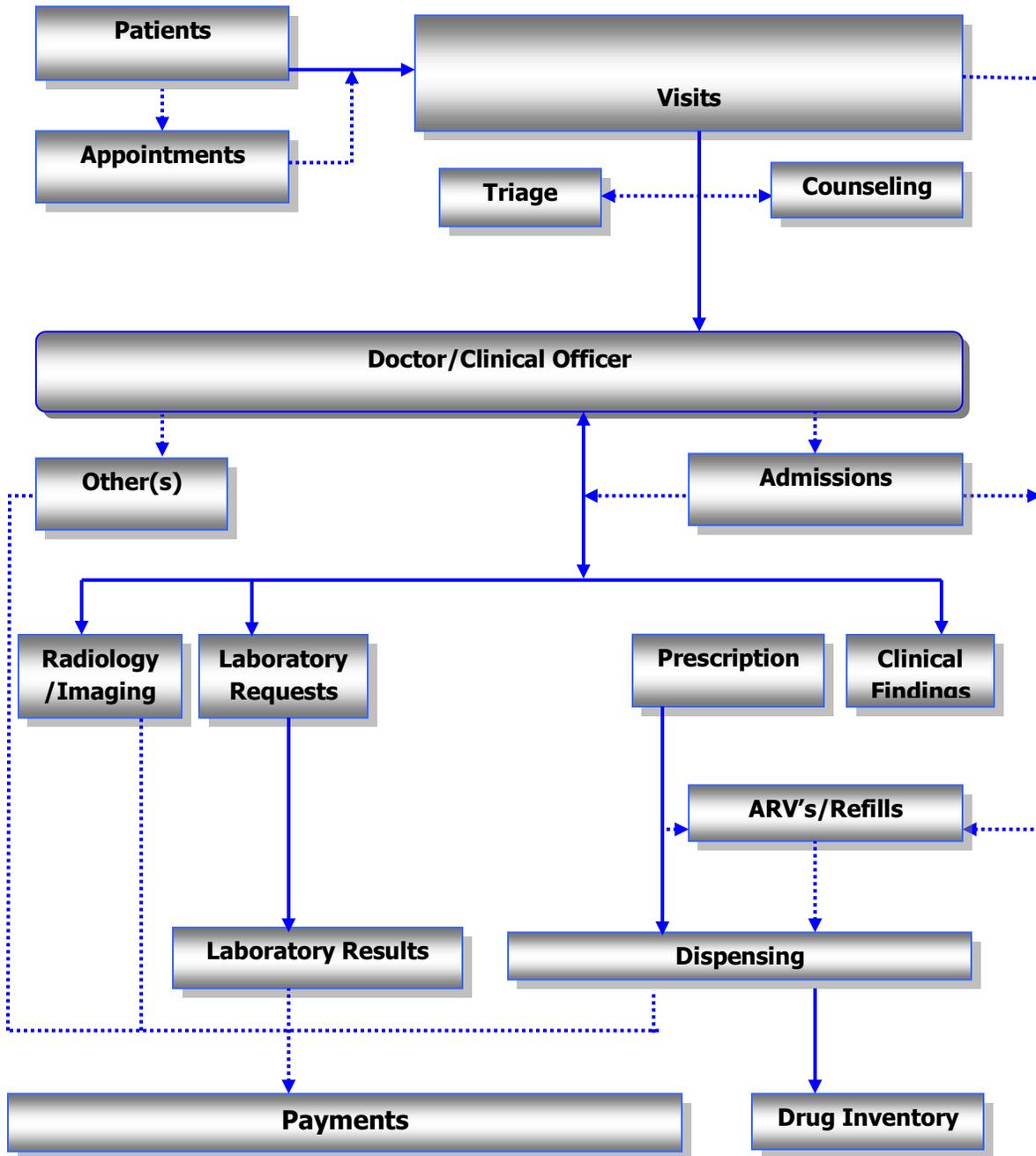
How It Works

ClinicMaster follows the logical flow of a patient in a hospital or clinic. Upon arrival, a patient goes to reception, where information about that patient is registered and the patient is given a unique identifier (medical records number). Through the unique identifier, a visit is registered and all subsequent visits will be captured under that same identifier. Once registration is completed, an electronic alert is sent to the doctor's computer, informing him or her that there is a patient waiting to see them. When the doctor is ready, he/she will call the patient to the consultation room, where the doctor will enter data into the system. Laboratory test can be ordered by the doctor through the system and the laboratory will get an instantaneous alert on their computer, enabling them to know who is coming to do the tests that have been requested for by the doctor. When the laboratory completes the tests, results are entered into the system and the doctor automatically gets an alert that his/her patient's results are ready for review online. The doctor can request for another service, e.g. radiology, or prescribe drugs for the patient. At all service points, doctor/consultation, laboratory radiology, dental, optical, pharmacy, and cashier alerts are sent through the system, before the patient arrives to that department.

