



Government of Tanzania Hospital Management Information System (GoT-HoMIS)

End-User Manual

The login interface for GoT - HoMIS 2.0. It features the coat of arms of Tanzania at the top, followed by the text "GoT - HoMIS 2.0". Below this are two input fields: "Username" with a user icon and "Password" with a lock icon. At the bottom is a large green button labeled "SIGN IN".

GoT - HoMIS 2.0

Username

Password

SIGN IN

President's Office – Regional Administration and Local Government (PO-RALG)

PREAMBLE

This document has been developed to assist the end user of Government of Tanzania hospital Management Information System (GoT-HoMIS) as they interact with the system accomplishing their daily duties.

This document has shown all the steps and process that a particular user can follow and archive their desired task. The end user is expected to follow the processes as described in this manual and in case of any failure they should contact the support personnel assigned to the health facility.

This manual document contains all modules which are well detailed in their process flow and the description is well described through the system captured images. The sub-modules of the system have also been illustrated with screen shots from the system.

Be informed that the data used in the example screen shots is not from the real environment, hence maintaining the security of the patient data/information is one of the major tasks of anyone who is expected to interact with the system.

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PART ONE

Accessibility and Browser Compatibility

The GoT-HoMIS system is a web based application that runs on modern browsers. In order for the system interface to behave correctly, the users' computer must have a latest browser that must meet the following conditions:

- ✓ The browser must support HTML5
- ✓ JavaScript must be enabled on the browser
- ✓ Preferably, the browser is Google Chrome or Mozilla Firefox.

The system will be accessible through domain name or IP address as will be directed by the installing technician. Sample address looks as <http://192.168.25.32/got-homis>

Login

Upon accessing the system address, the browser will load a login page onto which the user shall enter his/her username and password. The user will be provided with initial password but such a password must be changed to the user's secret passphrase immediately upon first time login. The login page is presented in the figure below.

The image shows a web-based login interface for 'GoT - HoMIS 2.0'. At the top center is the national emblem of Tanzania. Below it, the text 'GoT - HoMIS 2.0' is displayed. The login form consists of two yellow input fields: the first for the username, which contains the email 'japhari@arusha.go.tz', and the second for the password, which is masked with asterisks. A green 'SIGN IN' button is positioned below the password field. Two green callout boxes with arrows provide instructions: 'Enter Username here' points to the username field, and 'Enter Password here' points to the password field.

Figure 1: System Login Form

Should the login attempt fail, the login form will display “invalid credentials” error message. The user will be required to re-enter correctly his/her login credentials. If the error persists, this may imply that the account is no longer usable and therefore the user has to communicate with the immediate support team personnel.

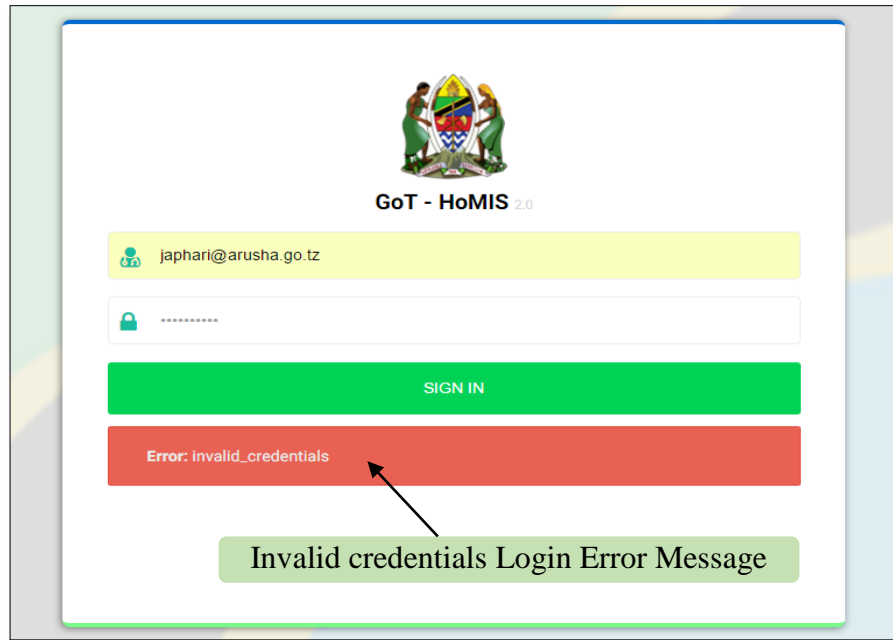


Figure 2: Invalid username/password error

While using the application, the LAN infrastructure or connectivity to the hosting server may temporarily be lost. Should such a situation happen at the moment of login, the system will display a generic or empty error message. Such a situation shall be resolved by making sure that, the user's computer has a connection to the LAN before escalating the troubleshooting procedures to the support team.

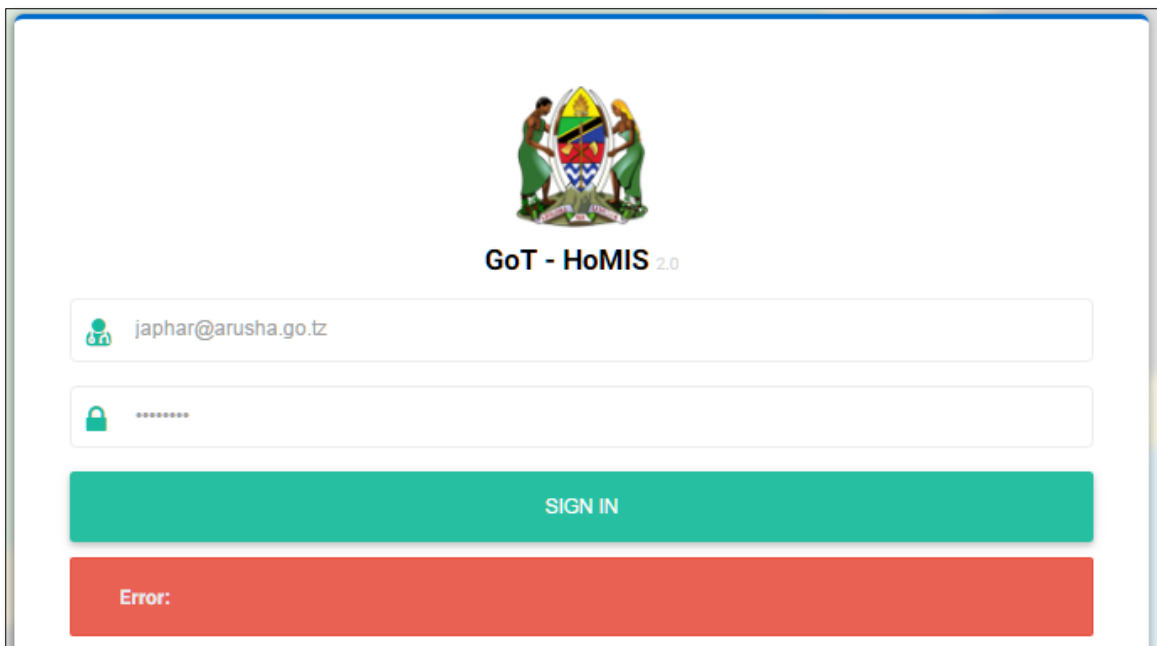

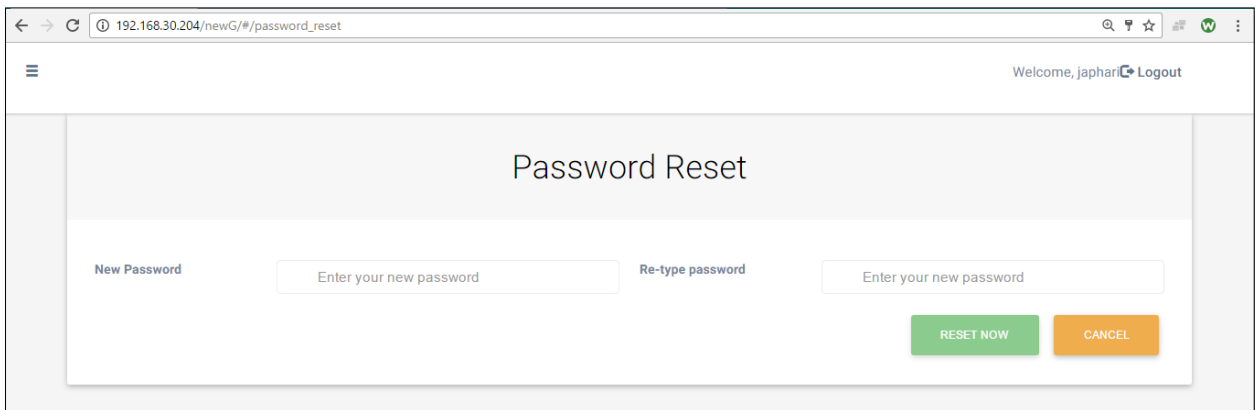


Figure 3: Login Failure Due to Network Issue

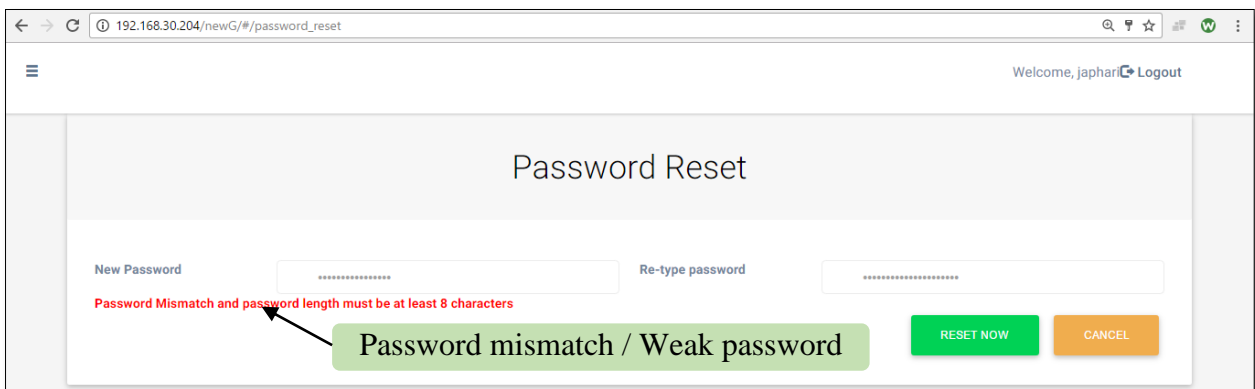
Changing User Password

Remember that, the initial password used to login into is a default one provided by the support personnel. This password must be changed immediately after initial login. Password update of a user will ensure the security of the system and avoiding tempering of information by unauthorized users. To access the password changing form, click on the  icon located on the top left corner of the page and choose **Change Password**.



The screenshot shows a web browser window with the URL `192.168.30.204/newG/#/password_reset`. The page has a header with a hamburger menu icon on the left and "Welcome, japhari Logout" on the right. The main content area is titled "Password Reset". Below the title, there are two input fields: "New Password" and "Re-type password". Both fields contain the placeholder text "Enter your new password". To the right of the "Re-type password" field, there are two buttons: "RESET NOW" (green) and "CANCEL" (orange).

Figure 3 Password Reset Page



The screenshot shows the same "Password Reset" page as Figure 3, but with an error message. The "New Password" and "Re-type password" fields now contain masked text (dots). Below the "New Password" field, there is a red error message: "Password Mismatch and password length must be at least 8 characters". A green callout box with the text "Password mismatch / Weak password" has an arrow pointing to the error message. The "RESET NOW" and "CANCEL" buttons are still present.

Figure 4: Password Mismatch Error

PART TWO

The GoT-HoMIS system is designed into different modules that together deliver the functionality required to capture and support hospital business process. Users of the system will be required to login and the system shall load onto the interface the corresponding module links. Functionality will be available by clicking on corresponding module icon on the initial logged-in dashboard.

Registration Module

This module is accessible by users with the receptionist role. After successful login in the system, reception module will be loaded in the Application Dashboard.

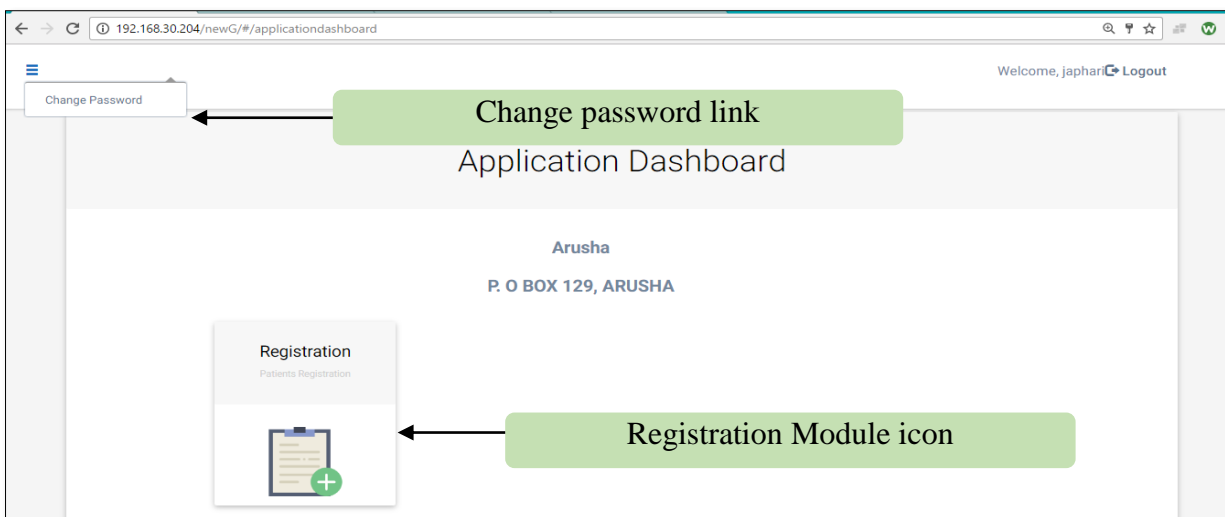


Figure 4: Receptionist Dashboard

To enter the registration module, click on the registration icon to load the module. The Registration Module contains three functionalities which are;

- Patient registration and initiating patient visit
- Edit existing patient
- Corpse registration

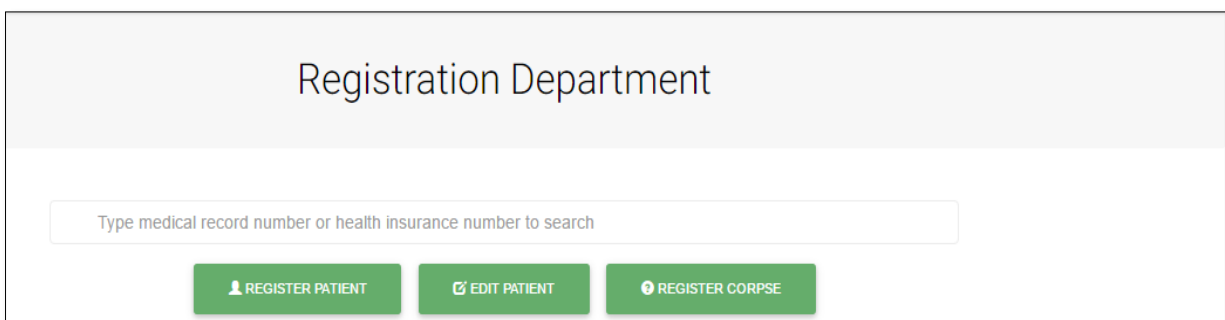
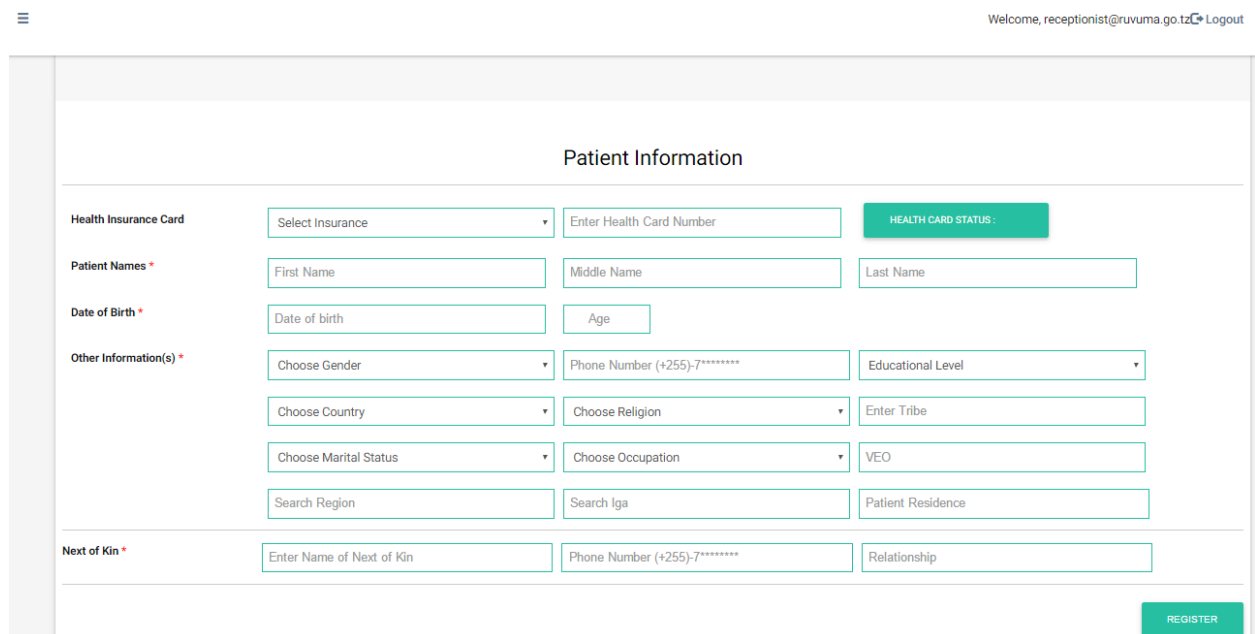


Figure 6: Registration Module Items

Patient Registration

Patient registration starts when patient arrives at the reception window, here they will find a data clerk/receptionist who will ask a few questions in order to fill the patient registration form. Patient registration involves activities such as capturing accurate demographic details of new patients, updating of patients information, health card validation and deciding on the required mechanism of bills payment. Click on the **[REGISTER PATIENT]** menu button to obtain a new patient registration. After filling all required fields, click on the **[REGISTER]** button to save the patient's data. The saving action will lead to generation of MRN number of the patient. The system will bring back a printable **OUT-PATIENT CARD** that the receptionist shall print and handle to the patient.

