STANDARD OPERATING PROCEDURE AND MEDICAL AUDIT PARAMETERS FOR THE UNIVERSITY OF ILORIN TEACHING HOSPITAL

SEPTEMBER 2022

OUR VISION

To transform University of llorin Teaching Hospital to the hub of quality and standard healthcare service delivery in Africa

OUR MISSION

This is to be attained through provision of quality and standard healthcare delivery that is second to none in Africa, and one of the global healthcare service institutions.

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FOREWORD

It is with great delight seeing the successful conclusion and eventual production of this compendium of Standard Operating Procedure and Medical Audit Parameters (SOP/MAP) for University of Ilorin Teaching Hospital (UITH).

Recasting the current administration's vision statement of transforming the institution to the hub of quality and standard healthcare service delivery in Africa, I fervently belief that this is one of the processes towards achieving this vision: by having a standard operating procedure that will be in compliance with global best practices.

On behalf of the Management and Board of the institution, I sincerely appreciate the tenacity of the committee members (and all the contributors/participants) towards making this dream a reality, while urging that every dictate of the compendium be digested, assimilated, strictly adhered to, and regularly applied, at every of our interactions in the discharge of our professional callings; and allow this to guide our practices, be it staff-staff, staff-patients, staff-patients'relatives, or surbordinates-superiors, relationships; towards the delivery of global standard of healthcare services to our teaming clienteles.

Prof. Yussuf, Abdullah Dasliva
Chief Medical Director.

PROCESS OF PRODUCING THE SOP AND MEDICAL AUDIT PARAMETERS

The current membership of the UITH Medical Audit Committee was constituted in November 2020 following the COVID-19 pandemic which ravaged all nations and challenged our health system. The COVID-19 pandemic was encumbered with poor outcomes and medical litigations against health care personnel. Though, the Medical Audit Committee was saddled with the responsibility of ensuring that standards are maintained there was pandemonium during this period as events have overtaken the standards of operation for all clinical related departments developed over 30 years ago under the first Chairman of the Medical Audit Committee Prof B. J. Bojuwoye[1]. Hence, there is a need to review them so that the expectations of patients, staff and management are in tandem. It will also assist the Medical Audit Committee to have the operational yardsticks, quality control and improvement guidelines.

We harvested updated standard operating procedures, turnaround times, and summary of tables on the guidelines for care of patients from clinical and non-clinical Departments and held a 3-day retreat to harmonise and integrate the submissions. Through consultation with clinical and non-clinical Departments and Units of the hospital we developed the guidelines and parameters for the audit of our services.

Medical Audit as a quality improvement process seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change. We believe that there cannot be a fair and quality medical audit without established standards.

Audit is not about witch-hunting or crucifixion but a means to ensure proper communication among members of an organization, improve efficiency, and quality output and entrench workplace discipline.

We conducted a pre-retreat survey to sample opinion of members of staff and patients on the expectations and experience in obtaining services in the hospital. Chairmen of Standing committees such a Training, Ethics, Therapeutics, Servicom and quality assurance were invited to make input into the document.

These submissions have been classified into 4 interrelated sub-groups as follows: policy universal, medical, and surgical to enable the integration of contents and eventual harmonization. Post retreat input was received from Departments and Units and all input have been incorporated.

Prof Lukman O. Abdur-Rahman

1. Bojuwoye BJ. **Medical Audit: A Nigerian Teaching Hospital's Preliminary Experience.** Nig. J Health & Biomedical Sciences Vol.1(1) 2002: 6-12

MEDICAL AUDIT COMMITTEE MEMBERS

Prof. L.O. Abdur-Rahman	Surgery Department	Chairman
Prof. A. Fadeyi	Microbiology Department	Member
Prof. P.M. Kolo	Medicine Department	Member
Prof. K.T. Adesina	Obst. & Gynae Department	Member
Dr. (Mrs.) O.O.Adesiyun	Paediatrics Department	Member
Dr. B.B. Olafimihan	Radiology Department	Member
Pharm. C.E. Nwakile	Pharmacy Department	Member
Mrs. O.O. Ajide	Nursing Services Department	Member
Mrs. I.A. Akoshile	Legal Unit	Member
Mr. P.G. Tsado	Servicom Unit	Member
Engr. O.C. Olowa	Works & Services	Member
Mrs. C.O. Larayetan	Health Inf. MGT	Member
Prof. F.G. Adepoju	MDCAN Chairman	Member
Dr. A.O. Dele	ARD Chairman	Member
Mr. O.A. Olutunde	JOHESU Chairman	Member
Mr. Yamman Kolo	HOD, CAT	Secretary
Mrs. T.O. Oluwanisola	CAO, CAT	Rec. Secretary
Mr. S.A. Zubair	CAO, CAT	Rec. Secretary

