

Terms of Reference

Automation of Health Services through Implementation of a County Integrated Health Management Information System for County Health Facilities

Component: Software

January 2024

Contents

- I. Introduction and Background: 3
- II. Objectives:..... 3
- III. Scope of Work:..... 3
- IV. System Requirements 4
- V. Stakeholders..... 24
- VI. Project Timeline 24
- VII. Budget..... 24
- VIII. Vendor Selection 24
- IX. User Training..... 24
- X. Data Migration 25
- XI. Quality Assurance and Testing 25
- XII. System Change-Over..... 25

I. Introduction and Background:

Government of Makueni County is in the process of automating health services through implementation of a County Integrated Health Management Information System (CiHMIS).

Currently, different facilities are running different disintegrated systems partly serving several service points/units with most of them being non-web-based while most of the operations are done manually. There is therefore need to streamline processes, enhance data accuracy while improving the overall health care service delivery.

II. Objectives:

The key objective of automating the health services is to improve efficiency in provision of health care. Specific objectives include, but not limited to the following:

- a) Streamlining all processes and enhance routine administration of health services
- b) Automate health commodities (pharms, non-pharms and other essential commodities.
- c) Accountability of all revenues generated from services given to clients/patients
- d) Implement electronic health records for comprehensive and secure accessibility
- e) Compliance with statutory standards n health regulations and data protection.

III. Scope of Work:

This document serves as a term of reference (ToR) for the software component which is intended to be used across all the facilities in the county. This includes, levels 5, 4, 3 and 2, of 241 facilities and 240 level1 (community health units).

The implementation will be done in Makueni County Referral Hospital.

The system is intended to integrate all health services across all facilities under one platform while providing visibility of all facilities in one dashboard.

This will be an end-to-end secure web-based solution automating all service points/units with key focus on patient care, health commodities and revenue management among others. The scope also includes integration with existing systems and technologies.

IV. System Requirements

These are the technical specifications of the system/software and modules as indicated below:

- a) Secure, web-based and centralized database with both web and mobile access channels and can be used for light end-user devices including tablet PCs.
- b) Provision for secure real-time automatic backups (both on-site and off-site) and automatic data redundancy checks.
- c) Have an optimal (99.5%) uptime.
- d) Provision for integration with ECHIS and other county systems including County Core Revenue Management and GIS.
- e) Provision for multiple payment options across different providers including mobile money platforms, digital kiosks, banks, e-payments options (online transactions) and agents automated and have automated reconciliation functions.
- f) Flexible, scalable, parameter-driven and customizable solution to meet the unique requirements Government of Makueni County.
- g) Provide Role based system access and permissions for improved security.
- h) Provision of system work-flows with enforced maker-checkers and segregation of responsibilities.
- i) Provision of reports and dashboards for real-time monitoring and seamless customization of reports according to county needs.
- j) Have a complete auditing capability and audit trails/event views.
- k) Compliance with existing laws and regulations including MoH, CBK and CAK regulations.
- l) Compliance with international globally accepted standards for systems security and payments.

- m) 24-hour online help desk with remote support through email and telephone and provide for a support ticketing system.
- n) The service provider will station support staff onsite during the implementation period.
- o) Compliance with approved SLA.
- p) Provision for updates, upgrade and fixes.
- q) Provide for periodic quality checks and monitoring & evaluation.
- r) Provide software source codes, licenses, third party resources and intellectual property rights to the county.

Key Modules/Functionalities

1. Patient Registration

- Capture patient personal information, contact details, and insurance information.
- Verify patient insurance coverage and eligibility.
- Facilitate patient check-in and assign queue numbers for streamlined patient flow.
- Assign a unique patient identifier that is easier to remember i.e ID number, Birth certificate number.
- Enable the uploading of patient photos and relevant documents, such as insurance cards and identification.
- Notify healthcare providers about patient arrivals.
- Seamlessly integrate with EHR systems to share patient information with other healthcare providers.
- Create and maintain electronic medical records for patients that can be accessed in all hospitals in the county.

2. Triage and Urgency Assessment

- Capture and maintain patient demographic information.
- Record relevant medical history.
- Implement evidence-based triage algorithms and protocols.
- Allow customization of algorithms to match facility-specific needs
- Define and assign triage categories (e.g., critical, urgent, non-urgent) based on the severity of patients' conditions.
- Provide guidance to healthcare providers in assessing patients and assigning triage levels.