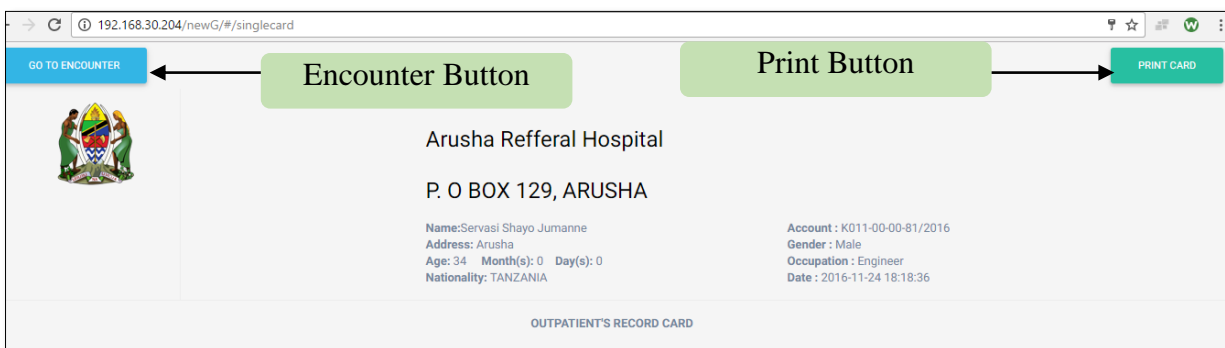


The screenshot shows a web application interface for patient registration. At the top, there is a navigation bar with a hamburger menu icon on the left and a welcome message "Welcome, receptionist@ruvuma.go.tz" with a "Logout" link on the right. The main content area is titled "Patient Information" and contains a form with the following sections:

- Health Insurance Card:** Includes a "Select Insurance" dropdown, an "Enter Health Card Number" text input, and a green "HEALTH CARD STATUS" button.
- Patient Names:** Includes three text input fields for "First Name", "Middle Name", and "Last Name".
- Date of Birth:** Includes a "Date of birth" text input and an "Age" text input.
- Other Information(s):** Includes several dropdown menus for "Choose Gender", "Choose Country", "Choose Marital Status", "Choose Religion", and "Educational Level". It also includes text inputs for "Phone Number (+255)-7*****", "Enter Tribe", "VEO", "Search Region", "Search Iga", and "Patient Residence".
- Next of Kin:** Includes text inputs for "Enter Name of Next of Kin", "Phone Number (+255)-7*****", and "Relationship".

A green "REGISTER" button is located at the bottom right of the form.

Figure 5: New Patient Registration



The screenshot shows a web application interface displaying a patient's record card. At the top, there is a navigation bar with a "GO TO ENCOUNTER" button on the left and a "PRINT CARD" button on the right. The main content area is titled "Arusha Referral Hospital" and "P. O BOX 129, ARUSHA". It includes a patient's photo on the left and a list of patient details on the right. The details are as follows:

- Name:** Servasi Shayo Jumanne
- Address:** Arusha
- Age:** 34
- Month(s):** 0
- Day(s):** 0
- Nationality:** TANZANIA
- Account:** K011-00-00-81/2016
- Gender:** Male
- Occupation:** Engineer
- Date:** 2016-11-24 18:18:36

At the bottom of the card, it says "OUTPATIENT'S RECORD CARD".

Figure 6: Patient Records Card on Successful Patient Registration

Managing Categories and Services

Patient categories i.e. cost sharing, exempted, NHIF, NSSF and others are managed in the managing category and services page. After successful registration of new patient, the receptionist will click [GO TO ENCOUNTER] to get back to the menu page. Search the registered patient by typing either name of the patient or Medical Record Number (MRN) of the patient (the one on the printed card). Utilize the suggestion list by choosing the correct entry as you type.

The screenshot shows a web browser window with the URL 192.168.30.204/newG/#/patients. The page title is "Registration Department". A green callout box with the text "Search patient name here" points to a search input field. The input field contains the text "ser". Below the input field, a suggestion list is displayed, showing "Servasi Jumanne K011-00-00-81/2016". To the right of the input field are three buttons: "EDIT PATIENT", "REGISTER CORPSE", and "REGISTER CORPSE".

Figure 9: Searching patient name

The encounter form is intended to initiate “that day visit” of the patient. Note that, the value of the input fields should be “selected” when suggestions are shown; **your own entry will not be recognized**. If the user has manually entered a value on such field, attempt to save the form will bring the message “Please fill all required fields”.

On the encounter form, specify the patient’s payment category (Cost Sharing, NHIF, Exemption ...) and Service (in this case, consultation). The **Re-attend** checkbox will be marked [✓] if the patient is re-attending for a follow-up. Click on the [SUBMIT] button to save the record. At this stage, the patient’s visit has been initiated and the patient can now proceed to the cashier if his/her payment category requires payment otherwise go to consultation room queue.

The screenshot shows a web browser window with the URL 192.168.30.204/newG/#/patients. The page title is "Managing category and Services". A green callout box with the text "Choose sub payment here" points to a dropdown menu labeled "Choose Sub Payment Category". Another green callout box with the text "Choose payment category here" points to a dropdown menu labeled "Choose Payment Category". A third green callout box with the text "Search services here" points to a search input field labeled "Search Service". The input field contains the text "ser".

Figure 7: Managing Category and Services

Updating Patient Records

This menu item is used to update patient details of an already registered patient. Click on the **[Edit Patient]** button from the Registration Module menus. Enter the patient MRN on the search box and select the corresponding patient. Edit form entries accordingly and then click the **[UPDATE]** button to update the patient information. Note that, the Outpatient Card can be reprinted by visiting this form.

The screenshot shows the 'Edit Patient' form in a web application. At the top right, there is a user greeting: 'Welcome, receptionist@ruvuma.go.tz' and a 'Logout' link. The form is titled 'Edit Patient' and includes a search bar labeled 'Search patient' with the placeholder text 'Type medical record number or health insurance number to search'. Below the search bar, the form is organized into several sections: 'Patient Names' with fields for 'First Name', 'Middle Name', and 'Last Name'; 'Date of Birth' with a 'Date of Birth' field and a 'Select gender' dropdown; 'Patient Residence' with 'Search Region', 'Search Iga', and 'Postal Address' fields; 'Patient Communication' with 'Phone Number', 'Education', and 'Residence' fields; 'Patient Nationality' with a 'Select country' dropdown and a 'Religion' field; 'Other Details' with a 'Marital status' dropdown and an 'Address' field; and 'Next Of Kin Details' with 'Name of Next of kin', 'Phone number', and 'Relationship' fields. At the bottom right of the form are two buttons: 'UPDATE' and 'PRINT CARD'. Two green callout boxes with arrows point to these buttons: one labeled 'Update Button' points to the 'UPDATE' button, and another labeled 'Re-print Outpatient Card' points to the 'PRINT CARD' button.

Figure 8: Updating patient records

Registering a Corpse

The mortuary installation of a facility normally receives dead bodies from two sources namely deceased patients who were receiving treatment at the facility or ones brought to the facility to get mortuary services. In the later case, corpse registration will be handled at the reception using the **[REGISTER CORPSE]** menu button of the registration module. On the registration dashboard the registrar/receptionist will click **[REGISTER CORPSE]** button to load the Dead body registration form. After filling all required fields and submitting the form, the data will be sent to the Mortuary module.

☰
Welcome, receptionist@ruvuma.go.tz Logout

Register Corpse

Corpse Names	First Name	Middle Name	Last Name
Corpse Information	Date of birth	Date of Death	-- --
	Select Gender ▼		
Corpse Residence	Residence	Search Region	Ten cell Leader
Corpse Nationality	Search Iga	Select Country ▼	Religion
Next of Kin	Next of Kin Name	Next of Kin Relationship	Next of Kin Phone Number
Cause of death	Type cause of Death		
Death Information	Time of Death Certification	Name of Death Certifier	
Other Information	Car Number	Select Occupation ▼	Driver Name
	Police Name	Name of Police Station	Police Mobile Number

SUBMIT

Figure 9 Register Corpse Form

Payment Module(Cashier)

This module is responsible for collecting bills and printing receipts. The module is accessible to users with cashier role. The normal login of the system will be used to get access to the module.

After successful login of the cashier, payment dashboard will be loaded with cashier icon.

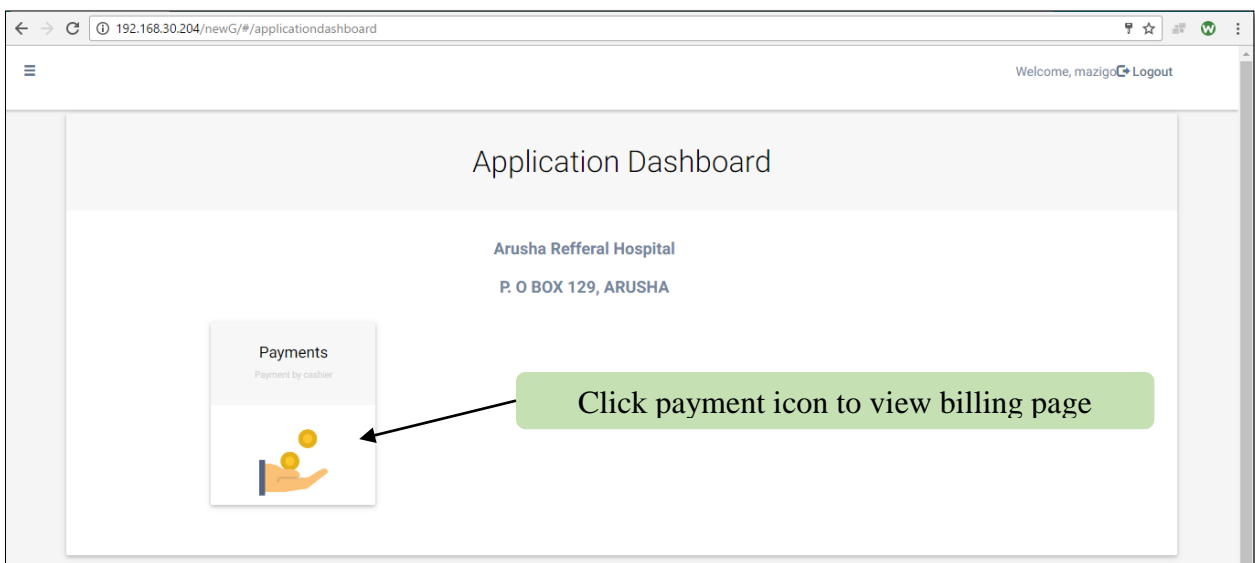


Figure 10: Payment Module

From the dashboard cashier will click on the **Payments** icon to open payment form. Payment page has three sections which are payment details, bills and Payment Methods.

The screenshot shows a web application interface for billing. It is divided into three main sections: Payment Details, Payment Methods, and Bill. The Payment Details section contains an input field for the Medical Record Number (MRN) with the value 'K011-00-00-81/2016' and a green 'PREVIEW BILL' button. The Payment Methods section contains a dropdown menu labeled 'Select Payment Option' and a green 'PROCESS BILL' button. The Bill section contains a table with columns 'Item Name', 'Item Price', 'Item Quantity', and 'Total'. The table has one row: 'Consultation OPD', '2500', '1', and 'TZS 2,500.00'. Below the table, there is a 'Total' row showing 'TZS 2,500.00'. There are also date range selectors 'From' and 'To' with the text 'search by date in yy-mm-dd'. A green 'TRANSACTION' button is at the bottom right. Annotations with arrows point to the MRN input field (labeled 'Enter Medical Record Number'), the 'PROCESS BILL' button (labeled 'Process bill'), and the 'Total' row (labeled 'Total bill').

Figure 11: Billing page

Payment Details

In the input field under this section of the form, enter the customer MRN. Click on the **“PREVIEW BILL”** to view the patient bill.


Bill preview

It shows item name, item price, item quantity and Total price. Item name can be services, procedure and medicine. The total is worked out of the quantity provided and price.

Payment Methods

On payment methods cashier can select payment type from the **“select Payment Option”** which can either be card payment or cash payment. After selecting payment option cashier will click **“PROCESS BILL”** to produce receipt. The system generates a receipt acknowledgment that specifies the payment has been received by the cashier. The receipt bears patient details i.e. **Patient name, Medical Record Number, Health Card Number, Receipt Number** and the processing staff details which are **Staff Name, Designation and Receipt date**.

Arusha Referral Hospital


P. O BOX 129, ARUSHA

Patient Details Name: Servasi Shayo Jumanne MRN: K011-00-00-81/2016 H/ Card No: Receipt Number: MUHC-196	Staff Details Staff Name: mazigo Designation: Cashier Date: 2016-11-26
---	--

Sales Summary

Item Name	Item Price	Item Quantity	Total
Consultation OPD	2500	1	TZS 2,500.00
Total			TZS 2,500.00

Figure 15: Service Receipt

Viewing Cashier's Total Transactions

The system tracks the total transactions per cashier. In order to view the value collected by a cashier over a specific range of time; select the start date in the **“From”** field and the end date in the **“To”** field. Click on the [TRANSACTION] button to view the total sale by the cashier.

Bill

Item Name	Item Price	Item Quantity	Total

From

2016-11-26

To

2016-11-26

TRANSACTION

Dear:: mazigo you've sold TZS 2,500.00 Tshs

Figure 16: Viewing Cashiers Total Transactions' Value

Nurse

Vital Sign Module

Vital signs are clinical measurements that indicate the state of patient's essential body functions. This module is accessible by users with nurse role in the system. After successfully login Nurse Application dashboard will be loaded and nurse will click vital sign icon then vital sign forms will be opened. The process of taking vital sign will start after searching and selecting a patient from the **“search patient”** field. The nurse will then fill the vital signs measurements on the loaded form and then click the **“SAVE VITALS”** button to save the records. Each record of vital signs taken from a patient will be available to the attending doctor as part of the patient's profile. The list of various vital sign measurements will be grouped by the date on which they were recorded.

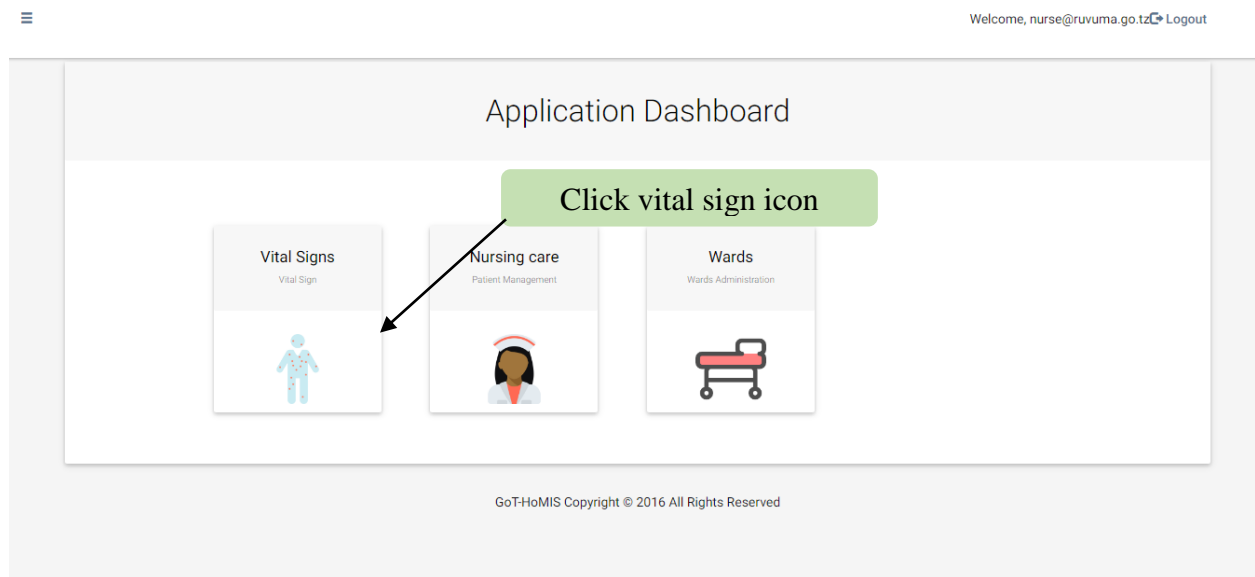


Figure 12 Nurse ApplicationDashboard

Welcome, nurse@nursuma.go.ke Logout

Search patient name here

Type medical record number or health insurance number to search

Patient Name: MRN: Gender: Age: Residence: Phone: Payment Category:

VITAL SIGNS

MEASURE	RECORDED	UNIT	INDICATION
Body Weight	<input type="text"/>	Kg	
Height/Length	<input type="text"/>	cm	<input type="text"/>
Body Temperature	<input type="text"/>	°C	<input type="text"/>
Systolic Pressure	<input type="text"/>	mmHg	<input type="text"/>
Diastolic Pressure	<input type="text"/>	mmHg	<input type="text"/>
Respiratory Rate	<input type="text"/>	Breaths/Min	<input type="text"/>
Pulse Rate	<input type="text"/>	Beats/Min	<input type="text"/>
Oxygen Saturation	<input type="text"/>	%	<input type="text"/>

SAVE VITALS

Doctor False

Outpatient Department (OPD) Module

OPD is the section of the hospital where patients are provided medical consultations and other allied services when visiting a health facility. The module is accessible to users with doctor's role. After successful login, Doctor will click Outpatient icons to open Patient management page.

Click outpatient menu icon here

Application Dashboard

The dashboard displays a grid of medical service icons:

- Blood Bank (Blood Storage)
- Outpatients (Clinicians)
- Clinics (Specialized Clinics)
- Referral (Referral)
- Icu (Intensive Care Unit)
- In Patients (In-Patient Management)
- Appointment (Available Appointments)
- Theatre (Operating Theatre)
- RCH (Reproductive and Child Health)
- Mortuary (Corps Management)
- Emergency (Emergency Department)

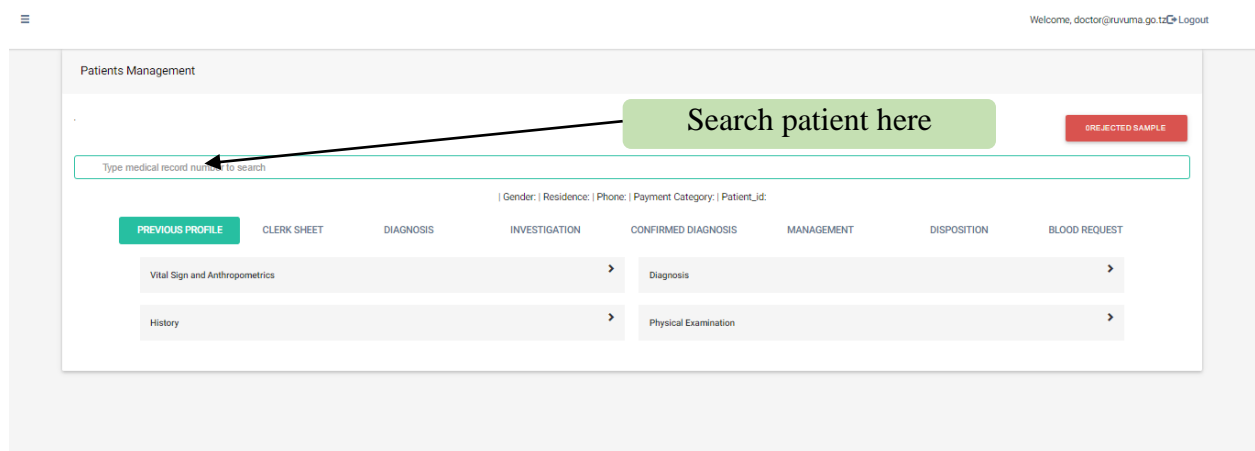


Figure 14 Doctor Module Sub Category

Before using any sub-category Doctor must search patient in the “**Type medical record number**” OPD module used by Doctors for medical consultation and other services. Module has the following sub-categories.

- Previous profile
- Clerk sheet
- Diagnosis
- Investigation
- Confirmed diagnosis
- Management
- Disposition
- Blood Request

Previous Profile

Patient previous profile will be loaded in this sub-category. To view patient history Doctor must search patient name or medical record number in the “**Type medical record number**” field, after that patient record information will be loaded in the accordions. In previous profile tab there are three other categories i.e. OBSERVATION, PHYSICAL EXAMINATION AND ADMISSION DETAILS.

- Vital Signs and Anthropometrics-contains all vital signs as recorded by the nurse. To view vital sign click on the label “*Vital Signs and Anthropometrics*” and then click to the date that will displayed below it.
- History – Contains Chief complains, Review of systems, past medical History, Birth History, Gynecological and Obstetrics, Family and Social History.

