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Hospital Management Information System – MASM Medi Clinics Limited.

1.0 Introduction

MASM Medi Clinics Ltd. (MMCL) is a private limited company incorporated under the Companies Act, 1984. It was registered on 13th January, 2008 under company registration number 8756.MMCL is also registered with the Medical Council of Malawi and the Malawi Pharmacies, Medicine and Poisons Board.

MMCL which is one of the leading providers of health care services in the country, with Clinics at Katoto in Mzuzu, Area 43 and Lingadzi in Lilongwe, Zomba and Blantyre. The Clinics provide health services to medically insured and non-insured clients. The company would like to improve its service delivery and stock management by inviting those who can manage to provide a system to be used at all its clinics

2.0 Purpose

- The Software is for the automation of MASM Medi Clinics.
- It maintains two levels of users:-
  - Administrator Level
  - User Level

- The software requirements include:-
  -Maintaining patient details.
  -Providing prescription.
  -Providing and maintaining all kinds of tests for a patient.
  -Billing and report generation.

3.0 Scope

- This system will be used at MASM Clinics, with a work flow linking all the sections. It must be capable of centralizing all clinic data (patient details and their test results, billing details and stock level management) at one place. It should do this by using a batch system when the other links are unreachable or online with the availability of the link.

4.0 Overview

Generally, the system should be safe and secure from a data management point-of-view. Highly sensitive data will be handled by the systems hence the comfort-level related to privacy and safety issues need to be addressed aggressively. The system should ensure efficient flow of information that provides interdepartmental support to the establishment, functional and process integration,

be adaptable and flexible from a user perspective, and last, but not the least, be standards-based to ensure interoperability in terms of syntactic and semantic processes.

The following points need to be given serious attention in order to build and implement a viable solution that will be able to deliver true value-for-money on a long-term basis:

1. Use of a unique patient identifier like UHID (unique health identifier).
2. Quick registration in times of emergency – use of "break-the-glass feature", with due record of who did what, when and why (the reason for this action).
3. Data security, patient confidentiality and privacy.
4. User-based-role-based access control with a sound and practical process using passwords.
5. Eligibility check of all insurance and ability to accept an upfront deposit to cover the estimated cost of care.
7. For investigations, the consultant needs to know the total costs and the individual investigation charges. This would allow them to prioritise the ones that the patients must
11. The System needs to be integrated with Lab equipment, X-ray to allow all images to be viewed and compared with any archived images.
12. Secured remote access to view information and add notes.
13. Checking for EOQ (Economical Order Quantity) and re-order levels and automated listing of near-expiry items at least 90 days prior to expiry.
14. Slow moving materials in the medical stores should be tracked and appropriate alerts should ensure that all stakeholders are aware of the situation.
15. Bar coding for tracking patients, services, material and medication.
16. MIS reports that serve as de-facto registers will need to be maintained as per prevailing rules, regulations and legal requirements.

5.0 Topography

Figure 1.