MEMBERS OF SOP AND AUDIT PARAMETERS RETREAT

Prof A. D. Yussuf	Chief Medical Director
Dr. L.O. Odeigah	Chairman, Medical Advisory Committee
Dr. M.O. Bojuwoye	Deputy, Chairman MAC (Clinical)
Dr. M.M.B. Uthman	Deputy, Chairman MAC (Training & Education)
Prof. L.O. Abdur-Rahman	Surgery Department & Chairman, Medical Audit Committee
Prof. A. Fadeyi	Microbiology Department
Prof. P.M. Kolo	Medicine Department
Prof. K.W. Wahab	Medicine Department
Prof. K.T. Adesina	Obst. & Gynae Department
Prof. P.O. Ajiboye	Behavioural Sciences & Chairman Ethical Review Committee
Prof. S.A. Olatoke	Surgery Department
Dr. (Mrs.) O.O. Adesiyun	Paediatrics Department
Dr. B.B. Olafimihan	Radiology Department
Pharm. C.E. Nwakile	Pharmacy Department
Pharm. R.K. Adeogun	Pharmacy Department
Mrs. O.O. Ajide	Nursing Services Department
Mr. K.S. Kolapo	Nursing Services Department
Mrs.I.A. Akoshile	Legal Unit
Mr. S.A. Lawal	Registrar, Schools Complex
Mr. P.G. Tsado	Servicom Unit
Engr. O.C. Olowa	Works & Services
Mrs. C.O. Larayetan	Health Inf. MGT
Prof. A.E. Fawibe	Rep. MDCAN
Dr. S.A. Owolabi	Rep. ARD
Mr. O.A. Olutunde	JOHESU Chairman
Mrs. J.D. Aremu	Quality Assurance
Engr. B. Adeyi	Biomedical, Works Department
Mrs. O.R. Abdulsalam	NHIS, Enforcement Officer
Mr. Yamman Kolo	HOD, CAT & Sec. Medical Audit Committee
Mrs. T.O. Oluwanisola	CAO, CAT
Mr. S.A. Zubair	CAO, CAT
Mr. S. B. Zubair	SAO, CAT

ACKNOWLEDGEMENT

We thank all Heads of Department and Units and their staff for their submissions, and the resource persons and Medical Audit committee members for your commitment.

We thank the management led by the Chief Medical Director, Prof Abdullah DaSliva Yussuf for the support given to this committee to produce this document.

We are grateful to Dr Sulaiman Olayide Agodirin, Prof. Olanrewaju Timothy Adedoyin, Prof. Biodun Sulyman Alabi, and Prof Peter Oladapo Adeoye who have provided literatures and some intellectual properties to add value to the University of Ilorin Teaching Hospital Standard Operating procedures and Medical Audit parameters.

ABREVIATIONS

SOP	-	Standard Operating Procedures
CMAC	-	Chairman Medical Advisory Committee
CMD	-	Chief Medical Director
MAC	-	Medical Advisory Committee
UITH	-	University of Ilorin Teaching Hospital
MDCAN	-	Medical and Dental Consultant Association of Nigeria
ARD	-	Association of Resident Doctors
JOHESU	-	Joint Health Sector Union
MGT	-	Management
HER	-	Electronic Medical Record
EPU	-	Emergency Paediatrics Unit
ENT	-	Ear, Nose and Throat
NICU	-	Neonatal Intensive Care Unit
ICU	-	Intensive Care Unit
A & E	-	Accident and Emergency
NHIS	-	National Health Issuance Scheme
CSF	-	Cerebrospinal Fluid
RPG	-	Rapid Plasma Glucose
I.V	-	Intravenous
I.V.F	-	Intravenous Fluid
DIC	-	Disseminated Intravascular Coagulopathy
FBC	-	Full Blood Count
E,U,CR	-	Electrolyte, Urea. Creatinine
DVT	-	Deep Venous Thrombosis
PE	-	Pulmonary Embolism
CTSU	-	Cardiothoracic Surgery Unit
SOAP	-	Subjective, Objective, Assessment, Plan
FPG	-	Fasting Plasma Glucose
FLP	-	Fasting Lipid Profile
OGTT	-	Oral Glucose Tolerance Test
HCCT	-	Clonidine Challenge Test
HBA1c	-	Heamoglobin A1c
LFT	-	Liver Function Test
MP	-	Malaria Parasite Test
PSA	-	Prostate Antigen Serum Assay
TED	-	Thrombo- Embolus Deterrent
GCS	-	Glasgow Coma Score
OFC	-	Occipitofrontal Circumference
ESR	-	Erythrocyte Sedimentation Rate
CRP	-	C-reactive Protein
USS	-	Ultrasound
CML	-	Chronic Myeloid Leukemia