- Diagnosis – contains all previous records relating to diagnosis.
- Physical examination – This tab used to view previous record of Musculoskeletal, Respiratory System, Cardiovascular System, Gastrointestinal System, Central Nervous System, Genitourinary and Endocrine System.

Clerk Sheet

Clerk sheet tab contains five accordions, which are;

History and Examination – To open this accordion click “**History and Examination**” tab to open Chief complain forms and Review of other Systems. To fill this form Doctor must search phrase in the field, select duration and duration list then click “**ADD**”. After clicking add button system will show the list of complains, if there are any mistakes occurred during filling complains form, Doctor will click “**(-)**” sign to remove complains from the list. On the other hand Doctor is able to see the particulars of the informant in the case the patient came someone to assist her/him, also doctor can directly access the vital signs recorded by the nurse.

Figure 15 History and Examination form

Past Medical History - In past medical history patient will express concerns to the doctor, and doctor will search phrase in the form accordingly. This tab contains five form fields which are Allergies, Current Medication, illness, Admission and Immunization.

Figure 16. Past Medical History Tab

Gynecological and Obstetric History - To open gynecological and obstetric history Doctor will click the accordion and table form will be displayed. The table form contains two categories Gynecology and Obstetrics history with their forms fields.

Figure 17: Gynecological and ObstetricsHistory

Physical examination - On physical examination doctor can examine in terms of musculoskeletal, Respiratory, cardiovascular, Gastrointestinal, Genitourinary, Centro nervous and Endocrine. In each of the above the doctor will be examining by searching

paraphrase according to different systems in four categories which are inspection, palpation, percussion and Auscultation. After searching, information will be displayed in three categories which are System, Category, Observation and Actions.

The screenshot shows a web application interface for a doctor. At the top right, it says "Welcome, doctor@ruvuma.go.tz" with a "Logout" link. On the left, there is a sidebar menu with items: "Birth History", "Gynaecological and Obstetric History", "Family and Social History", and "Physical Examination". The "Physical Examination" item is selected. The main content area has a header with tabs for different medical systems: "Musculoskeletal", "Respiratory", "Cardiovascular", "Gastrointestinal", "Genitourinary", "Central Nervous", and "Endocrine" (which is highlighted in green). Below this, there are four input fields for "Inspection", "Palpation", "Percussion", and "Auscultation", each with the placeholder text "enter phrase to search". To the right of these fields is a table with four columns: "System", "Category", "Observation", and "Actions". Below the table is a blue button labeled "SAVE PHYSICAL EXAMINATIONS".

Figure 18: Physical Examination Tab

Family History, Family history comprise six fields forms, at this phase all information will be needed to be filled manually by the doctor, and doctor will click “SAVE” to store the patient data.

The screenshot shows a web application interface for a doctor. At the top right, it says "Welcome, doctor@ruvuma.go.tz" with a "Logout" link. Below this is a horizontal navigation bar with tabs: "PREVIOUS PROFILE", "CLERK SHEET" (highlighted in green), "DIAGNOSIS", "INVESTIGATION", "CONFIRMED DIAGNOSIS", "MANAGEMENT", "DISPOSITION", and "BLOOD REQUEST". The main content area has a sidebar menu with items: "History and Examination", "Past Medical History", and "Birth History". The "History and Examination" item is selected. The main content area has six input fields arranged in a 2x3 grid. The first row contains "Antenatal", "Natal", and "Postnatal" with placeholder text "Enter Antenatal history here", "Enter Natal history here", and "Enter Postnatal history here" respectively. The second row contains "Nutrition", "Growth", and "Development" with placeholder text "Enter Nutrition growth and Development here", "Enter Nutrition growth and Development here", and "Enter Nutrition growth and Development here" respectively. At the bottom right of the form is a blue button labeled "SAVE".

Figure x: Family History.

Family and Social history - Contains four form fields which are chronic illness in the family, substance abuse, Adoption, Others where doctor will search paraphrase in the first field form and fill in the left three fields accordingly and then click **“SAVE”** button to submit them.

The screenshot shows a web application interface for a medical management system. At the top, there is a header with a hamburger menu icon on the left, a welcome message "Welcome, doctor@ruvuma.go.tz" and a "Logout" link on the right. Below the header, a navigation bar contains several tabs: "PREVIOUS PROFILE", "CLERK SHEET" (which is highlighted in green), "DIAGNOSIS", "INVESTIGATION", "CONFIRMED DIAGNOSIS", "MANAGEMENT", "DISPOSITION", and "BLOOD REQUEST". Below the navigation bar, the main content area is titled "History and Examination". It contains several sections: "Past Medical History", "Birth History", "Gynaecological and Obstetric History", and "Family and Social History". The "Family and Social History" section is expanded and shows four form fields: "Chronic Illness in the Family" (with a placeholder "enter phrase to search"), "Substance Abuse", "Adoption", and "Others". Each field has a "Save" button below it. The "Chronic Illness in the Family" field has a green "SAVE" button, while the others have grey "Save" buttons. Below these fields is a section titled "Physical Examination".

Figure 19: Family and Social History tab

Diagnosis

Another sub-category of patient management is diagnosis. To open diagnosis click in the **“DIAGNOSIS”** tab, the two form field will open i.e. Provisional Diagnosis and Differential diagnosis, in both two fields doctor can search in the form and after adding diagnosis doctor will click **“ADD DIAGNOSIS”** to save diagnosis.

Patients Management

REJECTED SAMPLE

Type medical record number to search

Gender: | Residence: | Phone: | Payment Category: | PatientId:

PREVIOUS PROFILE

CLERK SHEET

DIAGNOSIS

INVESTIGATION

CONFIRMED
DIAGNOSIS

MANAGEMENT

DISPOSITION

BLOOD REQUEST

Provisional Diagnosis

type ICD9 code or Description to Search

Differential Diagnosis

type ICD9 code or Description to Search

ADD DIAGNOSIS

Figure 20: Diagnosis Sub Category

Investigation

On investigation doctor will click will have two choices, laboratory or Radiology. If the Doctor will click laboratory accordion to suggest investigation to be performed in the Laboratory. After opening laboratory tab, doctor will able to view three category which are Biochemistry, Hematology, Histopathology and Microbiology while if the Doctor will click Radiology other options will appear too. To open them doctor will click the links and other categories will be opened and doctor will be ought to follow the procedure provided.

Laboratory False

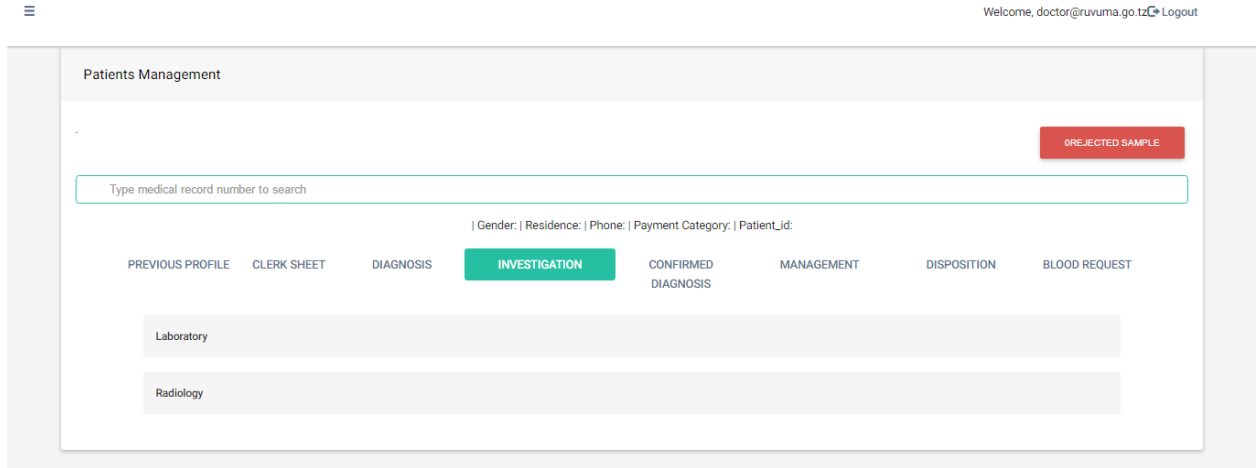
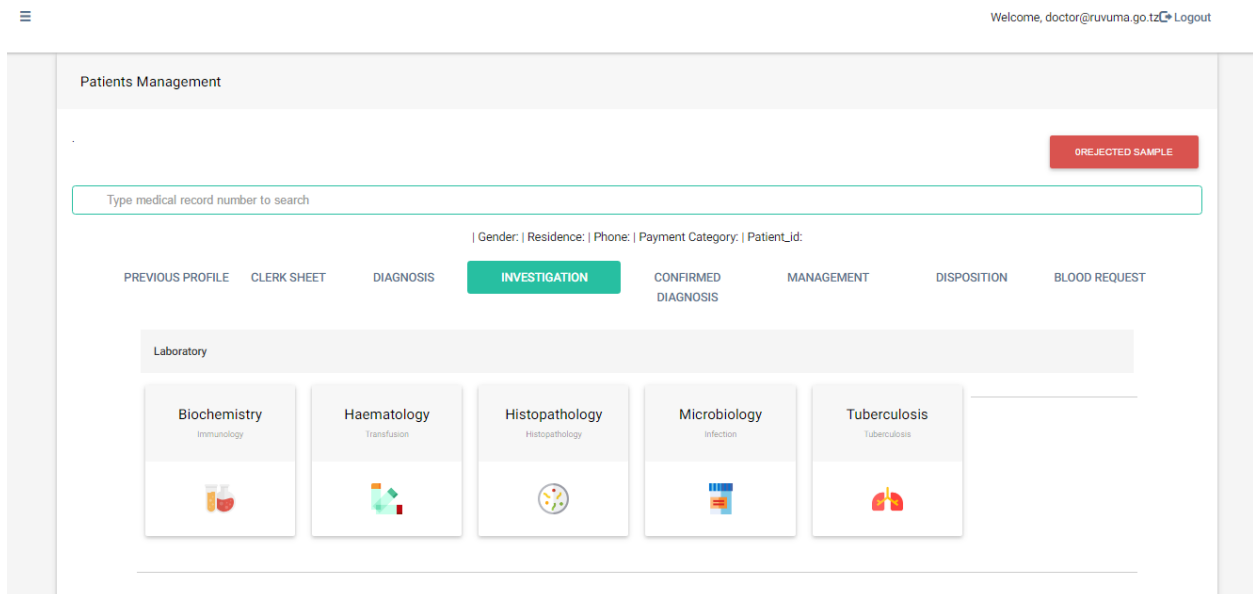


Figure 21 Laboratory tab

The laboratory tab will have the following sub tabs which after clicking them they will take the doctor to the respective type of inspections.

For Radiology



The Radiology tab will have the following sub tabs which after clicking them they will take the doctor to the respective type of radiology investigation if is the CT scan, X-RAY, ultrasound etc.

The screenshot shows a web application interface for a medical system. At the top, there is a navigation bar with the following tabs: PREVIOUS PROFILE, CLERK SHEET, DIAGNOSIS, INVESTIGATION (highlighted in green), CONFIRMED DIAGNOSIS, MANAGEMENT, DISPOSITION, and BLOOD REQUEST. The user is logged in as 'doctor@iruvuma.go.tz' and can click 'Logout'. Below the navigation bar, the 'INVESTIGATION' section is active. It contains a 'Laboratory' section and a 'Radiology' section. The 'Radiology' section has a sub-tab 'Radiology Imaging' with a medical icon. Below this, there are five buttons for different radiology investigations: PLAIN/CONVENTIONAL X RAYS, ULTRASOUND, FLUOROSCOPY - RADIOLOGY, CT SCAN, and MRI. At the bottom, there is a 'Selected Orders' section with a 'Total:Tshs 0.00' displayed.

Confirmed Diagnosis

On opening confirmed diagnosis, click **“CONFIRMED DIAGNOSIS”** tab, after placing or searching the client in search bar, system will load investigated results and confirmed diagnosis field where doctor will search paraphrase. After finishing searching doctor will click **“ADD CONFIRMED”** to save confirmed diagnosis.

Welcome, doctor@ruvuma.go.tz
Logout

Patients Management

REJECTED SAMPLE

Type medical record number to search

Gender: | Residence: | Phone: | Payment Category: | Patient_id:

PREVIOUS PROFILE
CLERK SHEET
DIAGNOSIS
INVESTIGATION
CONFIRMED DIAGNOSIS
MANAGEMENT
DISPOSITION
BLOOD REQUEST

Investigation Results

Laboratory Results

Imaging Results

Confirmed Diagnosis

Type ICD code or Description to Search

ADD CONFIRMED

Management

In this sub-category doctor will click **“MANAGEMENT”** button to open new prescription form. After opening the form, doctor will see two buttons named **“*procedures*”** where by the doctor will be able to categorize and what describe what kind of procedures should be offered to the patient, and **“*treatment*”** where by the doctor will be able to describe what kind of medicine should be offered to the patient. Also doctor will be able to see the previous treatment and medication offered to the patient.

Welcome, doctor@ruvuma.go.tz
Logout

Patients Management

REJECTED SAMPLE

Type medical record number to search

Gender: | Residence: | Phone: | Payment Category: | Patient_id:

PREVIOUS PROFILE
CLERK SHEET
DIAGNOSIS
INVESTIGATION
CONFIRMED DIAGNOSIS
MANAGEMENT
DISPOSITION
BLOOD REQUEST

Past Procedures

Past Medication

PROCEDURES

TREATMENTS

Figure 22 Management tab

Disposition

To open disposition doctor will click **“DISPOSITION”** to select either of the following services Admission, Internal referral, External Referral, or Diseased. On admission the admission notes will be opened and doctor will search ward and its accommodation fee. After filling all form fields, doctor will click **“ADMIT THIS PATIENT”** to admit the patient. On internal referral doctor will choose the department to refer a patient and reason for the referral. After filling internal referral doctor will click **“SEND”** to send internal referral. Also the doctor can externally refer the patient to the external hospital and lastly for diseased people should be sent to mortuary.

The screenshot displays the 'Patients Management' interface. At the top right, there is a user greeting 'Welcome, doctor@ruvuma.go.tz' and a 'Logout' link. The main content area is titled 'Patients Management' and contains a search bar labeled 'Type medical record number to search'. Below the search bar, there are several tabs: 'PREVIOUS PROFILE', 'CLERK SHEET', 'DIAGNOSIS', 'INVESTIGATION', 'CONFIRMED DIAGNOSIS', 'MANAGEMENT', 'DISPOSITION' (which is highlighted in green), and 'BLOOD REQUEST'. Above the 'DISPOSITION' tab, there is a red button labeled 'REJECTED SAMPLE'. Below the tabs, there is a section labeled 'DISPOSITION:' followed by a dropdown menu.

Blood Request

At this sub module doctor will be able to request blood bank from the blood Bank, doctor will be needed to fill in the form to get the service from the blood bank.

Casualty Module

Emergency department can be assessed either by doctor or any authorized person. To register emergency patient click **“REGISTRATION”** and form fields will be opened i.e. First name, Middle name, Last name, Age, Gender, Accident type, place of accident, Relative and Relationship. After finishing the registration form click **“SUBMIT”** to save data.

Emergency Department

REGISTRATION PROCEDURES TRAUMA ADULT EMERGENCY EMERGENCY ROOM RESUSCITATION REPORTS

First Name Middle Name Last Name

Age Select Gender Select type of Accident Accident

Place of Accident Relative Relationship

SUBMIT

Figure 29: Registration of Emergency Patient

Another sub-category in Casualty module is **“PROCEDURES”**. On procedures tab there are two form fields which are **“MRN/PATIENT NAME SEARCH”** and **“PROCEDURE/OPERATION”** where doctor will search the name of the patient in order to recommend procedure/operation. After finishing to fill the form doctor will click **“SUBMIT”** to save the procedure.

The next tab is **“TRAUMA”** after opening form doctor will search the patient first before filling the trauma form. Trauma form has Systolic blood pressure on admission field, Neurological Status on admission, Score for serious injuries, Respiratory rate on Admission, Kampala Trauma score II Total, Occupation, place where injury occurred, cause of injury, activity at a time of injury, injury event date, patient arrival date, doctor attendance date, score for serious injuries, palpable pulse on admission, disposition, status at two week, mode of arrival and intent. After finishing filling the form doctor will click **“SUBMIT”** button to save data in the database.

Emergency Department

REGISTRATION PROCEDURES TRAUMA ADULT EMERGENCY EMERGENCY ROOM RESUSCITATION REPORTS

Search patients Patient names: Servasi Shayo Jumanne | MRN:K011-00-00-81/2016

Systolic Blood Pressure on Admission

Neurological Status on Admission Select Score for Serious injuries

Kampala Trauma Score II Total Select Occupation

Specify other place injury occurred Select Cause of injury

Specify other Occupation Injury event date

Doctor attendance date Score for Serious injuries

Patient Disposition Status at two week

Mode of arrival Select Intent

SUBMIT

Figure 23Trauma Sub Category

Another tab is “**ADULT EMERGENCY**” where Quick references will be searched in the “**search quick references** “. Quick references are categorized on Complaints, Nursing, Laboratory, Medication and Radiology.

The screenshot shows the 'Emergency Department' header with navigation tabs: REGISTRATION, PROCEDURES, TRAUMA, ADULT EMERGENCY, EMERGENCY ROOM, RESUSCITATION, and REPORTS. Below the header is the 'Quick References' section. A search bar contains the text 'Fever & Fever w/ immunocompromised patient'. Below the search bar is a table with five columns: Complaints, Nursing, Laboratory, Medication, and Radiology.

Complaints	Nursing	Laboratory	Medication	Radiology
Fever & Fever w/ immunocompromised patient	Adult: Temp > 38 C orally; Mask patient if immunocompromised or if respiratory symptoms	If dialysis pt or immune compromised: CBC, Na+, K+, Cl-, CO2, BUN, Creat, Gluc, Blood culture x 2, UA and culture	Acetaminophen 975 mg po x one dose if no Acetaminophen in the last 4 hours Motrin 600mg if pt has had tylenol	If dialysis pt or immune compromised: CXR - PA & Lateral, Portable if pt is unstable or requires close monitoring. Indication: Eval for infiltrate.

Figure 24 Quick reference of Fever & Fever w/immunocompromised patient

The screenshot shows the 'Emergency Department' header with navigation tabs: REGISTRATION, PROCEDURES, TRAUMA, ADULT EMERGENCY, EMERGENCY ROOM, RESUSCITATION, and REPORTS. Below the header is the 'Quick References' section. A search bar contains the text 'GI Bleed'. Below the search bar is a table with five columns: Complaints, Nursing, Laboratory, Medication, and Radiology.

Complaints	Nursing	Laboratory	Medication	Radiology
GI Bleed	Orthostatics VS, Med-Lock IV. If Tachycardiac or Hypotensive start second IV site, IV NS 300 mL bolus, notify LIP. Save stool if available	CBC, Na+, K+, Cl-, CO2, BUN, Creat, Gluc, PT/PTT, Type & Screen		

Figure 25 Quick references of GI Bleed

The last tab on the module is the “**EMERGENCY ROOM**”. Click on the button “**EMERGENCY ROOM**” and the corresponding forms will be opened with different form fields. Before filling the form doctor must search the patient in the “**search patient**” after finishing filling the form doctor will click “**SUBMIT**” to save data in the database.