- Create electronic triage records that include detailed patient assessments and assigned triage categories.
- Facilitate communication among healthcare team members regarding patients' triage levels and conditions.
- Manage patient flow in the triage area and coordinate their movement to appropriate care areas.
- Generate reports on triage category distribution, trends, and resource allocation.
- Implement a triage module for assessing the urgency of patients' conditions.
- Support immediate redirection of patients with severe or life-threatening conditions to specialized care areas.

3. Outpatient: Consultation and Diagnosis

- Facilitate appointments with general practitioners and specialists.
- Record and maintain medical history, diagnostic tests, and treatment plans.
- Implement an appointment scheduling module for booking patient consultations.
- Seamlessly integrate with EHR systems to access and update patient medical records.
- Support comprehensive clinical assessments and examinations, including medical history reviews, physical examinations, and patient symptoms.
- Enable healthcare providers to order diagnostic tests, laboratory work, and imaging studies.
- Ensure seamless transmission of orders to the respective departments.
- Offer clinical decision support tools to assist healthcare providers in diagnosis and treatment planning.
- Support telemedicine for remote consultations, including video conferencing and secure communication.
- Facilitate medication prescription and management, including e-prescribing and dosage verification.
- Manage referrals to specialists and consultations with other healthcare providers.
- Ensure detailed and standardized consultation notes for reference.
- Integrate with billing systems to facilitate billing for consultations and diagnostic services.

4. Inpatient Care

- Capture and maintain patient demographic information, medical history, insurance details, and next of kin.
- Streamline the admission process with electronic forms and checklists.
- Manage bed availability, allocation, and room assignments.
- Seamlessly integrate with EHR systems to access and update patient medical records.
- Support multidisciplinary care planning, including physician orders, nursing care plans, and allied health assessments.
- Facilitate safe medication administration with electronic medication orders, barcode scanning, and dosage verification.
- Offer clinical decision support tools to assist healthcare providers in making evidence-based decisions.
- Implement a nursing documentation module to record care activities, observations, and patient responses.
- Implement robust security measures to protect patient data and ensure compliance with healthcare data privacy regulations.
- Integrate with billing and revenue cycle management systems to facilitate billing for inpatient services.
- Verify insurance coverage and process claims.
- Support integration with other medical information systems.
- Dietary needs

5. Emergency and Critical Care

- Implement a triage system to determine the urgency of patients' conditions.
- Facilitate quick and accurate patient assessment, including vital sign monitoring and medical history review.
- Support the continuous tracking of vital signs, cardiac monitoring, and ventilator parameters.
- Enable the administration of life-saving interventions, such as cardiopulmonary resuscitation (CPR), defibrillation, and rapid medication administration.
- Support emergency procedures for trauma, cardiac arrest, and respiratory distress.
- Facilitate medication administration with safety checks for accurate dosing.
- Integrate with medical devices such as ventilators, cardiac monitors, and infusion pumps to receive real-time data.
- Ensure alerts for equipment malfunctions and patient condition changes.
- Seamlessly integrate with EHR systems to access and update patient medical records.

- Support efficient data exchange with other healthcare providers.
- Allow for rapid access to diagnostic imaging, laboratory results, and diagnostic tests.
- Support image viewing and interpretation within the system
- Implement a system for patient transfer between different care areas (e.g., emergency room to intensive care).
- Facilitate efficient handoffs and communication between care teams.
- Generate comprehensive reports on patient conditions, interventions, and outcomes.
- Integration with emergency medical service (EMS) dispatch systems.

6. Gender-Based Violence Unit

- Capture and maintain records, including demographic details and case history.
- Create individualized cases for patients to track their progress and care plans.
- Develop a system for conducting assessments of patients who have experienced gender-based violence.
- Allow for secure documentation of patient interviews and findings.
- Implement a referral management module to connect patients with relevant support services and agencies.
- Coordinate with external organizations, such as law enforcement, shelters, and legal aid providers.
- Enable safety planning and risk assessment for patients in immediate danger.
- Support the creation of safety plans that include information on seeking help and resources.
- Enable the secure release of patient information to authorized entities.