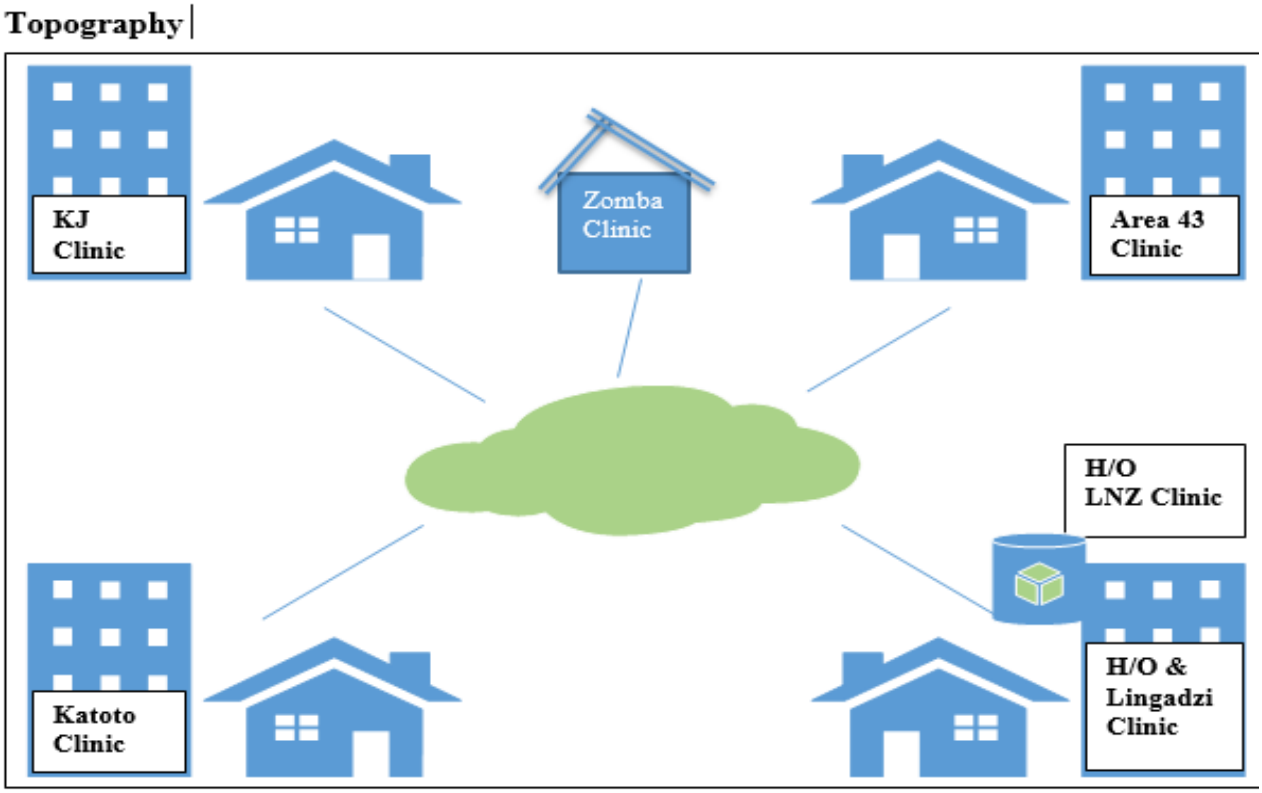


Figure 1, above is a sketch of how we desire the clinics to operate with HMIS in place, There could be some areas where some modification will be needed, as this was done by just observing the operation and how they can be improved by the system.

In one area where it is obvious to be change reports are produced.

6.0 Sections and their functions

The 8 sections that make the whole clinic are listed below;

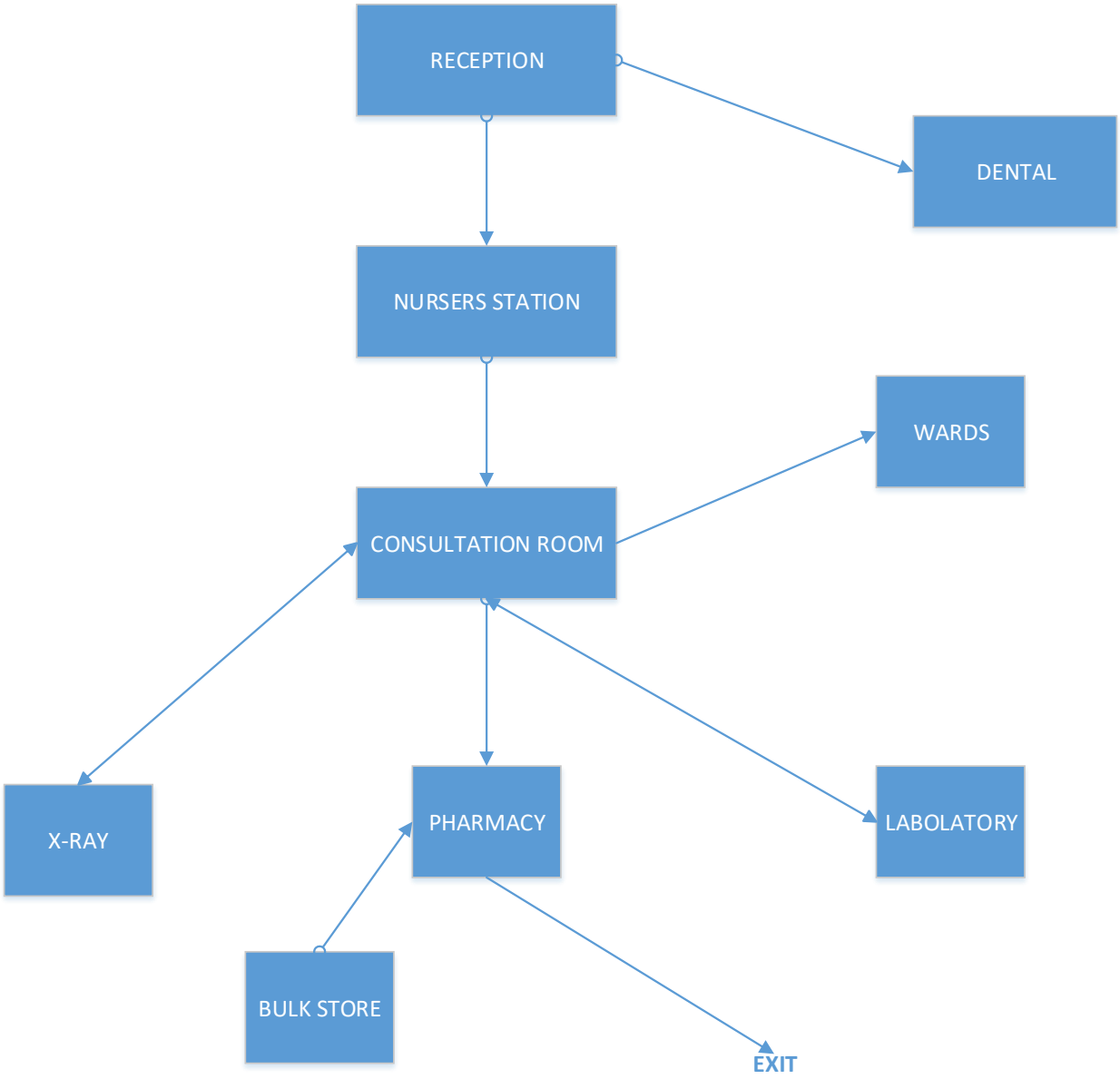
- Reception
- Dental
- Nurses Station
- Doctors / Consultation
- Inpatient
- Laboratory
- X-ray
- Pharmacy
- Bulk store