Emergency Department

[REGISTRATION](#)
[PROCEDURES](#)
[TRAUMA](#)
[ADULT EMERGENCY](#)
[EMERGENCY ROOM](#)
[RESUSCITATION](#)
[REPORTS](#)

Search patients

Patient names: | MRN:

Chief complain <input style="width: 95%;" type="text"/>	Limited lerevant history <input style="width: 95%;" type="text"/>	Lerevant assessment findings <input style="width: 95%;" type="text"/>
Suctioning/digital extraction of foreign matter done <input style="width: 95%;" type="text"/>	Chin lift <input style="width: 95%;" type="text"/>	Oral airway <input style="width: 95%;" type="text"/>
Endotracheal intubation <input style="width: 95%;" type="text"/>	Cricothyroidotomy <input style="width: 95%;" type="text"/>	Respiratory Rate <input style="width: 95%;" type="text"/>
Needs Oxygen <input style="width: 95%;" type="text"/>	Needs ventilation <input style="width: 95%;" type="text"/>	Presence of Pneumothorax <input style="width: 95%;" type="text"/>
Systolic <input style="width: 95%;" type="text"/>	Diastolic <input style="width: 95%;" type="text"/>	Pulse Rate <input style="width: 95%;" type="text"/>
Skin Color <input style="width: 95%;" type="text"/>	Capillary Refill <input style="width: 95%;" type="text"/>	Size R <input style="width: 95%;" type="text"/>
Size L <input style="width: 95%;" type="text"/>	Shape R <input style="width: 95%;" type="text"/>	Shape L <input style="width: 95%;" type="text"/>
Reaction R <input style="width: 95%;" type="text"/>	Reaction L <input style="width: 95%;" type="text"/>	Level of Consciousness <input style="width: 95%;" type="text"/>

Figure 26 Emergency Room Tab

IPD Module

This module is also accessible to users with the doctor role in the system. After successfully login click “**INPATIENTS**” icon to open IPD DASHBOARD. The dashboard has various tabs where by some of them do the same as in the OPD, and other new tabs. The dashboard has the following:-

- Previous profile: -this show the previous information of the patient,
- Procedures: - at this part doctor can specify the procedure that can be offered to the patient.
- Continuation notes: - at this part doctor can enter continuation notes by typing at the space provided.
- Disposition: - at this part doctor or nurse can perform a lot of tasks including all process of discharging the patient, internal referral, sending the corpse to the mortuary.

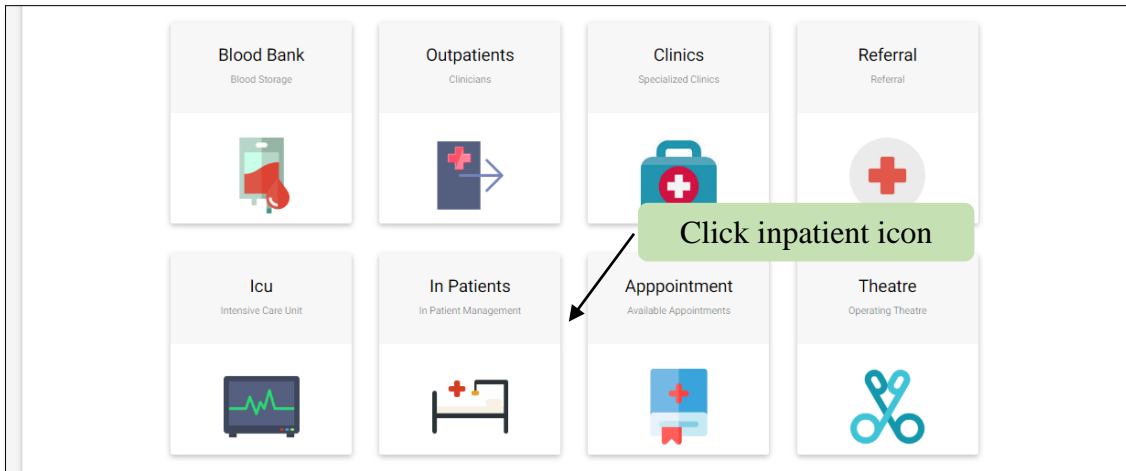


Figure 27 Doctor Application Dashboard

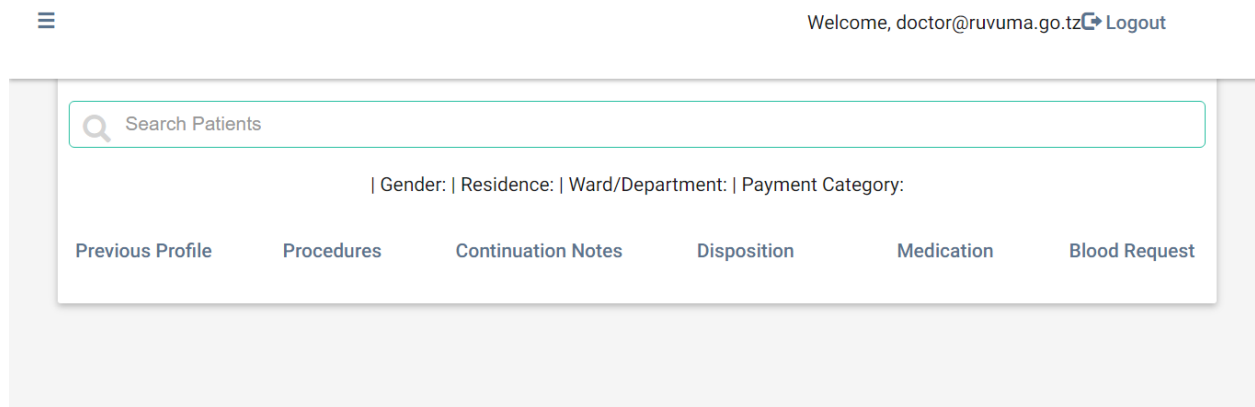


Figure 28 Inpatient Dashboard

Welcome, doctor@ruvuma.go.tz Logout

Blood Bank

BLOOD DONATION

BLOOD REQUESTS

BLOOD STORAGE

BLOOD STOCK

EXTERNAL BLOOD REQUEST

First Name

Middle Name

Last Name

Age

Gender

Residence

Type of Donor

Type of Pack

Weight

Haemoglobin

Blood Pressure

Body Temperature

Volume

ABO

Rh D

Remarks

SAVE

Blood Request, at this sub module doctor will be able to see all blood request from site that request the blood. Also doctor will be able to issue the blood whenever necessary.

Welcome, doctor@ruvuma.go.tz Logout

Blood Bank

BLOOD DONATION

BLOOD REQUESTS

BLOOD STORAGE

BLOOD STOCK

EXTERNAL BLOOD REQUEST

Patient Names	Date of Birth	Gender	Ward/Department	Requesting Doctor	Abo	Units	Action
Test A B	2015-01-01	Female	OPD	doctor@ruvuma.go.tz	B	3	ISSUE BLOOD
Test A B	2015-01-01	Female	OPD	doctor@ruvuma.go.tz	B	3	ISSUE BLOOD
testing today friday	1994-01-01	Male	Medical ward Female	doctor@ruvuma.go.tz	B	4	ISSUE BLOOD

Blood storage,

Blood stock, at this sub-module the doctor will be able to see the balance of the remaining blood at the store.

Blood Bank		
BLOOD DONATION	BLOOD REQUESTS	BLOOD STORAGE
	BLOOD STOCK	EXTERNAL BLOOD REQUEST
ABO	TYPE	UNIT BALANCE
A	Double	12
AB	Single	56
O	Double	23
O	Single	43

External Blood Request, at this module the doctor will be able to view all external blood request from other facility and offer them whenever possible according to the bank of the requested bank.

Blood Bank		
BLOOD DONATION	BLOOD REQUESTS	BLOOD STORAGE
	BLOOD STOCK	EXTERNAL BLOOD REQUEST

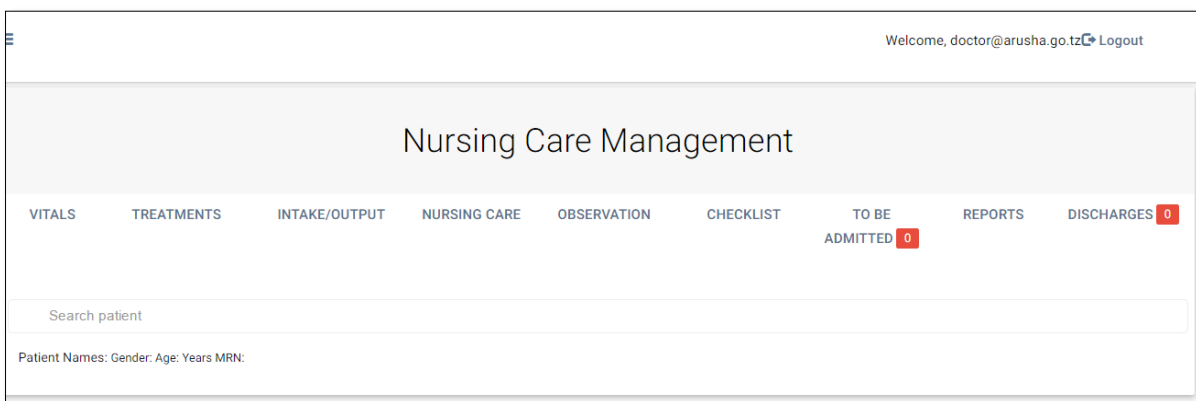
First Name	Last Name	Unit
<input type="text" value="Firstname of a Person Requesting Blood"/>	<input type="text" value="Lastname of a Person Requesting Blood"/>	<input type="text" value="Write Requested Unit"/>
Select Requesting Organisation	Select ABO Requested	Request Type
<input type="text"/>	<input type="text"/>	<input type="text"/>

SAVE

Nursing Care Management

Nursing care management page has nine (9) tabs, which are;

- Vitals
- Treatments
- Intake/Output
- Nursing care
- Observation
- Checklist
- To be admitted
- Reports
- Discharges.



The screenshot shows a web application interface for 'Nursing Care Management'. At the top right, it says 'Welcome, doctor@arusha.go.tz' with a 'Logout' link. The main title 'Nursing Care Management' is centered. Below it is a horizontal tab bar with nine tabs: 'VITALS', 'TREATMENTS', 'INTAKE/OUTPUT', 'NURSING CARE', 'OBSERVATION', 'CHECKLIST', 'TO BE ADMITTED', 'REPORTS', and 'DISCHARGES'. The 'DISCHARGES' tab has a red badge with the number '0'. Below the tabs is a search bar labeled 'Search patient'. At the bottom, there is a form with labels for 'Patient Names:', 'Gender:', 'Age:', 'Years MRN:'.

Figure 29 Nursing Care Management Page

Vitals

In this sub-category patients measurements will be filled in the forms including body weight, body temperature, systolic pressure, diastolic pressure, respiratory rate, heart rate, oxygen saturation. After filling all field click **“SAVE VITALS”** to save patient measurements.



Search patient

Patient Names: Gender: Age: Years MRN:

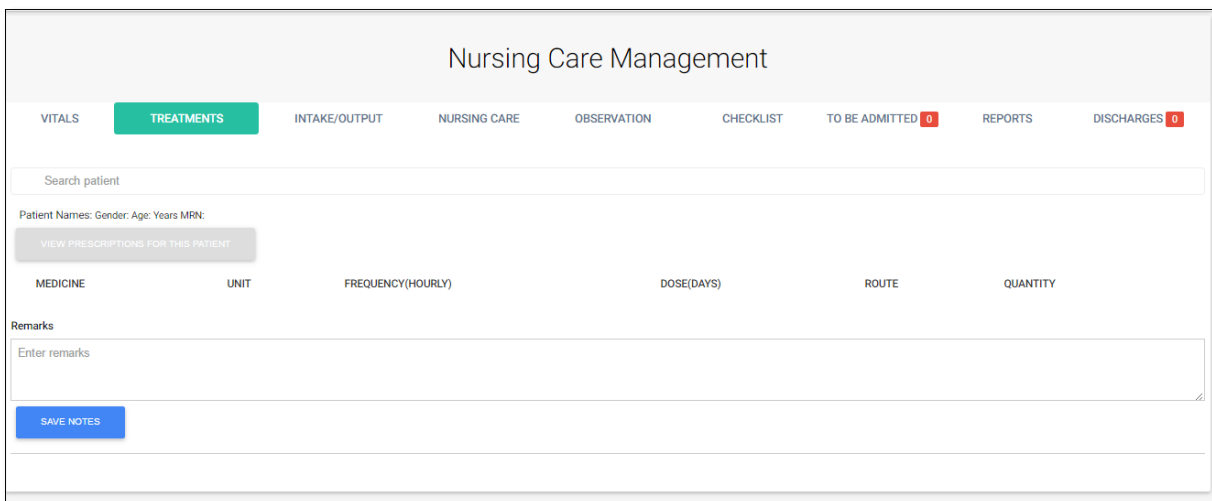
Body Weight	<input type="text"/>	Kilograms
Body Temperature	<input type="text"/>	Centigrade
Systolic Pressure	<input type="text"/>	mmHg
Diastolic Pressure	<input type="text"/>	mmHg
Respiratory Rate	<input type="text"/>	Breath/Minute
Heart Rate	<input type="text"/>	Bits/Minute
Oxygen Saturation	<input type="text"/>	

SAVE VITALS

Figure 30 Vitals Capture Form

Treatments

To use this tab first search patient name after that preview of the prescription of the patient will loaded in six categories i.e. Medicine, Unit, Frequency, Dose, Route and Quantity. After viewing preview enter remark and then click **“SAVE NOTES”**.



Nursing Care Management

VITALS TREATMENTS INTAKE/OUTPUT NURSING CARE OBSERVATION CHECKLIST TO BE ADMITTED 0 REPORTS DISCHARGES 0

Search patient

Patient Names: Gender: Age: Years MRN:

VIEW PRESCRIPTIONS FOR THIS PATIENT

MEDICINE	UNIT	FREQUENCY(HOURLY)	DOSE(DAYS)	ROUTE	QUANTITY
<p>Remarks</p> <p>Enter remarks</p> <p>SAVE NOTES</p>					

Figure 38: Treatments

Intake/Output

Inputs contain three categories i.e. I.V, ORAL, NGT and Output contains four categories which are VOMIT, URINE, STOOL, NGT. After finishing entering information click **“SAVE”** to store information's.

NURSING CARE has Nursing Care plans and new care plan form field where by nursing care plans can be viewed and in new care plan plans for the patient can be inserted. After finishing the form click **“SAVE PLAN”** to save information.

The screenshot shows the 'Nursing Care Management' interface with the 'INTAKE/OUTPUT' tab selected. It features a search bar for patient information and a table for recording intake and output. The table is divided into two main sections: 'INPUTS' and 'OUTPUTS'. The 'INPUTS' section includes fields for I.V(mls), ORAL, and NGT(mls). The 'OUTPUTS' section includes fields for VOMIT, URINE(mls), STOOL, and NGT(mls). A 'SAVE' button is located at the bottom right of the table.

Nursing Care Management								
VITALS	TREATMENTS	INTAKE/OUTPUT	NURSING CARE	OBSERVATION	CHECKLIST	TO BE ADMITTED 0	REPORTS	DISCHARGES 0
Search patient								
Patient Names: Gender: Age: Years MRN:								
INPUTS			OUTPUTS					
I.V(mls)	ORAL	NGT(mls)	VOMIT	URINE(mls)	STOOL	NGT(mls)		
Enter I.V	Oral	NGT	Vomit	Urine	Stool	NGT	SAVE	

Figure 39: Intake/Output

Observation

Observations are grouped in five categories which are Vital signs, Intake, Output, Treatments and Remarks with their sub categories. To view all information system user must search the patient first in the **“SEARCH PATIENT”** field.

The screenshot shows the 'Nursing Care Management' interface with the 'OBSERVATION' tab selected. It features a search bar for patient information and a table for recording observations. The table has columns for DATE, VITAL SIGNS (BP, PULSE, RESP, TEMP), INTAKE (I.V, NGT, ORAL), OUTPUT (URINE, STOOL, VOMIT, NGT), TREATMENTS, and REMARKS.

Nursing Care Management													
VITALS	TREATMENTS	INTAKE/OUTPUT	NURSING CARE	OBSERVATION	CHECKLIST	TO BE ADMITTED 0	REPORTS	DISCHARGES 0					
Search patient													
Patient Names: Gender: Age: Years MRN:													
DATE	VITAL SIGNS				INTAKE			OUTPUT				TREATMENTS	REMARKS
	BP	PULSE	RESP	TEMP	I.V	NGT	ORAL	URINE	STOOL	VOMIT	NGT		

Figure 31 Observation

Checklist

To use checklist search a patient by using either name or MRN after that fill checklist form by writing some description on patient case not presented, patient catheterized, patient-dentures removed, patient pre anesthetic done, patient consent form signed, patient investigation results, patient all documents present, patient canulation and pre load done, patient equipment complete, patient identification tag present, patient premedication given, patient starvation accessed, patient observation done BP and Anesthetist name. After finishing the form click “**SUBMIT**” to save.

The screenshot shows the 'Nursing Care Management' interface. At the top, there's a navigation bar with tabs: VITALS, TREATMENTS, INTAKE/OUTPUT, NURSING CARE, OBSERVATION, CHECKLIST (highlighted in green), TO BE ADMITTED (with a red '0' badge), REPORTS, and DISCHARGES (with a red '0' badge). Below the navigation bar is a search bar labeled 'Search patient'. Underneath the search bar, there's a label 'Patient Names: Gender: Age: Years MRN:'. The main form area contains a grid of input fields for various checklist items: 'Patient case not present', 'Patient catheterized', 'Patient-dentures removed', 'Patient pre anaesthetic done', 'Patient consent form signed', 'Patient investigation results(Hb)', 'Patient all documents present?', 'Patient canulation and pre load done?', 'Patient equipment complete', 'Patient identification tag present?', 'Patient premedication given?', 'Patient starvation assessed(food taken)?', and 'Patient observation done BP?'. There's also a dropdown menu for 'Anaesthetist Name'. A green 'SUBMIT' button is located at the bottom right of the form.

Figure 32 Checklist

TO BE ADMITTED-Shows wards to be admitted, gender, Medical record Number, Action and patient name.

The screenshot shows the 'Nursing Care Management' interface with the 'TO BE ADMITTED' tab highlighted in green. Below the navigation bar is a search bar labeled 'Search patient'. Underneath the search bar, there's a label 'Patient Names: Gender: Age: Years MRN:'. The main area displays a table with the following headers: 'Patient Name', 'Medical Record Number', 'Gender', 'Ward to be Admitted', and 'Action'. The table body is currently empty.

Figure 33 To Be Admitted

REPORTS-Nursing care management report can either be admitted patients report or to be discharged report. In order to view report search patient first in the “**search patient**” field.

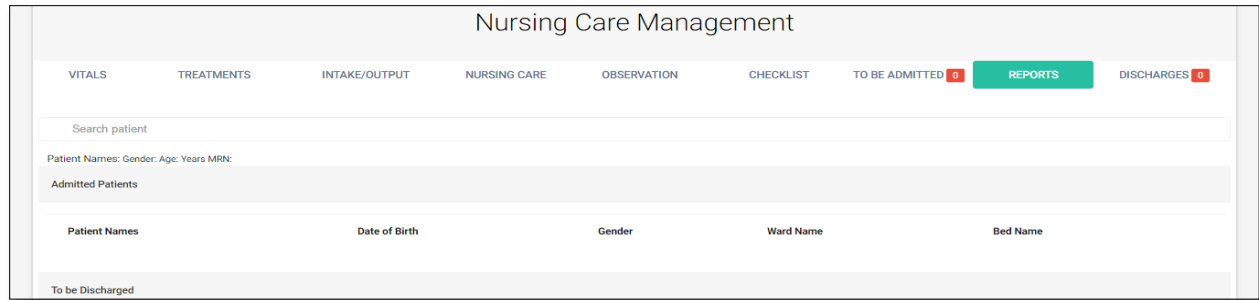


Figure 34 Reports

DISCHARGE-Discharge has notifications on the right side of the tab. Notification count number of discharged patients per facility which will be shown in the table with some descriptions.