7. Specialized Clinics: Eye Clinic

- Medical outpatient, pediatric, gynecology, surgical, oncology, psychiatry, dermatology, ENT, ophthalmology, etc.
- Ensure easy access to patient records for healthcare providers
- Implement an appointment scheduling module for booking eye exams and consultations.
- Allow for online and in-person appointment booking.
- Integrate with EHR systems to access patient medical records and update them with eye exam results.
- Ensure seamless sharing of patient information with other healthcare providers.

- Support a wide range of clinical tests and assessments for eye health, including visual acuity tests, refraction tests, tonometry, and imaging studies (e.g., fundus photography).
- Provide tools for documenting findings and results.
- Enable the prescription and management of eyeglasses, contact lenses, and vision correction surgeries (e.g., LASIK).
- Track prescription history and vision correction recommendations.
- If offering surgical services (e.g., cataract surgery), include a module for surgical planning, scheduling, and post-operative care.
- Manage surgery dates, consent forms, and patient follow-up.
- Generate comprehensive reports on eye exams and test results.
- Support the storage and retrieval of eye imaging studies (e.g., retinal scans, optical coherence tomography).
- Manage the inventory of eyeglass frames, contact lenses, and optical accessories.
- Integrate with billing and revenue management systems to facilitate billing for eye exams, procedures, and eyeglass/contact lens orders.
- Verify insurance coverage and process claims.
- Support integration with other medical information systems.

8. Laboratory Services

- Enable the scheduling of tests for patients.
- assign queue numbers for streamlined patient flow.
- Implement a system for tracking and labeling patient samples.
- Ensure accurate and traceable sample identification.
- Support a variety of diagnostic tests, including blood tests, urinalysis, imaging studies (e.g., X-rays, CT scans, MRIs), and more.
- Integrate with various laboratory instruments and equipment for test processing.
- Generate and deliver test results electronically to healthcare providers.
- Include clear and comprehensive reports, graphs, and charts.
- Seamlessly integrate with EHR systems to access patient medical records and update them with test results.
- Ensure efficient data exchange between laboratory services and other healthcare providers.
- Provide real-time status updates on pending and completed tests.
- Manage laboratory inventory, including reagents, consumables, and supplies.
- Implement automatic reorder points for stock replenishment.
- Track samples throughout the testing process, maintaining a chain of custody.
- Document sample handling and transfers for traceability.

- Generate reports on test volumes, results, trends, and laboratory efficiency.
- Restrict access to sensitive laboratory data.
- Support interoperability with external systems, such as radiology information systems, pathology systems, and health information exchanges.

9. Operating Room (OR) Management

- Create a scheduling module for booking surgical procedures.
- Allow for flexible scheduling with the ability to adjust times and dates as needed.
- Capture and maintain patient information related to scheduled surgeries, including demographics, medical history, and consent forms.
- Ensure secure storage and easy retrieval of patient records.
- Manage the allocation of surgical instruments, medical equipment, and operating room resources.
- Implement alerts for equipment maintenance and sterilization.
- Assign surgical teams and support staff to specific surgeries.
- Facilitate communication and coordination among OR staff.
- Enable the documentation of surgical procedures, including pre-operative checklists, intra-operative notes, and post-operative records.
- Integrate with EHR systems to access and update patient medical records.
- Ensure seamless sharing of patient information among care providers.
- Generate reports on surgical schedules, procedure outcomes, and resource utilization.

10. Palliative Care

- Develop an interface for comprehensive patient assessments to evaluate physical, psychological, and spiritual needs.
- Capture patient preferences and goals for care.
- Enable the creation and management of individualized palliative care plans.
- Facilitate coordination among the palliative care team, including regular team meetings and updates.
- Support medication administration for symptom control
- Include spiritual care and support for patients who desire it.
- Integrate with the EHR system to access and update patient medical records.
- Ensure seamless sharing of patient information among care providers.
- Facilitate coordination and transitions of care with hospice services when appropriate.
- Generate reports on patient assessments, care plans, and outcomes.

- Capturing outpatient details.