The software provides the doctor with the full medical history of the patient, right from their first visit to that health centre with a simple click of a mouse. It tracks the interface with the patient, from the front desk when the patient registers, to the outpatient after they are discharged.

ClinicMaster is designed, based on the patient's information flow in a hospital or clinic as shown diagram 1 below:

Diagram 1: ClinicMaster Information Flow of key clinical processes at Hospital/Clinic

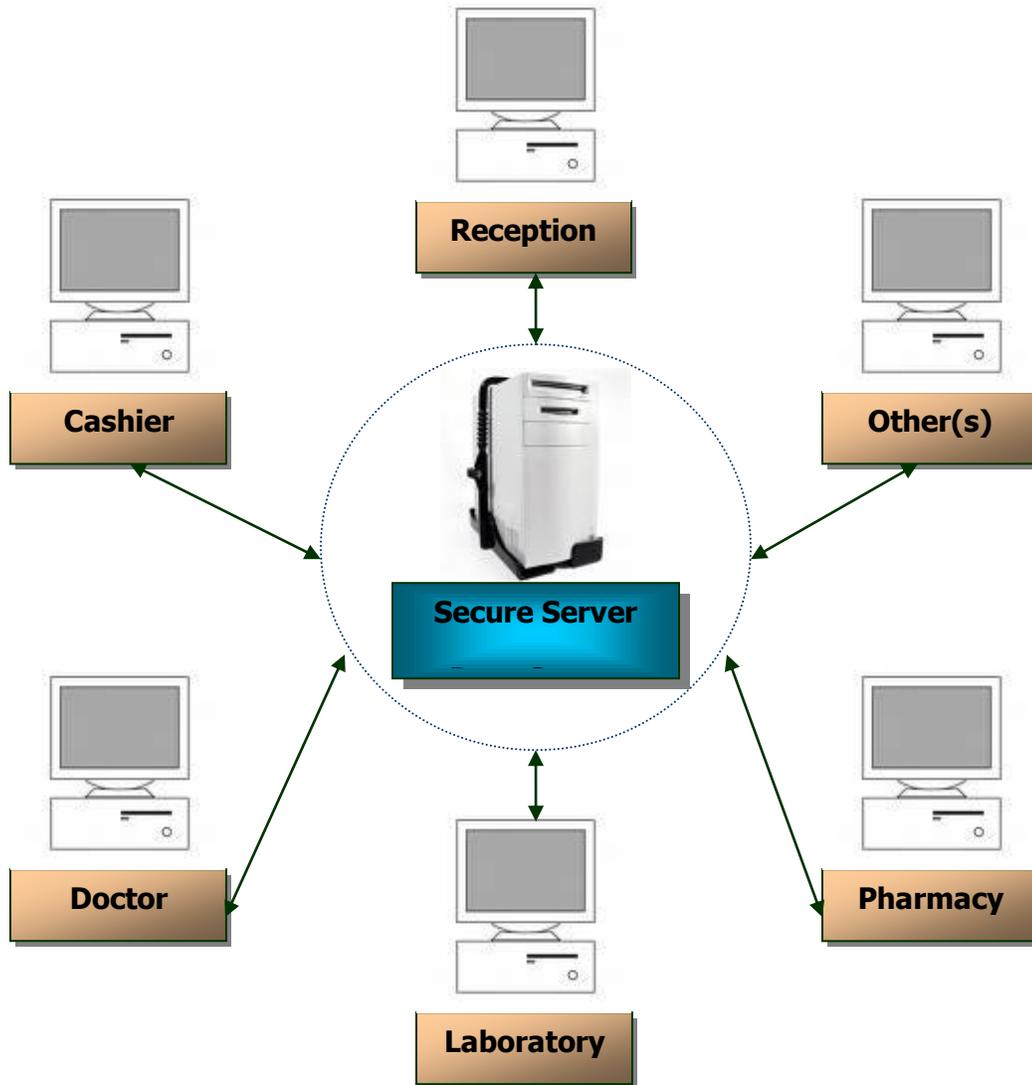


Software functionality:

- Manage patient data e.g. Allergies and Deaths
- Appointment Scheduling
- Record Clinical Findings including Diagnosis
- Capture Laboratory data
- Capture Radiology reports
- Capture Dental reports
- Manage Pharmacy information & Drug Inventory
- Manage Theatre Procedures
- ART/ARV's Management
- Cash Payments & Accounts Billing
- Management of Medical Insurance Schemes Including automatic generation of Claim Forms
- In Patients' Management
- Incorporation of Search Engine, Custom Reports & Business Intelligence
- Data Security Management
- Online Help
- Import and export data to and from MS Excel
- Print out a report in MS word.
- Produce all the required reports via the search engine.
- Interface with major medical equipment such as laboratory machines and others to automatically send and retrieve data to and fro those equipments
- Capture Biometric; ClinicMaster can register fingerprint, and verify a patient at every visit and/or at each service point.
- Integration with Microsoft Dynamics-Navision
- Integration with Lacent Laboratory System
- Integration with Smart Applications System

ClinicMaster is based used in a networked operational environment for user departments as shown in diagram 2 below.