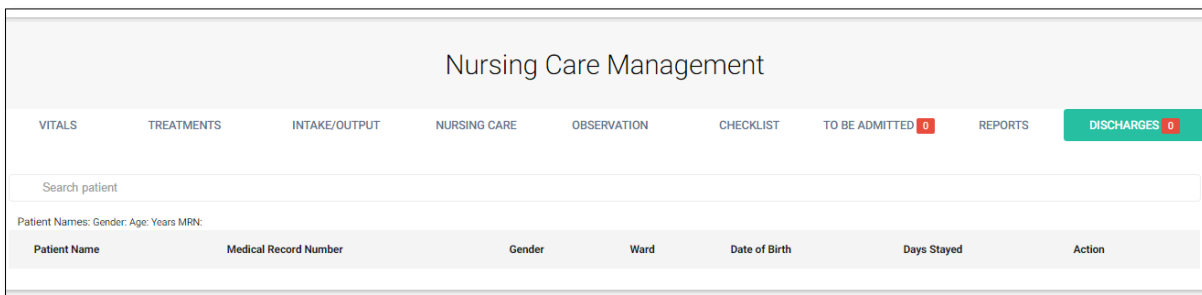


Figure 35 Discharge

Clinical Services

Clinical services have six sub-categories which are dashboard, procedures, continuation notes, disposition, medication and blood request.

DASHBOARD - Signifies previous profile of the patient and previous profile categories.

PROCEDURES - On procedure click **“ADD”** to add procedures and operation. After finishing adding procedures and operations click **“SAVE”** to save changes.

Figure 36: Procedure

CONTINUATION NOTES – Add your notes in the “enter your notes here” after finishing to add notes click “**SAVE NOTES**”.

Figure 37 Continuation Notes

DISPOSITION- On disposition choose discharge type whether deceased, normal discharge, referral, internal. After opening the discharge type different forms will be opened.

The screenshot shows the 'Disposition' tab selected in a medical software interface. At the top, there is a search bar labeled 'Search Patients' and a filter bar with 'Gender', 'Residence', 'Ward/Department', and 'Payment Category'. Below the tabs (Dashboard, Procedures, Continuation Notes, Disposition, Medication, Blood Request), the 'Disposition' tab is active. It features a 'Choose Discharge type' dropdown menu set to 'Internal Referral'. Below this is a section titled 'Choose Department to refer Patient' with a dropdown menu and a text area labeled 'Type Reason for this referral'. A green 'SEND' button is located at the bottom right.

Figure 38 Disposition

MEDICATION- On medication search medicine, enter unit, frequency, route, dose and system will generate the quantity of medicine. After that, click “**ADD**” and then “**SAVE**”. After finishing the first form continue with the next by filling required information as it directed by placeholders.

The screenshot shows the 'Medication' tab selected in a medical software interface. At the top, there is a search bar labeled 'Search Patients' and a filter bar with 'Gender', 'Residence', 'Ward/Department', and 'Payment Category'. Below the tabs (Dashboard, Procedures, Continuation Notes, Disposition, Medication, Blood Request), the 'Medication' tab is active. It features two rows of input fields. The first row has fields for 'Search medicine(tabs)', 'Unit', 'Frequency', 'Route', 'Dose', 'Qty', and a blue 'ADD' button. Below these fields is a blue 'SAVE' button. The second row has fields for 'Search medicine(vial/amps)', 'Quantity', 'Dosage', 'Enter Instructions', and a blue 'ADD' button. Below these fields is another blue 'SAVE' button.

Figure 48: Medication

BLOOD REQUEST – In this tab fill BHT No, ABO, Weight and RhD to request blood on “**REQUEST BLOOD**” button.

The screenshot shows the 'Blood Request' tab selected in a medical software interface. At the top, there is a search bar labeled 'Search Patients' and a filter bar with 'Gender', 'Residence', 'Ward/Department', and 'Payment Category'. Below the tabs (Dashboard, Procedures, Continuation Notes, Disposition, Medication, Blood Request), the 'Blood Request' tab is active. It features four input fields: 'BHT No', 'ABO' (with a dropdown arrow), 'Weight(Kg)', and 'Rh D' (with a dropdown arrow). A green 'REQUEST BLOOD' button is located at the bottom right.

Figure 49: Request blood

Dispensing Module

This module is accessible by user of the system with dispensing role. A dispenser may have login account to different dispensing windows. The Module allows the user to perform the following tasks:

- a) Dispense medicine
- b) Receiving medicine
- c) Storage Control
- d) Request Medicine

After successfully login, the user will be presented with the following interface:

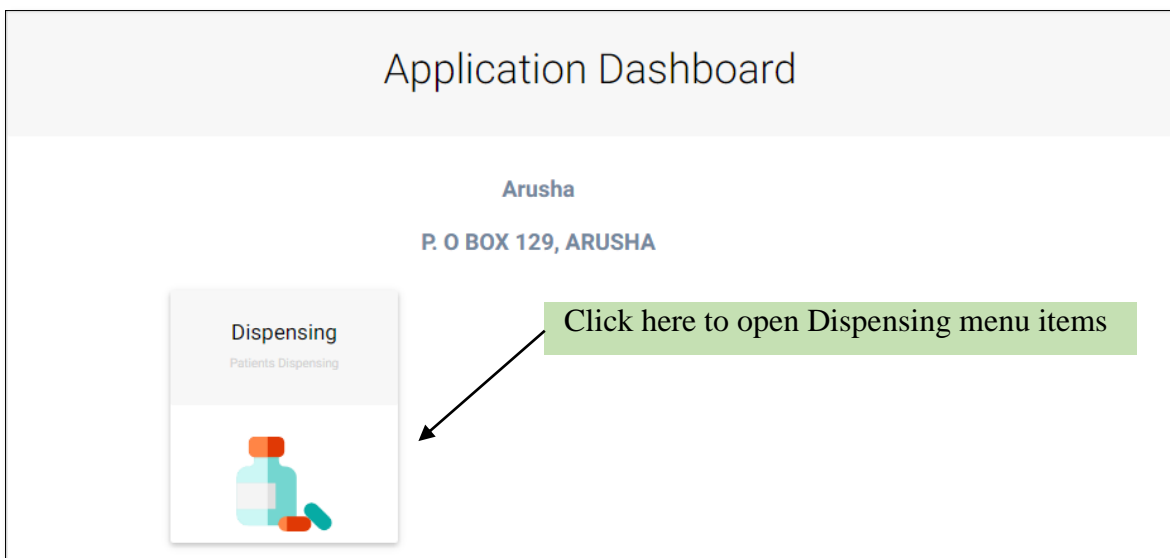


Figure 50: Dispensing Module

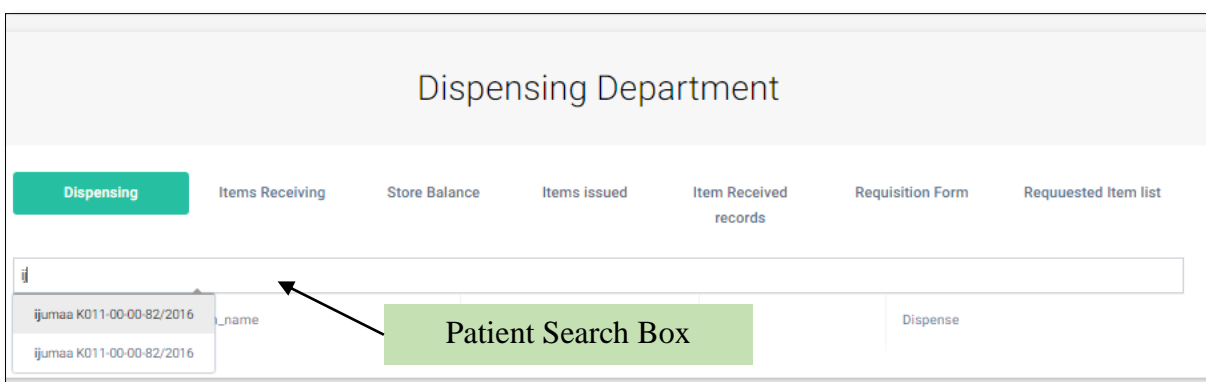


Figure 51: Dispenser Module Menu Items

Dispense medicine

A dispenser will have to search for a patient using patient name or patient medical record number (MRN) into the search box as showed into the figure below.

A dispenser will select the patient and the list of medicine to be dispensed will be displayed automatically below the patient search box.

Dispensing Department

Dispensing Items Receiving Store Balance Items issued Item Received records Requisition Form Requested Item list

ijumaa K011-00-00-82/2016

#	Item_name	Quantity
1	ALLOPURINOL TABLETS 100 MG	24

Arusha - Old

✓

Figure 52: Medication to Dispense to a Patient

Receiving medicine

At the dispensing room a dispenser will have to request for items from the sub store through the system and confirm receiving of the items and quantity after sub store hand out the items.

Dispensing Department

Dispensing Items Receiving Store Balance Items issued Item Received records Requisition Form Requested Item list

Sub Store Items to be confirmed list

Quick Search.....

#	Item_name	Batch Number	Item_Code	Quantity	expire_date	reorder_level	Cost Price	Store	Received From	Status	Date of issue	Confirm
1	ALLOPURINOL TABLETS 100 MG	456		200	2016-11-25	23	0	Arusha - Old	Arusha Sub Store 02	0	2016-11-25 07:40:47	✓

Confirm Receiving Item

✗

Figure 52: Receiving Supplies from Sub store

Storage Control

A Dispenser can view balance of the dispensing room by item name, batch number, balance, and store.

Dispensing Department

Dispensing

Items Receiving

Store Balance

Items Issued

Item Received records

Requisition Form

Requested Item list

SUB STORES BALANCES

View Dispensing Balance

#	ITEM NAME	BATCH NUMBER	BALANCE	REORDER LEVEL	STORE NAME
1	ALLOPURINOL TABLETS 100 MG	456	205	23	Arusha - Old

Figure 53: List of Supplies Balances in the Dispensing Store

A dispenser can also view history of the item that where ordered and handed out by the sub store to the dispensing room as showed on the room below.

Dispensing Department

Dispensing

Items Receiving

Store Balance

Items Issued

Item Received records

View Received Item

Sub Store Items Records

Quick Search.....

#	Item_name	Batch Number	Quantity	expire_date	reorder_level	Cost Price	Store	Received From	Date of issue
1	ALU	11	11	2016-11-29	11	12	Arusha - Old	Arusha RR Sub Store	2016-11-16 06:50:06

Figure 54: Record of Received Supplies

Request Medicine

A dispenser will request medicine/item through the system by filling in the form and specify which sub store to request to.

Dispensing Department

Dispensing Items Receiving Store Balance Items issued Item Received records **Requisition Form** Requested Item list

Users Registration form

Item Name: ALBENDAZOLE TABLETS 200 MG

Requesting From: Arusha RR Sub Store

Reference Number: 78

Unit: 20

Quantity: 500

Requesting Store: Arusha - Old

Figure 55: Supplies Requisition Form

A dispenser can also view requested item form the requested sub store and view the status of the request.

Dispensing Department

Dispensing Items Receiving Store Balance Items issued Item Received records Requisition Form **Requested Item list**

Quick Search.....

#	Item	Unit	Requesting Quantity	Received Quantity	Requesting From	Status	Date of requisition
---	------	------	---------------------	-------------------	-----------------	--------	---------------------

Figure 56: List of Pending Supplies Requisition

Referrals Module

This is a referral module. This module allows a doctor to refer a patient to another hospital and also view incoming referrals from another hospital. It also helps in previewing incoming referral case for early preparations or re-sends the referral to another hospital in case the case cannot be handled in that hospital.

- Send referral case
- Review incoming referral
- Send feedback

A doctor will have to login into the system in order to access referral module on the application dashboard. By clicking to referral module link a doctor will be directed to referral dishoard.

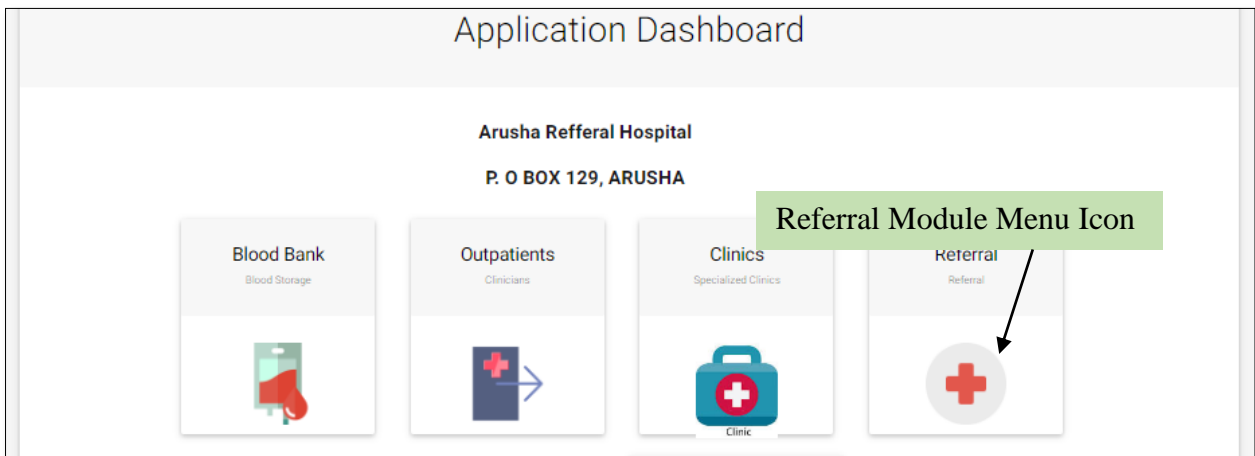


Figure 57: Referral Module

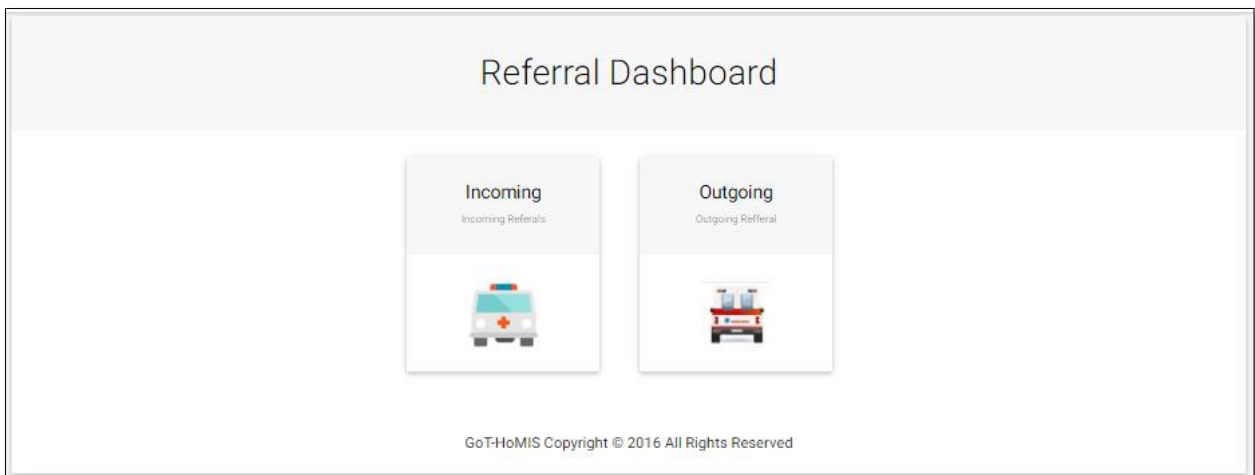


Figure 58: Referral Dashboard Menu Items

Outgoing Referral

A doctor will search for a patient on the search box and patient information will be loaded into the referral form. A doctor will have to select which information to be sent to the referring hospital and add more information according to the case. Type of referral, referring region, referring facility are more files that a doctor will have to specify. A doctor will then print referral form.

Patients Referral Form

Type medical record number or Health insurance number

ijumaa leo KD11-00-00-82/2016

ijumaa ijumaa leoKD11-00-00-82/2016 | Gender: Female | 2000-01-01 Residence: | Phone: | Payment Category: Cost Sharing | Facility Code: K011 | Patient id: 184

Referral field* Routine Arusha A01 Bariadi Referral Hospital

Patient Examination Internal Pain

Laboratory Investigation Results

Investigation Name	Result	Date
703		

Radiology Results

Provisional Diagnosis

DIAGNOSIS

Treatment Given First Aids

Treatment Given First Aids

Reason for Referral Surgery case

Name of Referring Doctor : Dr. jumanne Number of Referring Doctor : Dr. 714987123

Print Copy of the Referral

[PRINT REFERRAL FORM](#)
[SEND REFERRAL](#)

Figure 59: Patient Referral Form

Incoming Referral

Personnel on duty at the referral facility will view the incoming referral depending on the receiving department belonging. More details of the referral can be viewed in advance.

Incoming Referrals

Referral List
More Details

ID	REFERRAL TYPE	REFERRING FACILITY	FACILITY LEVEL	REFERRING DOCTOR	MOBILE No	DETAILS
110	Routine	Bugando	Health_Centre	jumanne	jumanne	View

Figure 60: Referrals List

PATIENT REFERRAL FORM More Details of the

Patient Name:	halidi jarafi juma 18	Referring Facility:	Bugando
Medical Record Number:	K011-00-00-35/2016	Facility Level:	Health_Centre
Referral Type:	Routine	Referring Doctor:	jumanne
On Examination:	HGFHJGHJ	Mobile No:	HGFHJGHJ
On Going Treatment:	GHJGHJGHJ	Reason for Referral:	GHGHJGHJ

Feedback:

Send Feedback

Figure 61: Viewing and Responding to Referral Form

Administration Module


This is Administration module that is used to setup and administer application security, batch processing capabilities of the system. With the System Administration module you can, create and maintain system users, create and maintain system access and security through responsibilities, report groupings, and access menus. Through this module the only users interacting with the system are the ones registered in the system and they have been assigned a role by the system administrator. The module has the following sub modules:-

- a) Administration
- b) Password recovery/reset
- c) Facility registration
- d) Configuration

Administration


Under administration sub module a system administrator will register all users according their role and levels into the system. System will capture user basic information user name, email, type, facility, role, password, and save the information.