11. Medical Social Worker Services

- Develop an interface for conducting patient assessments to identify specific social, emotional, and financial needs.
- Enable the creation and management of individual patient cases
- Implement a system for referring patients to external resources, agencies, or support services.
- Track the status and outcomes of referrals.
- Facilitate the coordination of services and support between medical social workers and other healthcare providers.
- Ensure effective communication and collaboration among the care team.
- Provide tools for medical social workers to communicate with patients, offer counseling, and provide emotional support.
- Enable scheduling of appointments and follow-up meetings.
- Generate reports on patient assessments, services provided, and outcomes.
- Integrate with the EHR system to access and update patient medical records.
- Ensure seamless sharing of patient information among care providers.

12. Psychological Counselling: Drop-In Center

- Capture patient information, including name, contact details, and reason for the visit.
- Implement a queue management system to minimize patient wait times.
- Display real-time waitlist information for patients.
- Integrate with EHR systems to access and update patient medical records.
- Ensure the recording of patient visits, symptoms, and provided services.
- Include clinical decision support tools to assist healthcare providers in diagnosing and treating minor ailments.
- Provide a system for handling minor ailments and general health concerns without prior appointments.
- Generate reports on patient visits, common ailments, and services provided.
- Implement security measures to protect patient data.
- Ensure compliance with healthcare data privacy regulations.
- Enable the secure release of patient information to authorized individuals or entities.

13. Pharmacy Services

- Handle prescription medication dispensing.
- assign queue numbers for streamlined patient flow.

- Support e-prescribing to reduce errors and improve efficiency
- Include counseling, medication dosage verification, and safety compliance.
- Integrate with EHR systems to access patient medical records and ensure medication history accuracy.
- Support two-way communication to update EHRs with dispensed medications
- Support prescription label printing.
- Provide detailed reports on medication usage, inventory levels, and prescription history.
- Implement robust security measures to protect sensitive patient data and pharmacy operations.
- Maintain audit trails of all pharmacy-related transactions.
- Support centralized pharmacy management for multiple healthcare facilities.
- Allow individual facilities to manage their pharmacy operations within the larger system.
- Ensure the system can scale to accommodate the needs of growing healthcare facilities
- Drug interaction alerts to prevent medication conflicts
- Support integration with financial and billing systems to facilitate billing for medication services and verify insurance coverage.

14. Inventory Management

- Manage hospital supplies, equipment, and inventory.
- Ensure the availability of essential medical resources.
- Implement a real-time tracking system to monitor stock levels continuously.
- Record item descriptions, quantities, expiration dates, and location information
- Set up automatic alerts and notifications for low stock levels or expiring items.
- Document the receipt of inventory items upon delivery.
- Ensure traceability for recalls and quality control
- Allow individual facilities to manage their inventory within the larger system
- Generate reports for financial analysis and cost control
- Provide detailed reports on inventory levels, usage, and costs.
- Maintain an audit trail of all inventory-related transactions.
- Highlight items nearing expiration and facilitate their prompt use or disposal
- Ensure the system can scale to accommodate the needs of growing healthcare facilities
- Support the addition of new inventory items and categories.

Health Products & Technologies (HPT) User Requirements				
NO	Section	System Requirements		
1	Registration	Patient registration should be captured at the triage when the patient enters the facility. This should appear in the system for use in all the departments during the visit.		
		History of drugs issued to the patient should be seen		
		Patients coming for prescription refills go to pharmacy direct after triage		
		Distinction of cash/nhif/other insurance to be done at registration. Thereafter, this can only be changed by HAO		
2	List of drugs	The list of medicines SHOULD NOT CONTAIN BRAND NAMES . Only the international non-proprietary names (INN) should appear		
		The list should be similar in all hospitals. Addition or deletions should be done centrally at HQ. This will ensure uniformity of reporting.		
3	Unit of Issue	The dispensing points should have the lowest unit of issue i.e. tablets, bottles, vials, ampoules		
4	System	Should be user friendly		
		Immediate deduction of stocks (no lags or delays in synchronization)		
		Visibility of available stocks to clinicians		
		Different administrative rights for different users		
		Stock take feature should have space to explain any variances		
		Can easily search for patients		
		Offline capabilities for downtimes & immediate synchronization when internet is back		
		System to have drug- drug interactions alerts for prescribers and pharmacy personnel		
5	Stores	Separate stores for different HPTs - Pharmaceuticals, Non-pharmaceuticals, Laboratory reagents, Nutrition Commodities		
		The system should also create SDP stores for each user department		
		HPT use in the user departments to automatically deduct stocks from the user department's SDP store		
		Capture expiry dates correctly [dd/mm/yyyy] and segregate per batch number		
		Min/Max stock levels		
		Re-order levels alerts		