Diagram 2: ClinicMaster Network



Problem

In today's business re-engineering trends, many industries have done a great job in improving service delivery through the use of information communication technology (ICT). Banks for example, have managed to reduce queues significantly to an extent that one can access banking services from multiple locations at any time, via the Automated Teller Machines (ATM).

The Healthcare sector has lagged behind for many years in this regard, yet it's an area, where one should be served quickly and efficiently. Typically, when one goes to a healthcare centre a paper file is opened, data about a patient is handwritten onto pieces of paper, not always legible, and then the file is stored in a cabinet or on a shelf. The process is repeated each time a patient returns to the clinic or hospital for treatment. It is extremely difficult to make good use of data stored in this manner, by hospital administrators. A simple query such as number of female children seen in a given month, or the number of patients who honored their appointments would take several days and the accuracy of the information is not always guaranteed.

Managing health centres manually makes it too complex to monitor the flow of drugs which leads to over and under stocking. ClinicMaster can keep track of pharmacy stock, and eliminate shortages of a particular drug, by alerting appropriately when to restock.

It is apparent that a number of healthcare providers have over the years remained inclined to a manual health information management system not by their own choice but due to a number of factors such as not having a health information management system that electronically and systematically collects health information about individual patient(s).

Consider a situation whereby you visit one health care centre and next time go to another one if data is not stored electronically, there is no easy way of interlinking these centers to share patient's history.

Through the use of hard copies of patient's medical data, the same patient is given multiple identifiers at difference service access points, which makes it difficult to integrate these pieces of medical data for doctors say at different medical centre's to share a particular patient's medical history.

Solution

In health care, we need a solution where by your doctor will type notes directly into a computer or other electronic device rather than rely on pen and paper. Your medical records will be in one electronic file, organized so that your doctor will quickly know your medications, diagnosis, allergies and latest test results. This solution is the ClinicMaster Software.

ClinicMaster has easy and simple interfaces meant for non IT professionals to use. This is because it was developed from scratch and not as software customized to manage clinical data. It has a comprehensive search engine that any basic user can use to make reports, a task that is usually reserved for IT professionals in most organizations. It has in-built intelligence, for example, its ability to calculate dosages, show doctor alternative drug(s) in case one is out of stock or alert at any service point appropriately.

Below is ClinicMaster's Pharmacy dispensing form showing alerts for pending prescription, drugs that are running below order level and those that are about to expire. These and more alerts are automatically generated and managed by the ClinicMaster.

Include	Drug No	Drug Name	Dosage	Duration	Quantity	Notes	Unit Measure	Unit Price	Amount	Pay Status	Units In Stock	Expiry Date
<input type="checkbox"/>	M1020	Crestor tab10mg/Rasuvasta...	1x1	30	30		NA	3,500.00	105,000.00	Not Paid	92	27 July 2011
<input checked="" type="checkbox"/>	M1381	Diclofenan MS gel	1x1	1	1		NA	6,000.00	6,000.00	Not Paid	7	1 November
<input checked="" type="checkbox"/>	M500	Offen caps100mg/diclofena...	1x2	5	10		NA	3,500.00	35,000.00	Not Paid	210	13 April 2011
<input checked="" type="checkbox"/>	M534	Pliglitazone tabs30mg	0.5x1	30	15		NA	1,000.00	15,000.00	Not Paid	99	1 August 2011
<input checked="" type="checkbox"/>	M776	Mitalcal	1x1	30	30		NA	1,000.00	30,000.00	Not Paid	260	13 April 2011
<input checked="" type="checkbox"/>	M928	Easam2.5mg	2x1	30	60		NA	1,000.00	60,000.00	Not Paid	70	1 September

Importance of ClinicMaster to Society

On the issue of sharing the importance of ClinicMaster to society, let me first quote in their own words what the two representatives of ClinicMaster users had to say about the system.