Administration Panel




Administration

System Users




Password

Reset Admin Password



Facility

Facility type registration



Configuration

Access control

Users Registration form

User name

Enter user name

User Email

Enter a valid user email

Password

Enter a user password

User Type

Search level

Facility

Search facility

Department

Role

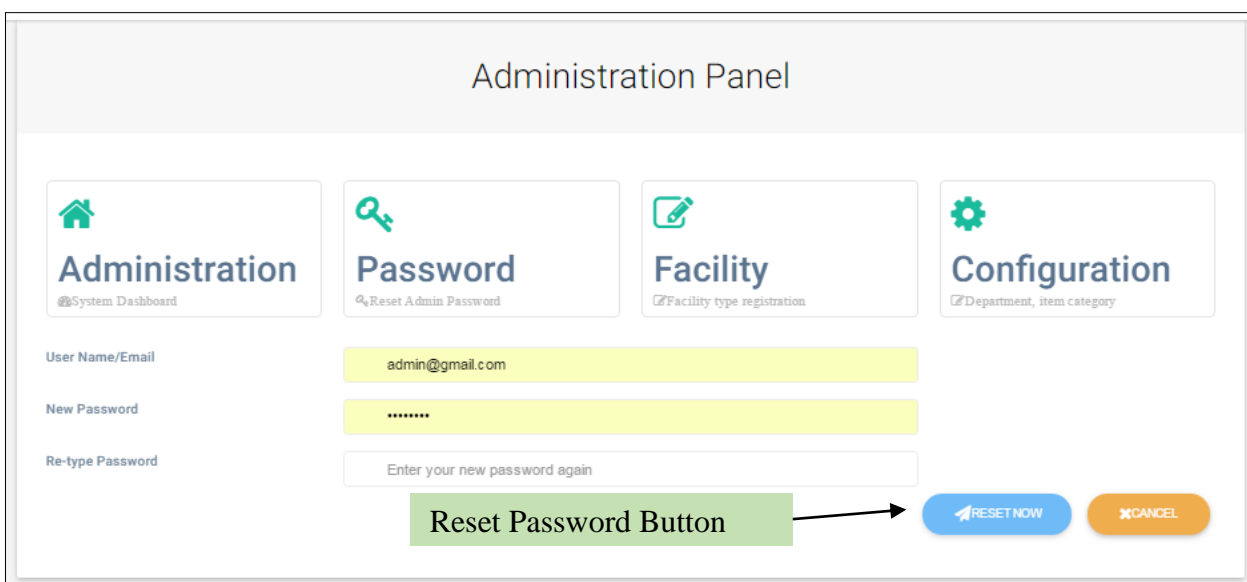
REGISTER

Figure 62: Administrators Panel with Initial User Definition Form

Password Recovery

Under password recovery sub module system administrator will reset password for users. User will have to provide username and the system will check validity of the username system administrator can now reset by typing in the new password and re-type the new password again then save.

46

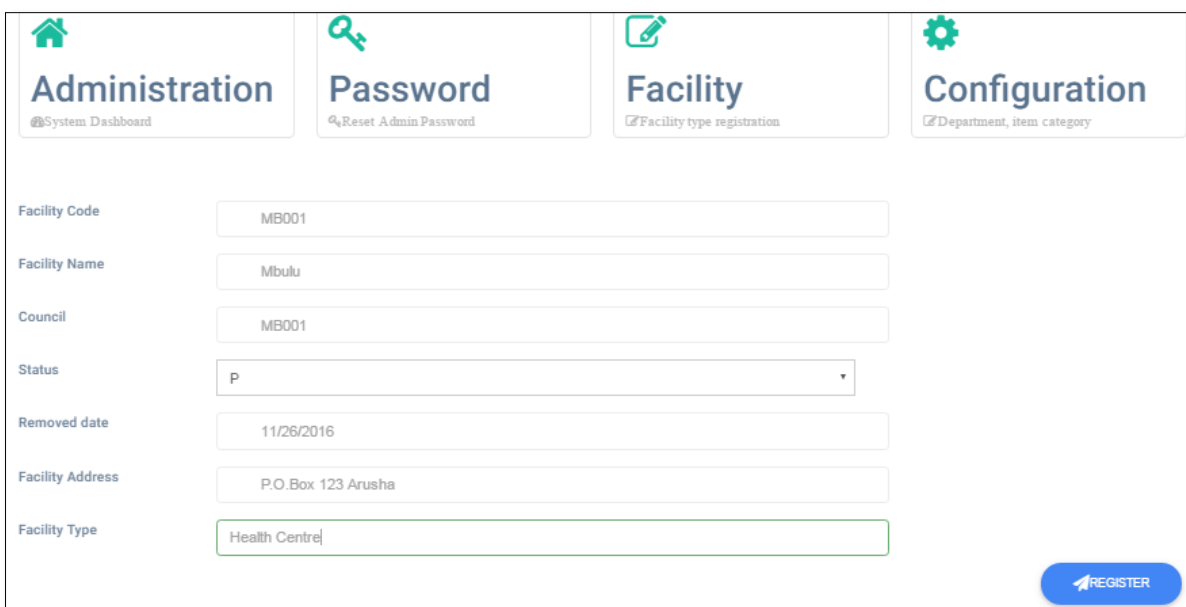


The image shows a web interface titled "Administration Panel". At the top, there are four navigation tabs: "Administration" (with a home icon and subtext "@System Dashboard"), "Password" (with a key icon and subtext "Reset Admin Password"), "Facility" (with a clipboard icon and subtext "Facility type registration"), and "Configuration" (with a gear icon and subtext "Department, item category"). Below these tabs is a form for password recovery. It contains three input fields: "User Name/Email" with the value "admin@gmail.com", "New Password" with masked characters "*****", and "Re-type Password" with the placeholder "Enter your new password again". Below the "Re-type Password" field is a green box labeled "Reset Password Button" with an arrow pointing to a blue "RESET NOW" button. To the right of the "RESET NOW" button is an orange "CANCEL" button.

Figure 63: Password Recovery

Facility registration

Under this sub module a system administrator will register a facility by typing in correct facility code, name, council, status, removed date, facility address and facility level. This is the initial stage during system deployment.

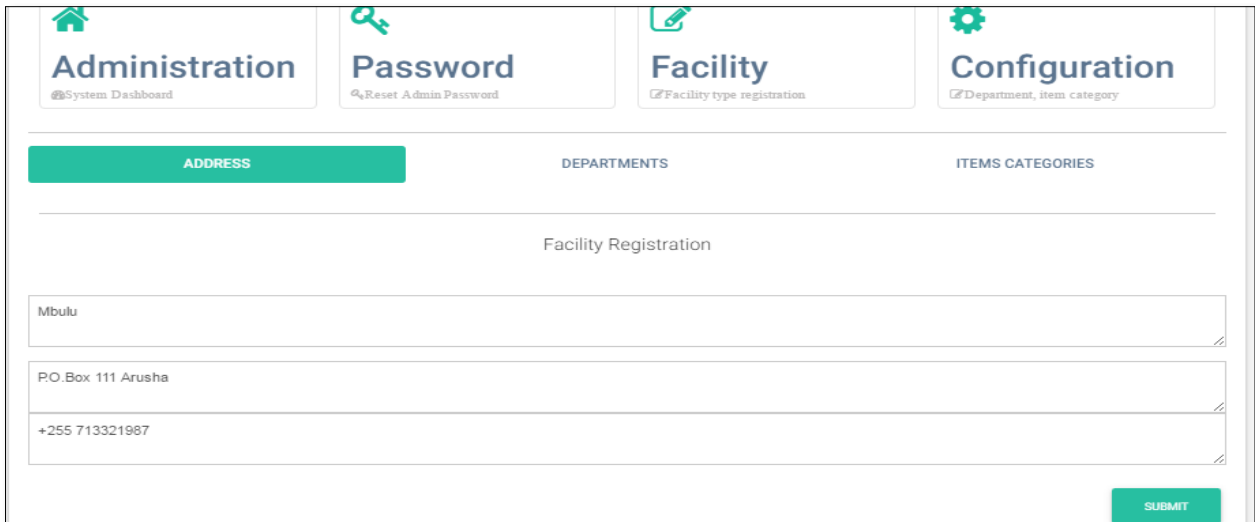


The image shows a web interface for "Facility registration". It has the same navigation tabs as Figure 63. Below the tabs is a form with the following fields: "Facility Code" (text input with value "MB001"), "Facility Name" (text input with value "Mbulu"), "Council" (text input with value "MB001"), "Status" (dropdown menu with value "P"), "Removed date" (text input with value "11/26/2016"), "Facility Address" (text input with value "P.O.Box 123 Arusha"), and "Facility Type" (text input with value "Health Centre"). A blue "REGISTER" button is located at the bottom right of the form.

Figure 64: Facility Definition Form

Configuration Facility

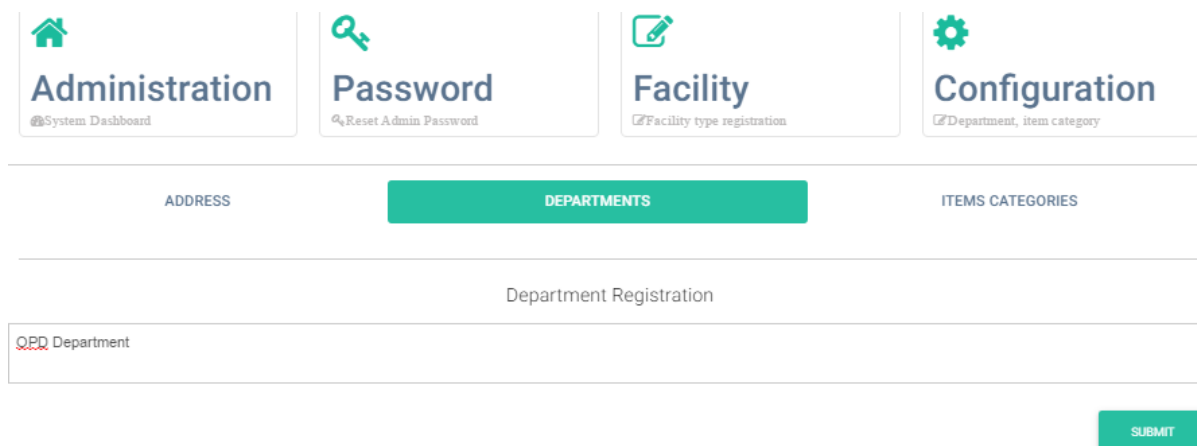
Under configurations menu, the administrator will have to configure address, department, and item categories of the facility.



The screenshot shows the 'Configuration' menu item selected in the top navigation bar. Below the navigation bar, the 'ADDRESS' tab is active. The form is titled 'Facility Registration' and contains three input fields: 'Mbulu', 'P.O.Box 111 Arusha', and '+255 713321987'. A 'SUBMIT' button is located at the bottom right of the form.

Figure 64: Setting Facility Address

A system administrator will also register facility departments according to the facility and save the department registration.



The screenshot shows the 'Configuration' menu item selected in the top navigation bar. Below the navigation bar, the 'DEPARTMENTS' tab is active. The form is titled 'Department Registration' and contains one input field with the text 'OPD Department'. A 'SUBMIT' button is located at the bottom right of the form.

Figure 65: Defining Department of a Facility

A system administrator will also register a number of item categories per facility. Item categories stand for the categories of the services that a facility offers to patients e.g. Medication, Procedures, etc.

The screenshot shows the 'Items Categories' registration form. At the top, there are four navigation tabs: 'Administration' (System Dashboard), 'Password' (Reset Admin Password), 'Facility' (Facility type registration), and 'Configuration' (Department, item category). Below these tabs, there are three main sections: 'ADDRESS', 'DEPARTMENTS', and 'ITEMS CATEGORIES'. The 'ITEMS CATEGORIES' section is highlighted in green. Under this section, there is a form titled 'Item Category Registration' with a text input field containing 'Medication'. A green 'SUBMIT' button is located at the bottom right of the form.

Figure 66: Defining Item Categories of a Facility

Operating Theatre Module

This is Operating Theatre Module. Under the operating theatre all procedure will be recorded as per theatre procedures. A nurse should search for patient, and then follows the five sub section under theatre. The module has the following sub-modules:-

- Operating Theatre
- Anaes Procedure
- Skin Disinfections
- Apply Tourniquet
- Material Count

The screenshot shows the 'Operating theater' search interface. At the top, there is a header 'Operating theater'. Below it, there is a green button labeled 'SearchPatient'. Below the button, there is a search input field containing the text 'MSOMI JUNIOR BAKARI K011-00-00-14/2016'. Below the input field, there is a line of text: 'MSOMI JUNIOR BAKARI K011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing'. At the bottom, there are five menu items: 'OPERATING THEATRE', 'ANAEES PROCEDURE', 'SKIN DISINFENCIONS', 'APPLY TOURNIQUET', and 'MATERIAL COUNT'. The 'OPERATING THEATRE' menu item is highlighted in green.

Figure 67: Searching Patient at the Theatre

Click on the [**OERATING THEATRE**] menu item to load the detail form. Fill in the required fields and click on the **SUBMIT** button to save the record.

Operating theater

MSOMI JUNIOR BAKARI K011-00-00-14/2016

MSOMI JUNIOR BAKARIK011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing

OPERATING THEATRE	ANAE PROCEDURE	SKIN DISINFENCTIONS	APPLY TOURNIQUET	MATERIAL COUNT
Surgeon Sekela	Assistant I joel	Assistant II Nassoro	Assistant III samson	
Operation Theater OT 3	Operation(case) Type Scheduled case	Kit Number 12	Operation yes	
Allergies No	Allergy Details	Firm Neuro	SUBMIT	

Figure 68: Filling the Operating Theatre Form

MSOMI JUNIOR BAKARI K011-00-00-14/2016

MSOMI JUNIOR BAKARIK011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing

OPERATING THEATRE	ANAE PROCEDURE	SKIN DISINFENCTIONS	APPLY TOURNIQUET	MATERIAL COUNT
Anaesthetic Procedure Intubation anaesthetic	Anaesthetist Name mazigo	Anaesthesia start time 11/27/2016	Anaesthesia End time 11/26/2016	
Start of preparation in OT 11/27/2016	Response-surgeon japhari	Scrub Nurse Sekela	Circulating Nurse nancy	
Anaesthesiologist/ Ass/ Anaeth joel	Start time OP(cut) 11/27/2016	End time OP(bandage) 11/26/2016	End of postoperative preparation today	
Image Intensifier No	Area Theater	Diathermocoagulation Monopolar	Plate Position 	
				SUBMIT

Figure 69: Anaes Procedure Form

MSOMI JUNIOR BAKARI K011-00-00-14/2016

MSOMI JUNIOR BAKARIK011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing

OPERATING THEATRE	ANAE PROCEDURE	SKIN DISINFENCTIONS	APPLY TOURNIQUET	MATERIAL COUNT
Skin-disinfection Spirit	Other Dis-infections	Position of the Patient Traction Position	Other Positions	
Bladder size	Thorax size	Other Catheters	Introduced by:	
				SUBMIT

Figure 70: Skin Disinfections Detail Form

MSOMI JUNIOR BAKARI K011-00-00-14/2016

MSOMI JUNIOR BAKARIK011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing

OPERATING THEATRE	ANAE'S PROCEDURE	SKIN DISINFENCTIONS	APPLY TOURNIQUET	MATERIAL COUNT
Apply a tourniquet to.. Bloodless	Time(from - to) 	Drainage Drain vacuum	Other drainage 	
Specimen Histology	Other Specimen 			

SUBMIT

Figure 71: Tourniquet Detail Form

MSOMI JUNIOR BAKARI K011-00-00-14/2016

MSOMI JUNIOR BAKARIK011-00-00-14/2016 | Gender: Male | 1993-01-01 Residence: | Phone: 2345678 | Payment Category: Cost Sharing

OPERATING THEATRE	ANAE'S PROCEDURE	SKIN DISINFENCTIONS	APPLY TOURNIQUET	MATERIAL COUNT		
	1ST COUNT PREOPERATIVE	ADDITIONAL NEW ITEMS	2ND COUNTING INTRAOPERATIVE	ADDITIONAL NEW ITEMS	FINAL COUNT	DISCREPANCIES
Abdominal Packs						
Gauze						
Haemostatic clip						
Surgical patties						
Peanuts						

Scalpel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Needles	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other Materials	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Towel clips	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Implants <input type="text"/>						
NB: Incase no response in TIME OUT, unscrub or notify your supervisor. Remarks:(Please write any important thing concerning patient status during operation or deviation noted after surgery.) <input type="text"/>						
Scrub Nurse I	<input type="text"/>	Scrub Nurse II	<input type="text"/>	Runner I	<input type="text"/>	Runner II
Runner III	<input type="text"/>					
						<input type="button" value="SUBMIT"/>

Figure 72: Material Count Form

Mortuary Module

This module offers the user with various interactions to keep record of mortuary services at the health facility. The system allows the user to perform the following duties:-

- Store a newly arriving body to a specific storage cabinet
- Write postmortem report
- Record chargeable items on preparing a dead body
- Define storage spaces within the morgue
- View various report (All deceased bodies in the morgue, Bodies Collected, Bodies not yet collected, Real time storage space availability)

The main menu when the user visits the module looks as follows:

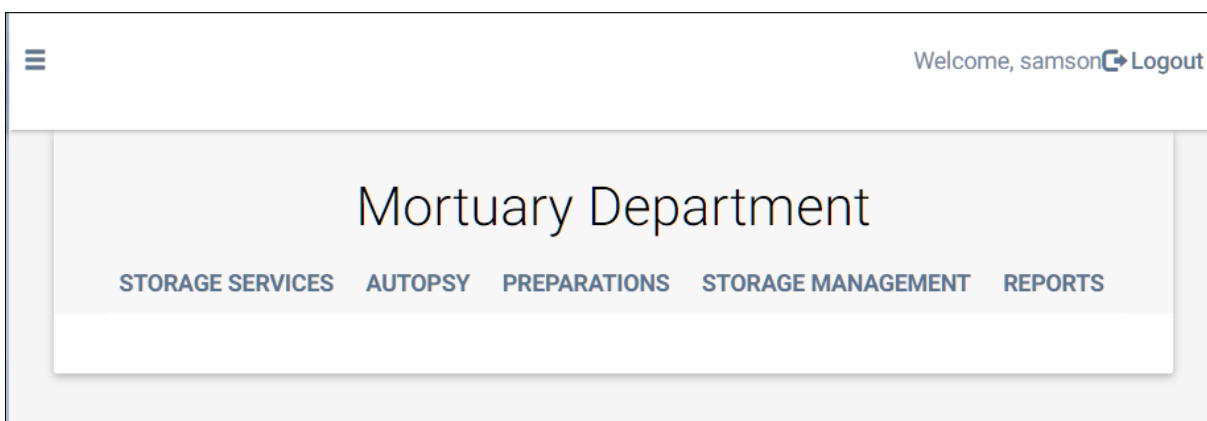


Figure 73: Main Menu of the Mortuary Module

Storage Services

This menu is used to record a newly arriving dead body to a specific storage cabinet. Click on the **[STORAGE SERVICES]** menu to get a form on which the newly arriving body can be allocated storage space. Enter the **“Dead Body Number”** onto the search box and select the corresponding record. Once the record is loaded with the details, choose a storage cabinet on the input box captioned **“Choose Cabinets”** and then select the space from the selector below it captioned **“Choose Space”**. Click onto **SAVE** button to store the record into the database.