6	Billing & Payment	All HPTs being dispensed to patients should be automatically billed		
		MPESA payment should automatically reflect in the system (no need for patient to go to the cash office)		
		System should not allow dispensing until payment reflects at the OPD. For in-patients, discharge should be after payment of bills.		
		Receipts generation and printing to be enabled at the dispensing points		
7	Reporting	Financial record of daily sales		
		Report on prescription fill rates, value of stock held, expiries, <3months to expiry, months of stock, average monthly consumption for all commodities		
		Ability of the system to do MOH reports for commodities: 647, TB, Malaria, HIV and automatically upload to KHIS		
		A report on HPT consumption vs service data (the patients who consumed the HPTs) i.e DARs - Daily activity registers		
		Transaction history of each HPT from date its received, various issues to user departments/facilities and quantities dispensed to various patients		
8	Dashboard	Can aggregate HPT reports for all facilities using the system		
		Link the patients to HPTs consumption		
		Stock visibility in all facilities i.e MCRH can see what Makindu has in stock		
		Access to resourceful downloads e.g drug index		
		Daily workload per user data		
		HPT usage/consumption reports		
9	Security	Encryption of data		
		Limited access to sensitive inputs e.g stock taking, change of quantities etc		
10	Issues to wards & other facilities	System to autogenerate a serialised s11 document with QR code which can be printed & signed for filing. The QR code can be used to automatically receive products in the other department/facility without manual entries.		

15. Medical Records Management

- Enable the scanning and digital uploading of paper documents, test results, and medical images.
- Seamlessly integrate with EHR systems to access and update patient medical records.
- Ensure data consistency and accessibility across the healthcare facility.
- Implement efficient data indexing to facilitate rapid retrieval of patient records.
- Support powerful search functions to locate specific records quickly.
- Maintain version control for patient records, documenting changes and updates.
- Create audit trails to track who accessed and modified patient records and when.
- Facilitate the archiving and long-term retention of patient records in compliance with legal and regulatory requirements.
- Implement an automated record purging system when records reach their retention period.
- Generate reports on patient records, usage statistics, and data access patterns.
- Utilize analytics to optimize record management processes.
- Enable the secure release of patient information to authorized individuals or entities.
- Maintain detailed electronic medical records for each patient, including medical history, diagnoses, treatments, and progress.
- Ensure secure and accurate record-keeping.

16. Gynecology Ward - Inpatient Ward

- Capture and maintain patient demographics, medical history, and contact details.
- Record and track obstetric and gynecologic history.
- Manage patient appointments and scheduling for consultations and procedures.
- Provide a scheduling system for appointments with gynecologists, obstetricians, and other relevant staff.
- Support for tracking and managing appointments, including rescheduling and cancellations.
- Integration with EHR to store and access patients' medical records, including lab results, diagnostic images, and historical data.

- Maintain records related to pregnancy, including trimester-specific details, ultrasounds, and prenatal care.
- Manage gynecological history, including menstrual history, pap smear results, and relevant procedures.
- Generate invoices for services provided, and support billing processes, including insurance claims.
- Track and manage medical supplies and equipment used in gynecology procedures and examinations.
- Maintain medication records, including prescriptions and dispensing details.
- Facilitate communication between healthcare providers and patients through secure messaging and notifications.
- Support interoperability with other modules of the ERP.
- Consider integration with telehealth platforms for remote consultations and follow-ups.

17. Mother-Child Health Clinic

- Capture and maintain comprehensive patient demographics, medical history, and contact details for both mothers and children.
- Link mother and child records to establish relationships and track family medical histories.
- Provide scheduling functionality for maternal and pediatric appointments, including prenatal care, well-child checkups, and vaccinations.
- Integration with EHR to store and access patients' medical records, including pregnancy-related data, birth records, and pediatric health information.
- Maintain records related to pregnancy, childbirth, neonatal care, and newborn health, including prenatal checkups, ultrasounds, and neonatal vitals.
- Record and monitor child growth and development milestones, including height, weight, and developmental assessments.
- Generate invoices for services provided, including maternity care, neonatal care, and pediatric services.
- Support billing processes, including insurance claims for both maternal and pediatric services.
- Track and manage medical supplies and equipment used in maternal and pediatric healthcare.
- Maintain medication records for mothers and children, including prescriptions and dispensing details.
- Facilitate communication between healthcare providers and patients through secure messaging and notifications.