HBV	-	Hepatitis B Virus
HCV	-	Hepatitis C Virus
MLS	-	Medical Laboratory Scientist
PCV	-	Packed Cell Volume
DBP	-	Diastolic Blood Pressure
DBP	-	Systolic Blood Pressure
GSM	-	Global System for Mobile Communication
ATLS	-	Advanced Trauma Life Support
AP	-	Anteroposterior
BP	-	Blood Pressure
PR	-	Pulse Rate
PSOP	-	Pediatric Surgery Outpatient
LPO	-	Local Purchase Order
O&G	-	Obstetrics and Gynecology
HOD	-	Head of Department
RFU	-	Revolving Fund Unit
SRV.	-	Store Received Voucher
NAFDAC	-	National Agency for Food and Drug Administration and Control
EDL	-	Essential Drug List
STG	-	Standard Treatment Guideline
ER	-	Emergency Room
PCIOL	-	Posterior Chamber Intraocular Lens
CDR	-	Cup Disc Ratio
GA	-	General Anaesthesia
NIBP	-	Non invasive Blood Pressure
RR	-	Respiratory Rate
I.M	-	Intramuscular
WBC	-	White Blood Cell Count
FFP	-	Fresh Frozen Plasma
PEF	-	Peak Expiratory Flow Rate
IOL	-	IntraOcular Lens
DPO	-	Day Post Operation

EXECUTIVE SUMMARY

The recommendations in this Standard Operating Procedures and Guidelines represent the abridged version of the submissions of relevant Departments and Units of the Hospital which have been harmonized for easy implementation. All professionals and practitioners at all levels are to take this document fully into account, alongside the individual needs, preferences and values of their patients or the people using the hospital service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with loved ones and caregivers.

The document should be applied in the context of individual, local and national preferences considering the finances, background of the clients, and considering their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

All professionals and practitioners as staff of UITH have a responsibility to promote an environmentally sustainable health care system.

This document has been prepared in 4 sections,

i. UITH Medical Audit Process (MAP)
ii. Standard Operating Procedures for various Department and Units
iii. Summary Tables of Turnaround times
iv. Guidelines for audit parameters

The document provides insight into the activities and procedures for clients and practitioners utilising services in the hospital.

I recommend it as reference guide for trainers and trainees in all specialties and at all cadres

Prof. Lukman O. Abdur-Rahman

Chairman, Medical Audit Committee

THE UNIVERSITY OF ILORIN TEACHING HOSPITAL MEDICAL AUDIT COMMITTEE

The Medical Audit Committee of the University of Ilorin Teaching Hospital is a standing committee of the hospital that is responsible for objectively monitoring and evaluating the clinical performance of all practitioners with the motive for identifying opportunities for improvement and providing mechanism through which action is taken to make and sustain those improvements

It is based on the belief that healthcare professionals are prompted to modify their practice when given performance feedback showing that their clinical practice is inconsistent with a desirable target or standards.

Standards are structures and processes needed to identify, assess and manage specified risks in relation to the subject area. It is a statement of best practice expressing performance or target.

SCOPE OF THE MEDICAL AUDIT COMMITTEE

The UITH Medical Audit Committee is to ensure

i. The quality of healthcare professional in terms of competence and skills,
ii. Availability and functionality of equipment and structure necessary for diagnosis and treatment
iii. Good outcome of care and quality of life of patients

COMPOSITION OF THE COMMITTEE

Medical audit committee comprises of hospital consultants, senior administrative staff and opinion leaders (representative of unions, medical school etc.) who are committed to Medical Audit. The committee is mandated to have regular meetings and submit confidential reports to the Chief Medical Director.