"The ClinicMaster Software has been very instrumental in enhancing accuracy of data capturing, processing, analysis and reporting. Our Clinical operations are now more efficient and effective due to the sense of accountability brought about by the System among all Clinicians." **Mr. Issa Bulafu, General Manager at Case Hospital, Kampala-Uganda**

"Makerere University Walter Reed Project started piloting the Clinic Master patient monitoring system in January 2011 at the Kayunga District Hospital HIV clinic. The system was customized to use the existing Ministry of Health HMIS tools. The clinicmaster has proven very useful in the monitoring of patient visit and appointments, current medical conditions and medical history, ARV and Opportunistic Infection drug prescriptions and inventory, and all laboratory investigations. The system has also greatly simplified the creation of the M.O.H quarterly HIV report as it produces this report on a click of a button." **Mr. Alfred Nyero, PEPFAR Data Management Officer, Makerere University Walter Reed Project, Kampala-Uganda**

In other wards ClinicMaster brings about better information management and dissemination to the healthcare center that in turn serve patients better and efficiently. This helps to save lives, through quality medical care that can be best done on comprehensive and accurate medical records

For example, patients on ARVs are supposed to take their medicines daily and in turn get monitored on a monthly basis; not taking drugs on time could lead to drug resistance that can even cause death. Through ClinicMaster's ability to alert health workers on who miss their appointment, they can quickly intervene and follow up these patients. Additionally, because ClinicMaster alerts when to stock drugs, patients especially those on ARVs, will not go back home from visiting a health centre without medicine that they need, due to the pharmacy being unaware that their stock was depleted.

Governments usually make better planning for citizens when there is accurate information about them. Using ClinicMaster helps to quickly generate Ministry of Health reports such as one showing patients on ARVs, disease surveillance at a clinic/hospital such as malaria, tuberculosis, etc.

Origin of ClinicMaster

The first line of code on ClinicMaster was written in 2006, this happened while ClinicMaster's Technical Director Wilson Kutegeka was working with Joint Clinical Research Centre (JCRC) to develop applications that facilitated research in HIV/AIDs vaccine. This started after witnessing the death of 14 year old, then on ARVs, but could not manage to come to JCRC due to his health condition at the time of his death. Despite the fact that JCRC had all the means to reach out for this young man, we did not realize that the young man had missed his appointments since the manual system in use at the time could not quickly tell us who had not honored their appointments. One year later, pilot testing of ClinicMasterJCRC

started at JCRC, which led to the development of ClinicMaster and in 2011, privately owned Hospitals and Clinics as well as healthcare provider NGOs in Uganda and beyond started using it.

Why ClinicMaster Software

One major advantage of ClinicMaster is that it's a true real-time application. Data is entered at a service point and it is visible as soon as it is saved. For example, a doctor makes an online laboratory request and the laboratory will get an alert about the request, processes it, feeds in results and doctor gets alerted of the processed results. The system integrates all user departments within the entire hospital. Whatever the patient touches will be put together by ClinicMaster including automatically generating billing information and user reports

Some of the Current Users of ClinicMaster Software

ClinicMaster is currently used by several hospitals and clinics in Uganda, Kenya and Zimbabwe; from small volume clinics, of about 5000 patients, to large hospital with over 200, 000 patients. The software is also used by research organizations.

- Uganda 13 Clients (some with multiple centers)
- Kenya 2 Clients
- Zimbabwe 1 Client
- Southern Sudan 1 potential Client

Challenges and Solutions

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Challenge	Solution	Comment
Virtual records over tangible paper file	Demonstrate that record is retrievable and even printable if required. Demonstrate savings realized by not purchasing paper and pens.	
Lack of infrastructure, capital cost	Start with a minimum number of users, e.g. physicians, laboratory	

	and pharmacy	
Lack of computer knowledge/ fear of technology	Offer training, training and more training	
Power supply	Invest in a UPS unit, generator	
Internet limitations	Create a local area network	

Conclusion:

Through innovation and the use of health information management systems (HIMS), the healthcare sector is being transformed from an inefficient, encumbered paper system. HIMS minimize medical mistakes and drug mix-ups from poor handwriting, or lost files, lacking comprehensive medical histories. Additionally, the system helps to minimize waiting time for the patients, through the alert feature and improve accountability in the pharmacy and accounts department. Finally, it facilitates the hospital/clinics administrators to deliver required Ministry of Health reports, with a minimum effort, and monitor performance metrics, allowing them to plan and make decisions based on accurate data. .

The electronic system should be convincing enough to get all clinicians on board, which requires a lot of research and programming input to get it right. Remember it's about what users want and doing it right!

ClinicMaster is designed in such a way that different service points check each other, in other words, laboratory department for example may not process a laboratory test unless the doctor has made an online request equally cashier may not receipt payment unless service points have entered the to-pay for services

Most of these healthcare providers describe a great ClinicMaster feature as the system's ability to alert at the next service point e.g. doctor getting alerted when laboratory results are fed in or seeing an alert for next queued patient. They like the system's ease without limiting comprehensive clinical data that is at time required to treat a patient.