- Support communication between pediatricians, obstetricians, and other specialists involved in mother-child healthcare
- Generate reports on maternal and child health statistics, department performance, and financials.
- Provide data analytics tools to monitor trends and improve decision-making in maternal and pediatric care.
- Support interoperability with other modules of the ERP
- Provide access to educational materials for expectant mothers and parents on child healthcare and parenting.

18. Renal Section

- Capture and maintain comprehensive patient demographics, medical history, and contact details.
- Record and monitor renal-specific information, including kidney function, dialysis details, and transplantation history.
- Capture and maintain comprehensive patient demographics, medical history, and contact details.
- Record and monitor renal-specific information, including kidney function, dialysis details, and transplantation history.
- Integration with EHR to store and access patients' medical records, including laboratory results, diagnostic images, and historical renal health data.
- Maintain records of dialysis sessions, including scheduling, treatment parameters, and dialysis-related complications.
- Record and track kidney transplant history, including donor information, transplant surgeries, and post-transplant care.
- Maintain medication records for renal patients, including prescriptions, dosages, and dispensing details.
- Generate invoices for renal services, including dialysis, transplantation, and medication.
- Support billing processes, including insurance claims for renal services.
- Track and manage medical supplies and equipment used in renal care, such as dialysis machines, catheters, and immunosuppressant medications.
- Facilitate communication between healthcare providers and renal patients through secure messaging and notifications.
- Generate reports on renal patient statistics, department performance, and financials.
- Provide data analytics tools to monitor trends and improve decision-making in renal care.

- Support interoperability with other modules of the ERP
- Consider integration with telemedicine platforms to enable remote consultations for renal patients, and remote monitoring solutions for critical parameters.

19. Medical Imaging Services

- Seamless integration with the hospital's patient information system to access and update patient data, including demographics, medical history, and clinical information.
- Support for various imaging modalities, including X-rays, MRIs, CT scans, ultrasound, and nuclear medicine.
- Efficient storage and retrieval of medical images with advanced DICOM (Digital Imaging and Communications in Medicine) support.
- Assign and manage imaging tasks and appointments, ensuring proper scheduling of patients for various imaging procedures.
- Long-term storage of medical images in a secure, centralized archive.
- Rapid retrieval of images for viewing and analysis by radiologists and other healthcare professionals.
- Seamless integration with a PACS(**Picture Archiving and Communication System**) system to store, distribute, and manage medical images efficiently.
- Tools for radiologists and clinicians to generate and interpret medical imaging reports.
- Integration with reporting systems for structured and standardized reporting.
- Support for radiologist workflow, including image viewing, annotation, and reporting.
- Workflow management features to track the progress of each imaging study.
- Features for sharing images and reports securely with referring physicians and specialists for consultations.
- Implement quality control checks for image accuracy and consistency.
- Seamless integration with the hospital's EHR/EMR system to access and share patient medical records alongside imaging data.
- Tools to assist in billing and coding for imaging services, including CPT and ICD codes.
- Integration with RIS(**Radiology Information System**) to manage patient scheduling, exam ordering, and reporting.
- Ensure the system can handle a growing volume of medical images and patient data.

- Integration with AI tools for image analysis and pattern recognition to aid in diagnostics