The membership of the unit shall preferably be the Heads of the 4 major Clinical Departments (Internal Medicine, Surgery, Paediatrics and Obstetrics and Gynaecology), a Head of the Department representing the Laboratories. HODs of Radiology, Nursing Services, Works, Health Information Management, Pharmacy, SERVICOM, Chairmen of Medical and Dental Consultants Association of Nigeria (MDCAN), Association of Resident Doctors (ARD) and Joint Health Sector Unions (JOHESU) and the Secretary is the Head of Admin Clinicals and Training (Head of Admin CAT).

A Representative of the HOD shall only be accepted to be a member of the Audit committee if he or she is a senior staff of not less than grade level 14 or CONMESS 6 and shall be a permanent representative of the department for the allowable tenure of members of the committee.

APPOINTMENT OF COMMITTEE MEMBERS

(a) Members of the committee are appointed by the Chief Medical Director following wide consultation in the selection process.

(b) The Chief Medical Director shall appoint a Chairman for the committee. This Chairman shall have requisite experience, competence and be transparently honest Consultant Clinician of not less than Chief Consultant Cadre or a Professor.

(c) In addition to members, the committee may co-opt officers to perform specific function**s.**

(d) All members must swear to Oath of Honesty, Maintenance of Confidentiality, and allegiance to the committee and UITH in all matters brought to the committee.

TENURE

a) The Chairman, and other members of the committee shall hold office for a period of 3 years and may be re-appointed for another period of 3 years but shall not be eligible for re-appointment thereafter.
b) Each appointment in the office referred in paragraph a- above shall be subject to ratification and confirmation by the Chief Medical Director.
c) The committee shall notify Management of the expiration of their tenure in office.

NB: (Secretary is affected by posting in Admin, so he may spend more or less than 3 years)

GOAL

The primary aim is to show areas where services are performing well, and where there are needs to improve outcomes for patients.

NEED FOR MEDICAL AUDIT

a) **Professional motives**- to enable Health care providers to identify their lacunae and deficiency and make necessary corrections
b) **Social motives**- to ensure safety of the public and protect them from care that is inappropriate, suboptimal and harmful
c) **Pragmatic motives**- to reduce patient's sufferings and avoid the possibility of denial to the patients of available services, or injury by excessive or inappropriate services.
d) To eliminate unnecessary medico-legal issues.

Purpose of Medical Audit

To plan future course of action

a) To obtain baseline information through evaluation of achievements for comparison purpose with a view to improve the services
b) Regulatory in nature
c) To ensure full and effective utilization of staff and facilities available.
d) Assess the effectiveness and efficiency of health programmes and services put into practice.

Pre-requisite for Medical Audit

Hospital operational statistics:

a. Hospital resources: Bed compliment, diagnostic and treatment facilities, staff available.
b. Hospital utilization Rates: Days of care, operations, deliveries, deaths, OPD investigations, laboratory investigations etc.
c. Admission Data: information, In patients i.e. hospital morbidity statistics, average length of stay (ALS), operation morbidity, outcome of operation etc
d. Standardised procedure of collection and tabulation of hospital statistics.
e. Accurate and complete medical record as Primary source of data.
f. Quantitative analysis of data by a well-trained Medical Record librarian.

g. Hospital planning and research unit/quality improvement unit to make recommendations for improvement from analysed data