The sections have a work flow and all users must have different access levels to the modules in the system. Only a super user will have ultimate rights, the system should be centralised and able to synchronize with other clinics to the central point any time.

As we are striving to minimise the use of paper, all client information should be stored on the server and be retrived when need arises. Summarized receipts should be printed to any cash client at the reception, signed by the client and receptionist .

Figure 2 below is the outline of the sections and how they are interlinked.

Figure 2.



6.1 Reception

Every client coming to the clinic will first present at reception where the following steps will be done;

1. New client registration / checking the availability of the client in the system (revisit)
2. Verification with Insurance - valid database, phone call
3. Billing
4. Pre-authorisation – where an approval number is given by the insurance.

Note: *Client can visit the reception for payment with a minimum of two visits and one should only appear in next module if and only if he/she has settled the whole amount required.*

Reports to be generated include:

- Total client attended to by user on reception per day, week, month, quarter and year
- Total client per insurance per day, week, month, quarter and year
- Total cash client per day, week, month, quarter and year
- Total cash per day, week, month, quarter and year
- Total number of new client per day, week, month, quarter and year

6.2 Dental

This section is different to others as the client only visit the reception when all needed information is captured, verified and payment is made for cash client they referred to the section for services.

The list of drugs should be available in this module as sometimes dental section prescribes drugs.

6.3 Nurses Station

At this stage vitals are collected from the client.
These include;

1 Weight
2 Temperature
3 BP.

Some services offered here are:

- Counselling
- Giving oral / injectable drugs

Reports

- Number of oral and injectable drugs per day, week, month, quarter and year
- Total client attended by nurse per day, week, month, quarter and year

Thereafter the client is directed to the Doctor/ consultation

6.4 Doctor / Consultation

The client meets the doctor, clinician or specialist

The following are done;

1 Diagnosis
2 Ordering tests at laboratory, x-ray and radiology
3 Prescription
4 Referring client history
5 Referrals to Specialist or Hospital

Payment must be made at this stage for the client to seek services at the next level.

Note: *In this module the doctor, clinician or specialist should be able to check the availability of the drug. In short the drug which is out of stock should not be available on drug list, if its available*

the quantity should be seen by the doctor. This is to avoid prescribing the drug which is out of stock or the drug which is not enough for the client dosage.

Reports

- Total clients attended by doctor, clinician or specialist per day, week, month, quarter and year with given prescription
- Medical report, death certificate and others
- Total clients to referral
- Total number of tests ordered, per day, week, month, quarter and year
- Total in patient clients, per doctor per day, week, month, quarter and year

6.5 Inpatient

Client will be directed to admission upon doctor's direction. A bed will be allocated to a client and deposit (down) payment should be made before admission.

Reports

- Total clients admitted, day, weeks, months, quarter and year

6.7 Pharmacy

This is where medication is dispensed upon receiving doctor's prescription for the client. Drug stock will be viewed by the doctor when prescribing drugs.

The pharmacist should be notified of order levels and the date of first, second and third notification be recorded.
What is ordered from the bulk store should also be recorded and retrieved at intervals

Prescription should be printed on a sticky note so that it should be pasted on the pill bag, syrup. clearly showing the client name.

Reports

- Drug balance
- Total drugs dispensed by user on reception per day, week, month, quarter and year
- Total drugs supplied from the bulk store per week, month, quarter and year

6.8 Laboratory

Where the doctor orders some tests to be done. The equipment (such as BS-120, BC-2800 chemistry analysers, Pima analyser and others) that are in this section need to be interfaced so that the technician should not retype the results again. We understand that there are some small equipment that do not have interface; text space should be provided for one to enter the results

Reports;

- Total tests done per technician, day, week, month, quarter and year
- Type of tests done day, week, month, quarter and year

6.9 X-Ray

Where the doctor orders some tests to be done.

Reports;

- Total tests done per technician, day, week, month, quarter and year
- Type of tests done day, week, month, quarter and year

6.10 Bulk store

Drugs are bought in large quantities and stored within the clinic premises for easy access by pharmacy. Once the pharmacy levels are low they should be able to request from the bulk store immediately.

Purchase order should be produced from the system and forwarded for approvals

Reports

- Drug balance and levels
- Total drugs issued to pharmacy by user per day, week, month, quarter and year
- Total drugs purchased per week, month, quarter and year.

7.0 Delivery Period