20. Rehabilitative Services - OT, Physio and Ortho-trauma

- Capture and maintain comprehensive patient demographics, medical history, and contact details.
- Record orthopedic-specific information, such as musculoskeletal history, previous surgeries, and joint replacements.
- Provide a scheduling system for orthopedic appointments, including consultations, surgeries, and follow-up visits.
- Support tracking and managing appointments, including rescheduling and cancellations.
- Integration with EHR to store and access patients' orthopedic medical records, including X-rays, MRI scans, and orthopedic assessments.
- Seamlessly integrate with orthopedic imaging systems to store and access X-rays, MRIs, CT scans, and other diagnostic images.
- Manage the scheduling of orthopedic surgeries, including surgeon availability, operating room allocation, and patient preparation.
- Track and manage inventory of orthopedic implants, prostheses, and surgical instruments.
- Record surgical details, including the surgical team, procedures performed, and postoperative care plans.
- Manage postoperative rehabilitation plans and progress, including physical therapy and home exercise programs.
- Generate invoices for orthopedic services, including surgeries, follow-up consultations, and physical therapy sessions.
- Support billing processes and insurance claims for orthopedic services.
- Track and manage medical supplies and equipment used in orthopedic procedures and rehabilitation.
- Facilitate communication between healthcare providers and orthopedic patients through secure messaging and notifications.
- Generate reports on orthopedic patient statistics, department performance, and financials.
- Provide data analytics tools to monitor trends and improve decision-making in orthopedic care.
- Support interoperability with other modules

21. Morgue Services

- Capture and maintain detailed records of deceased individuals, including demographics, cause of death, personal effects, and next-of-kin contact information.
- Track the location of bodies in the morgue, including temperature-controlled storage units.
- Implement a reliable identification system, to prevent mix-ups.
- Record and manage information related to autopsies, including autopsy findings, photos, and reports.
- Maintain a secure chain of custody record for deceased individuals, ensuring their belongings and information are properly handled.
- Track the release of bodies to funeral homes or other designated parties, ensuring the proper documentation and legal procedures are followed.
- Generate invoices for morgue services, including storage and post-mortem examinations, and maintain detailed records of all transactions.
- Track and manage supplies and equipment used in the morgue, including body bags, identification tags, and storage containers.
- Maintain records for an extended period, as required by regulations, for historical and legal purposes.
- Provide a system for notifying relevant parties, including family members and law enforcement, about the presence and status of deceased individuals.
- Establish integration with the medical examiner's office for seamless data sharing and reporting.

22. Biomedical Services

- Maintain a comprehensive inventory of medical equipment and devices, including details such as make, model, serial number, purchase date, and warranty information.
- Schedule and track routine maintenance tasks for medical equipment to ensure they remain in good working condition.
- Manage equipment calibration and quality control processes, including documenting calibration results and performance checks.
- Receive and process service requests and work orders for equipment maintenance, repair, or replacement.
- Store details about equipment vendors and external service providers, including contact information and service agreements.

- Track the location of medical equipment within the hospital, including the department or room where each item is situated.
- Ensure that all medical equipment complies with relevant regulations and standards, such as those imposed by the FDA or other regulatory bodies.
- Manage an inventory of spare parts and consumables for medical equipment repairs and maintenance.
- Track asset depreciation and plan for equipment replacement based on lifecycle assessments.
- Maintain logs of equipment usage, including the frequency and duration of use, to inform maintenance and replacement decisions.
- Assign maintenance and repair tasks to technicians and engineers and notify them of upcoming assignments.
- Generate invoices for biomedical services, including maintenance and repair work, and track costs associated with equipment upkeep.
- Maintain a comprehensive service history for each piece of medical equipment, including all past maintenance, repairs, and upgrades.
- Generate reports on equipment maintenance, costs, and performance, enabling data-driven decisions.
- Implement strong security measures to protect sensitive information related to medical equipment and restrict access based on roles and responsibilities.
- Integrate with the hospital's procurement module to facilitate the purchase and replacement of equipment and parts.

23. Billing & Receipting Services

- Capture and maintain detailed patient demographics and insurance details, including policy numbers, coverage types, and group information.
- Implement tools for medical coders to assign appropriate CPT (Current Procedural Terminology) and ICD (International Classification of Diseases) codes to services rendered.
- Enable entry of charges for medical services, procedures, and supplies based on coding and clinical documentation.
- Verify patient insurance coverage, eligibility, and benefits to avoid claim denials and billing errors.
- Support the complete billing cycle, including claim generation, review, and submission to insurance companies or government programs.
- Automate the processing of insurance claims, including electronic submission to payers and tracking of claim status.