1-Search a dead body here

2-Search cabinet here

3-Select cabinet space here

4-Click here to save record

First Name	Middle Name	Last Name	Gender	Residence	Date of Birth	Next of Kin	Date of Death
Ally	Kihoko	Kilonzo	Male		1980-02-23	Ally Kilonzo	2016-11-01

AR1

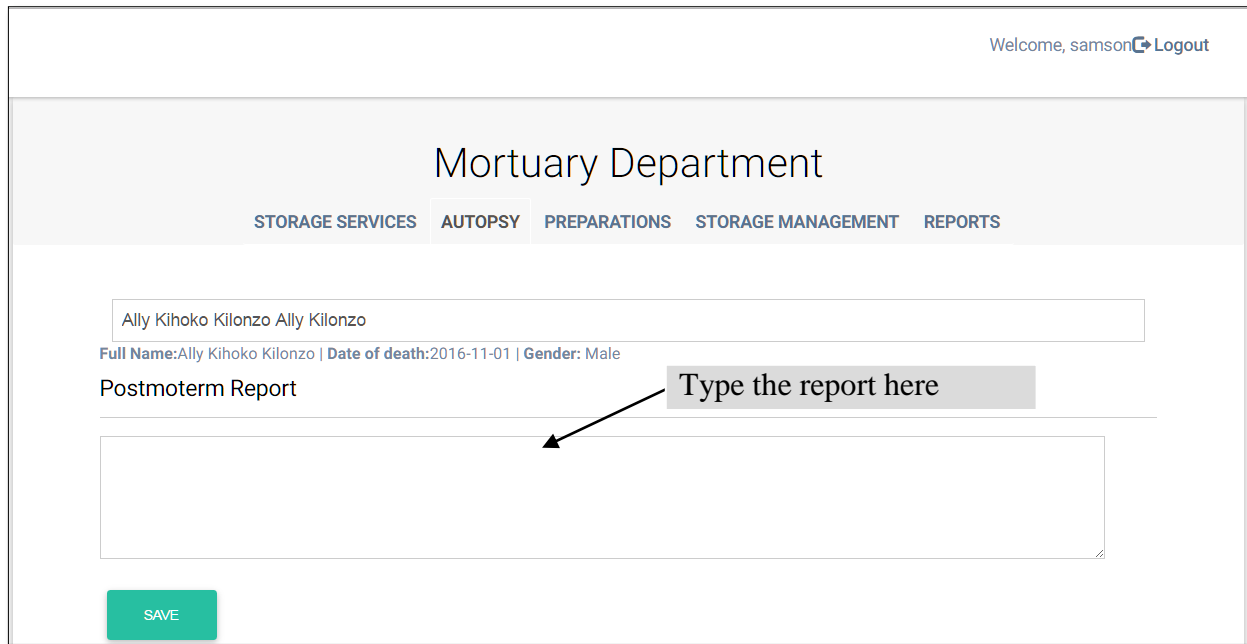
Slot 1

SAVE

Figure 74: Allocating Space to a new Dead Body

Autopsy

This menu is used to record postmortem report on a dead body. Click on the [AUTOPSY] menu to get a form on which the autopsy report can be entered. Enter the “**Dead Body Number**” onto the search box and fill-in the postmortem report on the box provided. Click onto **SAVE** button to store the record into the database.



The screenshot shows a web application interface for the Mortuary Department. At the top right, there is a user greeting "Welcome, samson" and a "Logout" link. The main header is "Mortuary Department". Below the header is a navigation bar with five tabs: "STORAGE SERVICES", "AUTOPSY", "PREPARATIONS", "STORAGE MANAGEMENT", and "REPORTS". The "AUTOPSY" tab is currently selected. The form contains a search box with the text "Ally Kihoko Kilonzo Ally Kilonzo". Below the search box, it displays "Full Name: Ally Kihoko Kilonzo | Date of death: 2016-11-01 | Gender: Male". The main section is titled "Postmortem Report" and features a large text area with the placeholder text "Type the report here". An arrow points from this text to the text area. At the bottom left of the form is a green "SAVE" button.

Figure 75: Recording the Autopsy Report of a Dead Body

Preparations

This menu is used to record chargeable items on preparing a dead body on the day the body is collected. Click on the [PREPARATIONS] menu to get a form on which the paid-for services performed on the body can be recorded. Enter the “**Dead Body Number**” onto the search box and then fill-in the item and quantity of each service while clicking onto **ADD** for each service performed. When done with individual items, click onto **SAVE** button to store the record into the database.

Mortuary Department

STORAGE SERVICES AUTOPSY PREPARATIONS STORAGE MANAGEMENT REPORTS

1-Enter/Choose service

2-Enter/Choose Quantity

3-Click on ADD

4-Click on SAVE when done

Remove Item if not

Full Name: Ally Kihoko Kilonzo | Date of death: 2016-11-01 | Gender: Male

Search Services

1

ADD

Remove

Remove

DAWA KWA AJILI YA EMBALMMENT

EMBALMMENT

SAVE

Figure 76: Recording Paid-for Preparation Services

Storage Management

This is a setup menu item (mostly used once) used to define storage spaces available in the morgue facility. Using this menu, the storage cabinets and slots in each cabinet are defined so that they can be selected to store a dead body being received at the morgue. Click on the **[STORAGE MANAGEMENT]** menu to open the corresponding form. On the left-side of the form (marked “**Create Cabinet**”), define cabinets by specifying the cabinet name (for instance CAB1, CAB2, etc.), storage capacity of each cabinet (i.e. the number of dead bodies it can hold at a time) and the location of the cabinet (within the morgue facility such as west wing, east wing, etc.). Click onto **SAVE** for each cabinet defined. On the right side of the form (marked “**Create Storage Space**”), select a cabinet and create slots in it. For instance, a cabinet named CAB1 was created on the left side with capacity 10, then the right side is used to create 10 named slots within this cabinet. When bodies are being stored into the cabinet, a single slot is consumed whenever a body is stored and released whenever a body is collected. Click onto **SAVE** for each slot defined for the cabinet. Note that, these features can be used to define floor space as a cabinet with desired number of storage slots.

Mortuary Department

STORAGE SERVICES AUTOPSY PREPARATIONS STORAGE MANAGEMENT REPORTS

1-Define and SAVE a storage cabinet of the

2-Choose a defined cabinet from the emerging list

3-Define a storage space/slot in the selected cabinet and SAVE

Create Cabinet

CAB1

6

West Wing

SAVE

create storage space

CAB1

Slot 1

SAVE

Figure 77: Defining Storage Spaces in the Morgue Facility

Reports

This menu item is used to display various reports concerning the morgue operations such as all deceased bodies in the morgue, bodies collected, bodies not yet collected, and real time storage space availability.

The screenshot shows a web application interface for the Mortuary Department. At the top right, it says "Welcome, jumanne" with a "Logout" link. The main header is "Mortuary Department". Below the header is a navigation bar with links: "STORAGE SERVICES", "AUTOPSY", "PREPARATIONS", "STORAGE MANAGEMENT", and "REPORTS". The "REPORTS" link is highlighted. Below the navigation bar, there is a section titled "All Deceased in the Morgue". Under this title is a search bar labeled "Search Deceased". Below the search bar is a "Count:" label. Below the "Count:" label is a table with the following columns: "First Name", "Middle Name", "Last Name", "Gender", "Residence", "Date of Birth", "Next of Kin", and "Date of Death".

Figure 78: Report of All Dead Bodies in the Morgue Facility

The screenshot shows a web application interface for the Mortuary Department. It displays two reports. The first report is titled "Bodies not yet Collected". Below this title is a "Count:" label. Below the "Count:" label is a table with the following columns: "Fisrt Name", "Middle Name", "Last Name", "Next of Kin", "Residence", "Cabinet", "Space in Cabinet", and "Date of Death". The second report is titled "Bodies Collected". Below this title is a "Count:" label. Below the "Count:" label is a table with the following columns: "Fisrt Name", "Middle Name", "Last Name", "Gender", "Residence", "Date of Birth", "Next of Kin", and "Date of Death".

Figure 79: Report for Collected and Uncollected Bodies

Real Time Storage Space Availability				
Cabinet Name	Capacity	Location	Used Space	Available Space

Figure 80: Real Time Storage Space Availability Report

Lab Module

This module is used by the Lab personnel to receive lab test requests and post back test results. Cost sharing patients who have been ordered for lab tests have to pay at the cashier window before their details are available on this module. On opening the module, the user will be presented with the following interface. On this module, there are three menu items; **Requests** which shows the number of pending requests ordered by doctors or test requests of a specific patient, **Lab Results** which is used to record the test results of a patient and **Post Results** that is used to verify the recorded results and post them back to the ordering doctor.



The interface shows a header with a hamburger menu icon on the left and 'Welcome, Sekela' followed by a 'Logout' link on the right. Below the header is a search bar labeled 'Search Patients'. At the bottom, there are three menu items: 'Requests' with a red badge showing the number '2', 'Lab Results', and 'Post Results'.

Figure 81: Main Menu of the Lab Module

Requests

This menu item is used to display the lab test requests ordered on a particular patient. Enter the patient's **MRN** number on the search box to get the list of ordered test. For each test, the lab personnel should confirm whether the test is accepted or rejected (for any valid technical reason such as unavailability of reagents) by making the appropriate choice and save it using the **SAVE** button on the right side of the record.

Welcome, Sekela Logout

akila kisa mira K011-00-00-62/2016

Requests 2 Lab Results Post Results

INVESTIGATION NAME

1	Bilirubin D	Accepted ▾	Save
2	Bilirubin T	Rejected ▾	Save

Figure 82: List of Lab Requests Ordered on K011-00-00-62/2016 Patient

Lab Results

On this menu, the lab technician records the test results of all accepted test requests of a particular patient. Depending on how the result is reported, the technician can choose **Positive/Negative** result, or supply test measure as required using the input field as shown below.

enock mwemba mwemba K011-00-00-77/2016

Requests 0 Lab Results Post Results

Patient name: enock mwemba mwemba | MRN: K011-00-00-77/2016 | Gender: Male

INVESTIGATION NAME	POST RESULTS		
Bilirubin D	0.3mg/dL	▾	SAVE
Bilirubin T	1.2mg/dL	▾	SAVE

Figure 83: Recording Lab Test Results

Post Results

After the results have been recorded, they should be verified and posted back to the ordering doctor. Click on the **[Post Results]** menu to open the corresponding form. The recorded tests

should come with a “**not verified**” status. The verifying technician should click on **Verify** button to verify and post the test result to the ordering doctor.

enock mwemba mwemba K011-00-00-77/2016

Requests 0 Lab Results Post Results

Patient name: enock mwemba mwemba Male
Ordering doctor: [Name]

INVESTIGATION NAME	RESULTS	STATUS	
Bilirubin D	0.3mg/dL	not verified	<div>Verify</div> <div>Delete</div>
Bilirubin T	1.2mg/dL	not verified	<div>Verify</div> <div>Delete</div>

Clicking on Verify changes the status to “**Verified**” and posts the results to the ordering doctor

Delete will exclude the result from reported ones

Figure 84: Verifying and Posting Lab Test Results

Pharmacy Module

This module is used to handle medical item receivables and distributions within the health facility. The module contains two parts: The **Pharmacy** (Main Store) items and the Sub-store items. On entering the Pharmacy sub-module, the user is presented with the following menu items. Note that most of the shown menu items have sub-menu items available under each of them.

Welcome, Nassoro Logout

MAIN STORES ▾ ITEM ISSUING ▾ ITEM RECEIVING ▾ CLIENTS/PARTNERS ▾ PRICES ▾ ITEMS DESCRIPTION ▾

DISPENSERS ORDER

EXPIRATION

Pharmacy Main Menu Items

List of medical items in the main store

Main store items Records

Quick Search.....

#	ITEM	BATCH	QUANTITY	EXPIRE	REORDER	PRICE	STORE	RECEIVED	REF	RECEIVED
1	DEXTROSE INJECTION 10%,500ML	1	2000	2016-11-23	2	4000	Arusha RR Store	msd	4	2016-11-24 14:30:37

Figure 85: Pharmacy Main Menu

Main Stores

This menu contains two sub-menus; **[Main Store Balance]** and **[Main Store Records]**. The **[Main Store Balance]** shows available balance, holding store and the reorder level of each medical item where as the **[Main Store Records]** shows batch number, quantity, expiry date, holding store and source of received medical supplies.

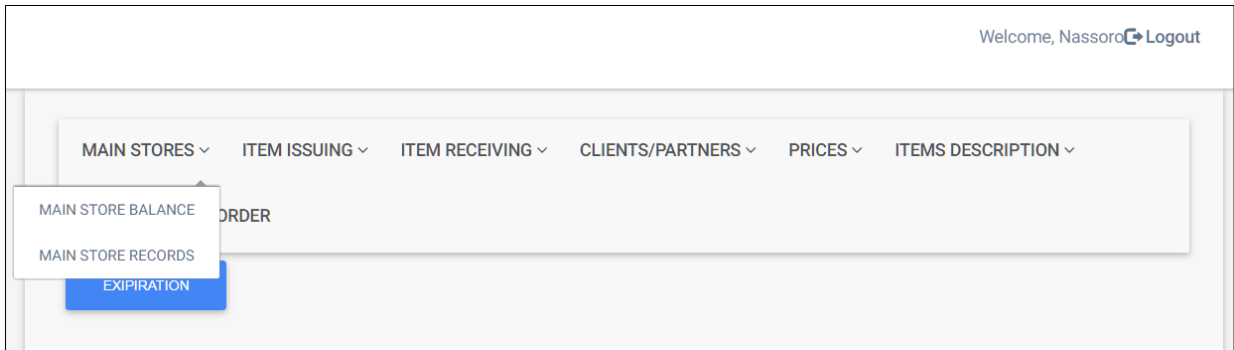


Figure 86: [MAIN STORES] Sub-menu Items

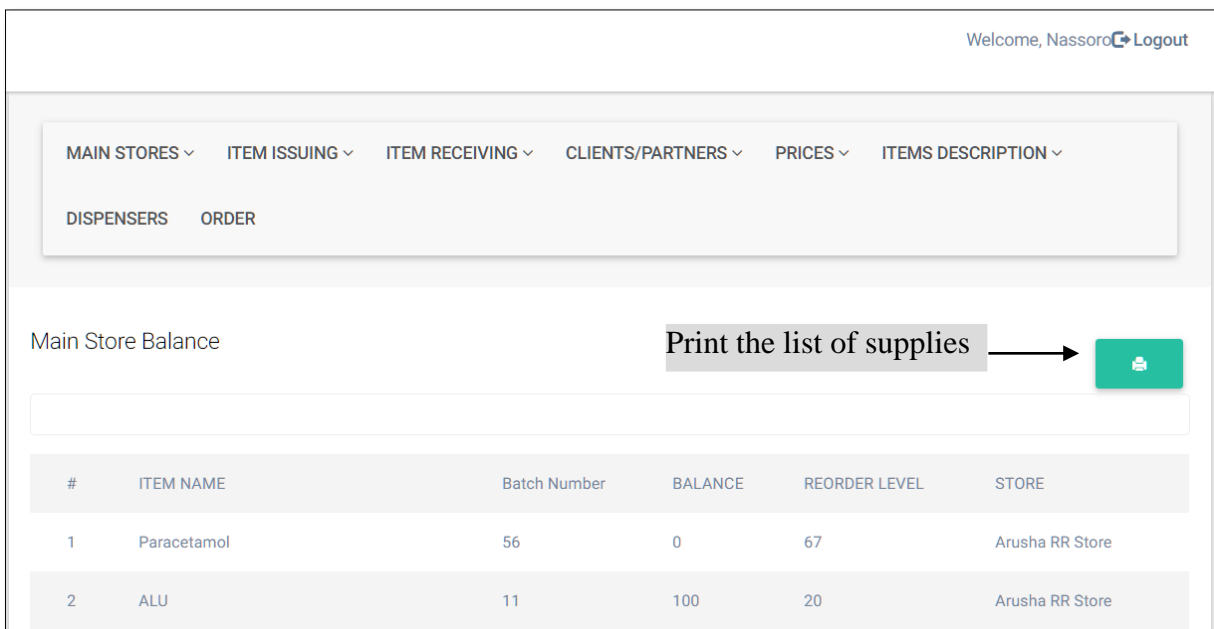


Figure 87: [Main Store Balance] List of Supplies

#	ITEM	BATCH	QUANTITY	EXPIRE	REORDER	PRICE	STORE	RECEIVED	REF	RECEIVED
1	DEXTROSE INJECTION	1	2000	2016-11-23	2	4000	Arusha RR	msd	4	2016-11-24

Figure 88: [Main Store Records]

Item Issuing

This menu item is used disburse supplies to lower level of the supplies chain i.e. the Sub-stores in the health facility. The menu contains two sub-menus named **[Item Issuing Process]** and **[Item Issued Records]**. The former provides a form onto which the Main Store clerk fill in the records when disbursing supplies to the lower level while the later shows records of this activity.

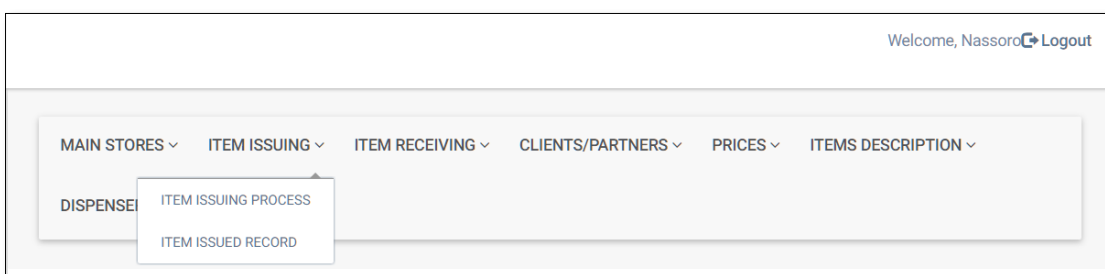


Figure 89: [ITEM ISSUING] Sub-menu Items

Item Issuing Process

This menu provides a form onto which the Main Store clerk records the details of supplies exiting the store to the next lower level. The clerk should fill in the details required by the form as shown in the figure below. Note that “**Store Name**” is [this] store from which supplies are being removed and “**Issued To**” is the sub-store to which particular supplies are destined.

Main Store Issuing Form

Item Name	<input type="text" value="type any word corresponding to your see"/>	Batch Number	<input type="text" value="Fill Batch Number"/>
Store Name	<input type="text" value="Arusha RR Store"/>	Reference Number	<input type="text" value="Fill item reference Number"/>
Issued Quantity	<input type="text" value="Fill quantity Issued"/>	Issued To	<input type="text" value="Arusha RR Sub Store"/>
Cost Price	<input type="text" value="Fill item Price"/>	Expire Date	<input type="text" value="11/25/2016"/>
Reorder Level	<input type="text" value="Fill item Reorder level"/>		

[REGISTER](#)

Figure 90: [ITEM ISSUING PROCESS] Clerk Form

ITEM ISSUED RECORDS

This menu displays the list of records that shows details of supplies disbursement from the Main Store to Sub-store within the facility.

Main store issued Records

Quick Search.....

#	ITEM	BATCH	QUANTITY	FROM	ISSUED	REFERENCE	STATUS	ISSUED DATE	
1	DEXTROSE INJECTION 10%,500ML	1	350	Arusha RR Store	Arusha - Old	4	0	2016-11-24 14:31:32	
2	ALU	11	100	Arusha RR Store	Arusha RR Sub Store	11	1	2016-11-16 05:32:53	

Figure 91: [ITEM ISSUED RECORDS]

Item Receiving

This menu item is used to receive supplies from higher supply sources such as the MSD or commercial supplier. The menu contains two sub-menus named **[Item Receiving Process]** and **[Item Received Records]**. The former provides a form onto which the Main Store clerk fill in the records when receiving supplies while the later shows records of this activity.

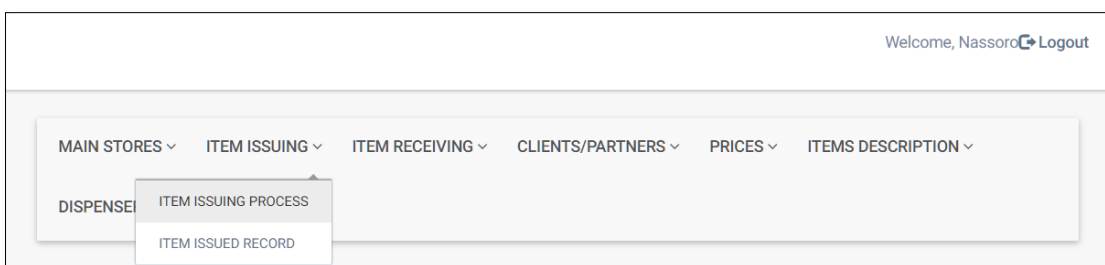


Figure 92: [ITEM RECEIVING] Sub-menu Items

Item Receiving Process

This menu provides a form onto which the Main Store clerk records the details of supplies entering the main store. The clerk should fill in the details required by the form as shown in the figure below. Note that “**Store Name**” is [this] store to which the supplies are being received.

 A screenshot of a web form titled 'Main Store Receiving Form'. The form contains several input fields arranged in two columns. The left column includes fields for 'Store Name' (with 'Arusha RR Store' entered), 'Batch Number' (with 'Fill Batch Number' as a placeholder), 'Quantity' (with 'Fill item quantity' as a placeholder), 'Received From' (with 'Received from' as a placeholder), and 'Reorder Level' (with 'Fill item Reorder level' as a placeholder). The right column includes fields for 'Item Name' (with 'Type any word corresponding to your se...' as a placeholder), 'Reference Number' (with 'Fill Reference Number' as a placeholder), 'Cost Price' (with 'Fill item price' as a placeholder), and 'Expire Date' (with 'mm/dd/yyyy' as a placeholder). A green 'REGISTER' button is located at the bottom right of the form.

Figure 93: [ITEM RECEIVING PROCESS] Clerk Form

Item Received Records

This menu displays the list of records that shows details of supplies received into the Main Store of the facility.

Quick Search.....			
ID	Name	Location	Created Date
18	Arusha RR Sub Store	Arusha Sub Store	2016-11-09 14:17:25
30	Arusha - Old	Arusha - Old	-0001-11-30 00:00:00

Figure 96: [CLIENTS/PARTNERS LIST]

Prices

This menu item is used to set service pricing at the health facility with three sub-menu items namely **[Create Item Prices]**, **[Prices Update]** and **[Price List]**. **[Create Item Prices]** provides a form onto which the clerk defines a price of a particular service, **[Prices Update]** uses the same form to update the price of an existing priced item and **[Price List]** shows the list of priced items.

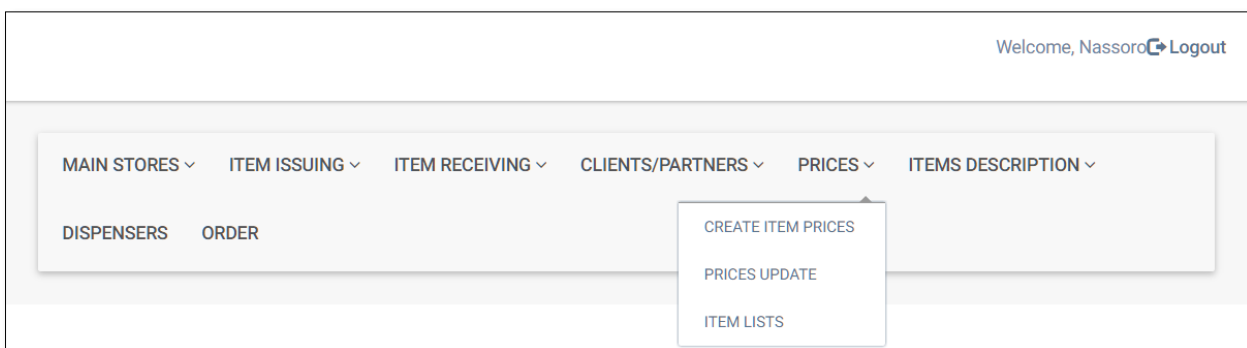


Figure 97: [PRICES] Sub-menu Items

Main Store Items Price Registration Form

Type into fields and select suggestions

Item Name: Consultation OPD

Patient Category: Cost Sharing

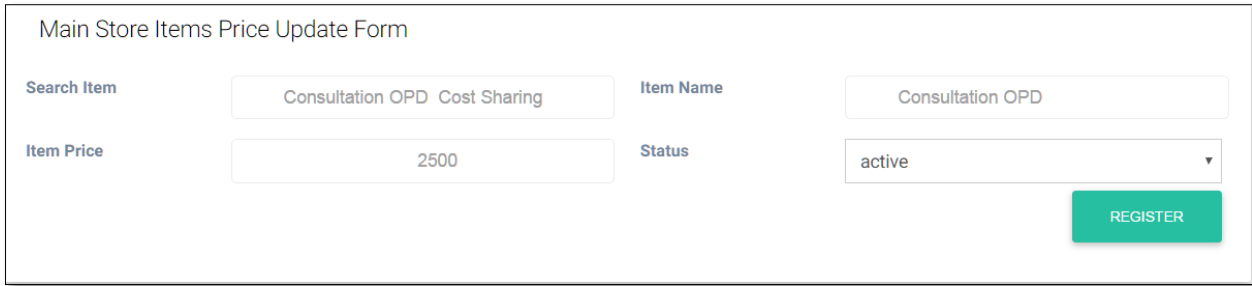
Price: 2000

Status: Active

Active price means one being billed to customers

REGISTER

Figure 98: [CREATE ITEM PRICES] Clerk Form



Main Store Items Price Update Form

Search Item: Consultation OPD Cost Sharing

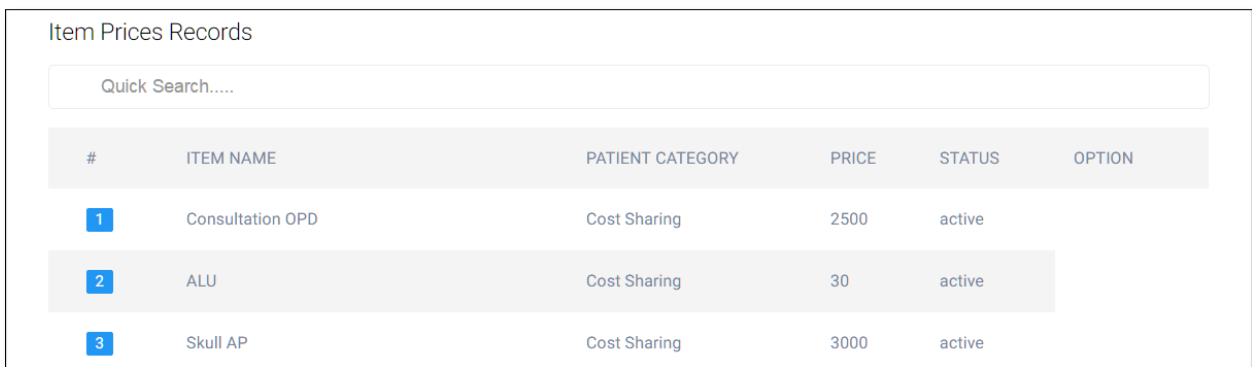
Item Name: Consultation OPD

Item Price: 2500

Status: active

REGISTER

Figure 99: [PRICES UPDATE] Clerk Form



Item Prices Records

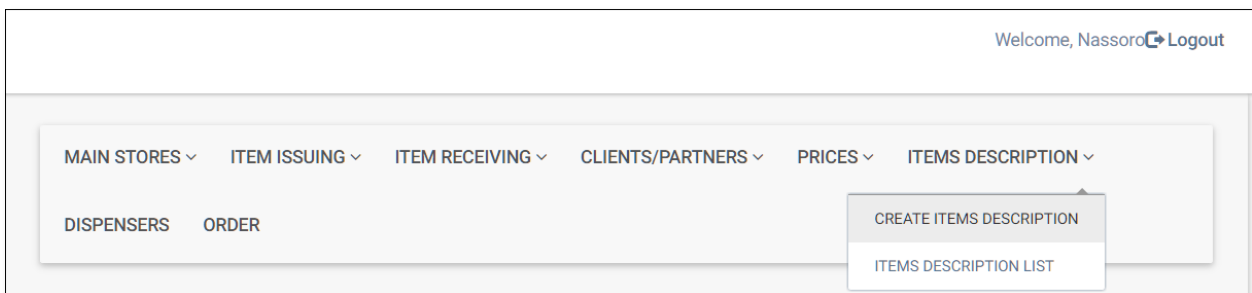
Quick Search.....

#	ITEM NAME	PATIENT CATEGORY	PRICE	STATUS	OPTION
1	Consultation OPD	Cost Sharing	2500	active	
2	ALU	Cost Sharing	30	active	
3	Skull AP	Cost Sharing	3000	active	

Figure 100: [PRICE LIST]

Items Description

The user may have noted that typing on particular fields brings up a suggesting list. The list is fetched from the database which contains predefined “concepts” such as medicine names, clinical procedures, etc. The **[ITEMS DESCRIPTION]** menu offers a place by which more concepts can be added into the dictionary. This menu contains two sub-menus namely **[Create Items Description]** and **[Items Description List]**. The former presents a form onto which new concepts can be added to the dictionary and the later displays a list of existing ones. Note that this list applies throughout the system and usable by any facility running the system.



Welcome, Nassoro Logout

MAIN STORES ▾ ITEM ISSUING ▾ ITEM RECEIVING ▾ CLIENTS/PARTNERS ▾ PRICES ▾ ITEMS DESCRIPTION ▾

DISPENSERS ORDER

CREATE ITEMS DESCRIPTION

ITEMS DESCRIPTION LIST

Figure 101: [ITEMS DESCRIPTION] Sub-menu Items

Items Registration Form

Item Name

ALU

Item Category

Medication

ICD9/ICD10 Code

Enter a item ICD10 Code

Department

OPD

Concept Code

Enter a item concept code

REGISTER

Figure 102: [CREATE ITEMS DESCRIPTION] Clerk Form

Item Prices Records

Quick Search.....

#	Item_Code	Item Name	Category
1	1110	Fatigue	General Review
2	1111	Malaise	General Review

Figure 94: [ITEMS DESCRIPTION LIST]

Dispensers

This menu is used to show list and define dispensers at particular dispensing points or sub store within the health facility. The clerk should use the form to assign users to assigned stations.

Registration of User and Store to dispense

Dispenser

dattan

Store Name

Arusha - Old

REGISTER

USER NAME

STORE NAME

dattan

Arusha - Old

Figure 95: Dispensers Definition Form and Listing

Order

This menu shows the list of supplies ordering placed from sub-stores or dependent entities. The list shows the item being ordered, quantity, who ordered and date of requisition. The Main Store clerk can satisfy the requisition by clicking on the “**ISSUE**” button and complete the resulting form.

Requisition List							
Quick Search.....							
NO	ITEM	UNITY	QUANTITY	ORDER FROM	STATUS	DATE OF REQUISITION	ISSUE
1	ALLOPURINOL TABLETS 100 MG	7	9000	Arusha RR Sub Store	0	2016-11-14 06:57:50	<button>ISSUE</button>
2	ACETYSALICYLIC ACID ASPIRIN	554	2	Arusha RR	0	2016-11-14	<button>ISSUE</button>

Figure 96: List of Pending Medical Supplies Requisition from Sub-Stores

ITEM ISSUING

Main Store Issuing Form

Item Name	ALLOPURINOL TABLETS 100 MG	Fill Batch Number
Store Name	Arusha RR Store	Reference Number
Expected Quantity	9000	Available Quantity
Cost Price	Fill item Price	Issued To
Expire Date	mm/dd/yyyy	Reorder Level

✕CANCEL

SAVE

Figure 97: Order Issuing Form

When the user visits the Sub-Stores sub-module, the following interface is presented

Welcome, Nassoro [Logout](#)

Substore Management

[Receivings](#)
[Issuing](#)
[Received Items](#)
[Issued Items](#)
[Balance](#)

[Supplies Requisition](#)
[Outgoing Requisition](#)
[Incoming Requisition](#)
[Dispensing Points](#)

Quick Search.....

Figure 108: Sub store Sub-module Menu Items

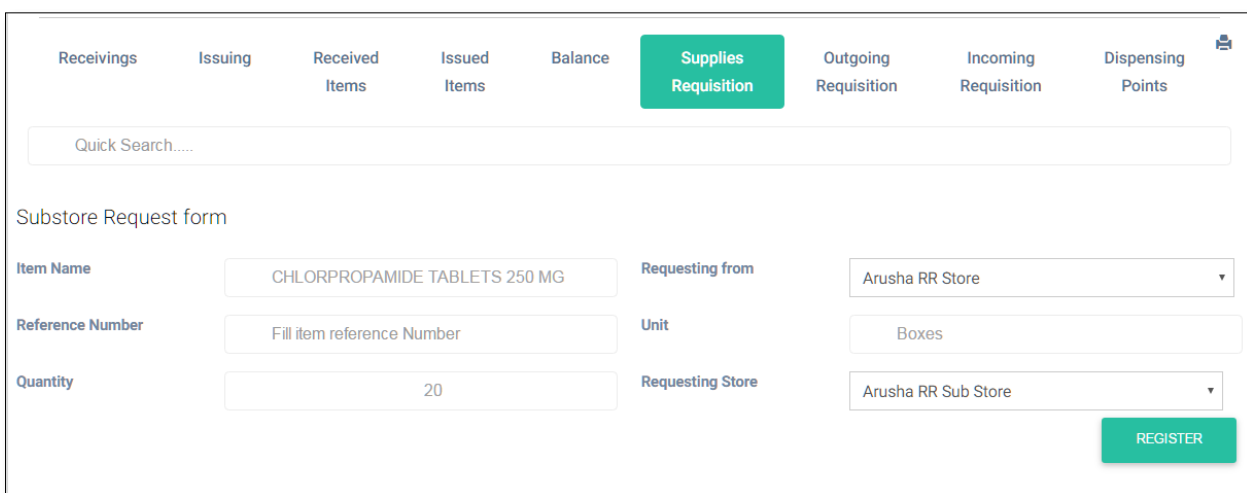
This sub module is targeted at the clerk(s) manning the sub store(s) of the facility. Through the module, the clerk can confirm supplies received from the main store, place an order to the main store, receive order from dispensing points, disburse supplies to dispensing points and view store balances. The module contains **Issuing**, **SuppliesRequisition** and **Dispensing** forms that respectively handle disbursing supplies to dispensing points, place order to the main store and define dispensing points within the facility. The remaining menu items display the respective lists.

Sub Store Issuing Form

Item Name	<input type="text" value="PARACETAMOL SYRUP 120MG/5MLS,100MLS"/>
Store Name	<input type="text" value="Arusha RR Sub Store"/>
Reference Number	<input type="text" value="Fill item reference Number"/>
Batch Number	<input type="text" value="Fill item batch Number"/>
Issued Quantity	<input type="text" value="Fill quantity Issued"/>
Issued To	<input type="text" value="Dispensing OPD"/>
Cost Price	<input type="text" value="Fill item Price"/>
Expire Date	<input type="text" value="mm/dd/yyyy"/>
Reorder Level	<input type="text" value="Fill item Reorder level"/>

[REGISTER](#)

Figure 109: Sub Store Issuing Form

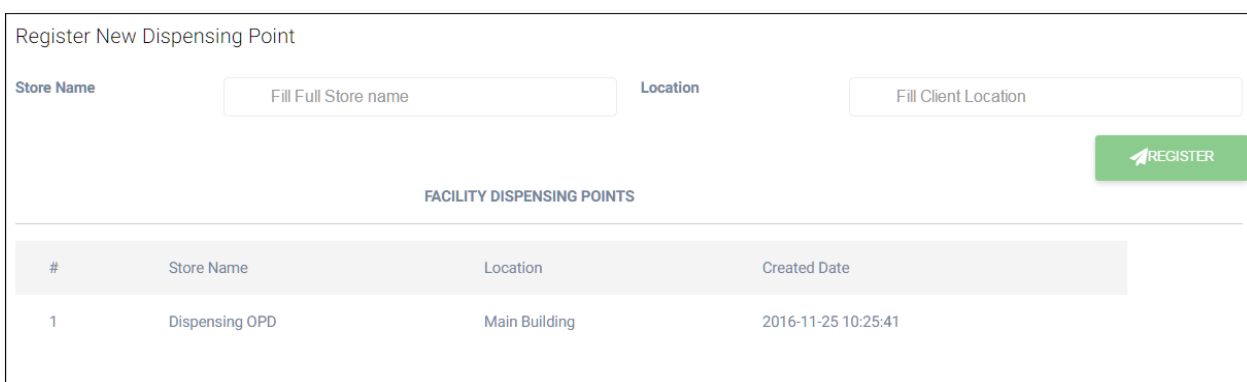


The interface shows a navigation bar with tabs: Receivings, Issuing, Received Items, Issued Items, Balance, **Supplies Requisition**, Outgoing Requisition, Incoming Requisition, and Dispensing Points. Below the navigation bar is a 'Quick Search.....' input field. The main section is titled 'Substore Request form' and contains the following fields:

- Item Name:** CHLORPROPAMIDE TABLETS 250 MG
- Reference Number:** Fill item reference Number
- Quantity:** 20
- Requesting from:** Arusha RR Store (dropdown)
- Unit:** Boxes
- Requesting Store:** Arusha RR Sub Store (dropdown)

A green **REGISTER** button is located at the bottom right of the form.

Figure 110: Sub Store Supplies Requisition Form



The interface is divided into two sections. The top section is titled 'Register New Dispensing Point' and contains the following fields:

- Store Name:** Fill Full Store name
- Location:** Fill Client Location

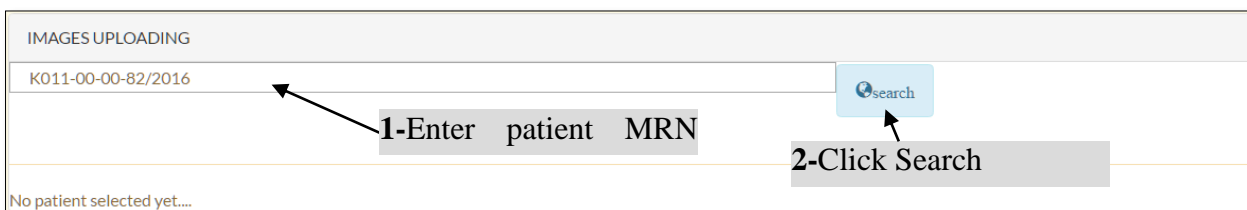
A green **REGISTER** button is located to the right of the 'Location' field. The bottom section is titled 'FACILITY DISPENSING POINTS' and contains a table with the following data:

#	Store Name	Location	Created Date
1	Dispensing OPD	Main Building	2016-11-25 10:25:41

Figure 111: Dispensing Points Listing and Definition Form

X-Ray Module

This module allows the radiologist to share the x-ray image with the ordering doctor. After login, the radiologist is presented with the following initial interface:



The interface shows a section titled 'IMAGES UPLOADING' with a text input field containing 'K011-00-00-82/2016'. Below the input field is a blue button with a magnifying glass icon and the text 'search'. Two arrows point to the input field and the button, labeled '1-Enter patient MRN' and '2-Click Search' respectively. Below the input field, the text 'No patient selected yet....' is displayed.

Figure 112: Searching X-Rayed Patient

Once the patient MRN has been entered and searched, the radiologist will be presented with the following expanded interface onto which s/he can upload the x-ray image and search other MRNs.

Figure 113: Uploading Patient X-Ray Image

After clicking on the [**Upload Now**] button, the system will open a page on which the uploaded image can be viewed. A link at the top right corner of the page allows the radiologist to go back to the MRN search form.



Figure 114: Uploaded Image, Switching Back to Upload Page