- Record payments received from patients and insurance companies, allocate payments to specific charges, and manage adjustments or write-offs.
- Generate and send patient statements, invoices, and payment reminders for outstanding balances.
- Manage and resolve claim denials or rejections, including resubmissions with corrections as necessary.
- Manage appeals for denied claims and follow up with payers to ensure timely payment.
- Implement STK push for mobile money payment
- Provide tools to estimate patient costs before services are rendered to improve transparency and address patient concerns.
- Track and manage provider contracts with insurance companies, including negotiated rates and terms.
- Generate reports on billing and collections, including accounts receivable aging, claim status, and revenue performance.
- Monitor and optimize the revenue cycle, from patient registration through to collections and reporting.
- Seamlessly integrate with the hospital's EHR/EMR system to access clinical documentation and patient records.
- Provide online payment portals for patients to make payments, view bills, and access billing information.

24. Rehabilitation services

- Scheduling and appointment management
- Capture and maintain comprehensive patient demographics, medical history, and contact details.
- Maintain patient therapy schedules
- Progress tracking and reporting

25. Dental services

- Dentists and dental staff need appointment scheduling and patient record management.
- Integration with digital radiography and dental imaging systems.
- Tools for tracking dental procedures and billing.
- Patient communication and education tools for oral health.
- Infection control and sterilization protocols for equipment.

26. Reporting Module

MOH Reports

- Interoperability with other Government entities (KHIS, NHIF, KEMSA etc.)
- 364 Sexual gender based violence summary MONTHLY
- 505 weekly IDSR epidemic monitoring report WEEKLY
- 515 Community health data summary MONTHLY
- 705 A & B Outpatient summary (Under-fives & over fives) MONTHLY
- 706 Laboratory summary report MONTHLY
- 710 vaccines and immunization report MONTHLY
- 711 Integrate summary report (reproductive and child health, medical rehabilitation services) MONTHLY
- 713 Nutrition summary report MONTHLY
- 717 Service workload summary MONTHLY
- 731 -1 HIV testing services and prep report MONTHLY
- 731 -2 Elimination of mother to child to child transmission report MONTHLY
- 731-3 HIV & TB treatment summary MONTHLY
- 731 -5 Post exposure prophylaxis summary MONTHLY
- 733 -B Nutrition services summary MONTHLY
- 735 Ophthalmic services summary MONTHLY
- 743 Malaria commodities report MONTHLY
- 747-A Facility contraceptive consumption data report and request MONTHLY
- 708 Environmental services Monthly
- NA Reporting rate and timeliness report MONTHLY
- NA In patient mortality and morbidity report DAILY

County Monthly Financial Reports

- Daily shift analysis report
- Monthly shift analysis report
- NHIF report
- Bank reconciliation
- Cash management report
- Department reports (showing what each department has generated)
- Revenue stream report (NHIF, AAR and all other insurances)

Special reports

- UHC (Makueni Care) NHIF
- FIF

27. Other Key Modules/Functionalities

- ✓ Public Health Services
- ✓ Audit Trail Module
- ✓ System Administration Module
- ✓ Appointments and ticketing/HR Module
- ✓ Telemedicine
- ✓ Customer service

V. Stakeholders

The key stakeholders are the Department of Health Services in collaboration with the Department of ICT, Education and Internship. Other stakeholders include:

- a) The County Treasury
- b) Ministry of Health
- c) Ministry of Information Communication and Digital Economy
- d) Strategic partners supporting health programmes

VI. Project Timeline

This project is expected to be complete within 3 months after the contract sign-off. A detailed implementation plan will be developed jointly by the county and the service provider to include activities against each milestone.

VII. Budget

The project is fully funded by the county government through the departments of Health Services and ICT Education and Internship.

VIII. Vendor Selection

Vendor selection will be as directed by the Directorate of Supply Chain Management and in line with the Public Procurement and Asset Disposal Act, 2015 and the procurement regulations in force.

IX. User Training

User training shall target all user groups including operators, supervisors, management, executive and the ICT personnel (also to trained as trainer of trainees). Training shall be conducted in a simulation environment where training materials including manuals, system flow charts and use case diagrams shall be availed.

X. Data Migration

The service shall include data capture, clean-up, validation and verification.

XI. Quality Assurance and Testing

This shall include stress testing, user acceptance testing, security testing and other relevant system testing for quality assurance.

XII. System Change-Over

The service shall include implementation of a change management process and consider both pilot and modular change-overs.