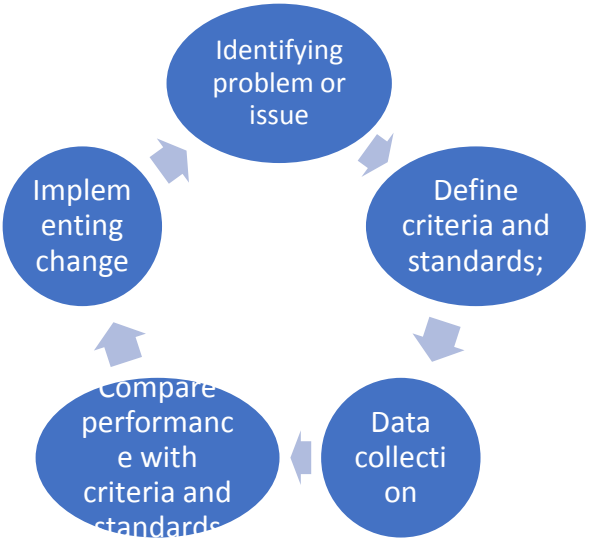

Figure 1: Cycle of Medical Audit

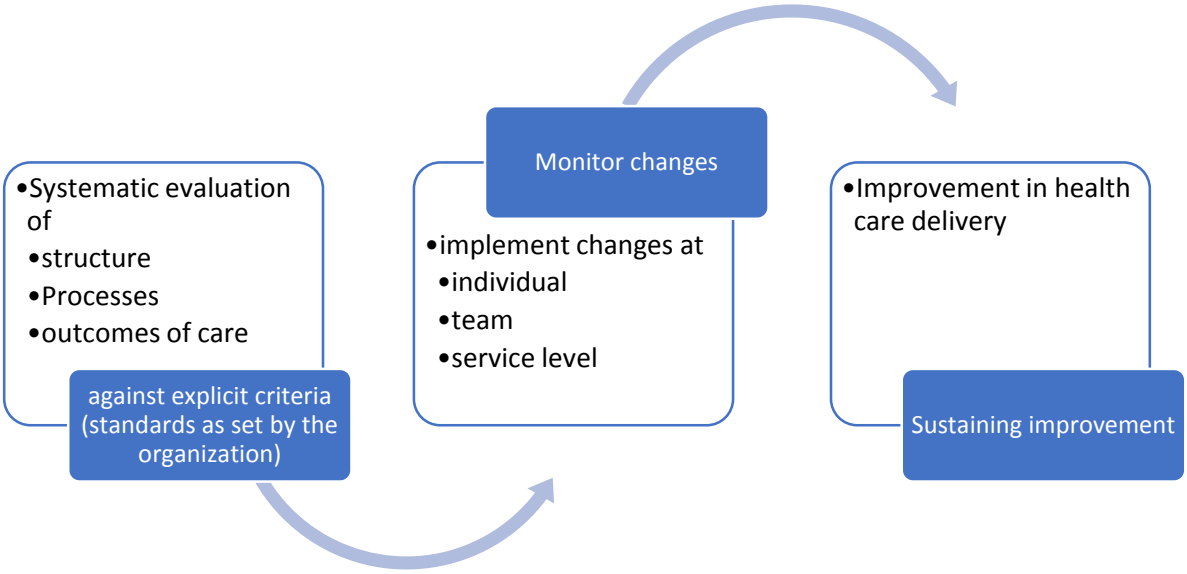

Figure 2: Summary of Medical Audit Process

UNIVERSITY OF ILORIN TEACHING HOSPITAL MEDICAL AUDIT POLICY

What is Policy?

Policy is a course or principle of action adopted or proposed by an organization or individual. It is a law, regulation, administrative action, incentive, or voluntary practice of governments and other institutions. Policy decisions are frequently reflected in resource allocations. Health can be influenced by policies and thus referred to as Healthcare policy. The three types of public policies are: regulatory, restrictive and facilitating.

In the consideration of provisions of this policy the following documents were referred to

1. Constitution of the Federal Republic of Nigeria (Promulgation) Act 2004 Cap. L23.
2. University Teaching Hospitals (Reconstitution of Boards, etc.) Act 2004 Cap. U15.
3. University of Ilorin Act (1979 No. 81; 1990 Cap.455 and 2004 Cap. U 7.
4. Medical and Dental Practitioners Act 2004 Cap. M8.
   *Medical and Dental Practitioners Disciplinary Tribunal Rules 2004 Cs. 121 of 2004.
   *Nigerian Medical Council (post-graduation examinations) Regulations (1970 L.W.73)
5. Pharmacists' Council of Nigeria Act (2004) Cap. P17
6. Medical Laboratory Science Council of Nigeria Act 2003 NOII LNF 2004 Cap114.
7. Nursing and Medical (Registration Act. 2004 Cap. N143).
8. National Health Insurance Scheme Act, 2004 Cap N421.
9. National Health Act 2014 No. 8.
10. Patients' Bill of Rights 2018.
11. Hippocratic oath 1948
12. Rules of Professional conduct for Medical and Dental Practitioners in Nigeria.
13. Code of Ethics of various profession.
14. University of Ilorin Teaching Hospital Second Strategic Plan (2019-2023)
15. National Health Insurance Authority Act 2022
16. UITH Human Research Ethics Committee SOP
17. UITH staff Training and Development Manual
18. UITH Therapeutic Care Committee terms of reference
19. Standing Order for the Operations of the Anti-corruption and Transparency Monitoring Committee

Medical Audit

Medical Audit is a quality improvement process that seeks to improve patients' care and outcomes through systematic review of care. It is an essential element at providing medical services to clients in the hospital. The key component of clinical audit is that performance is reviewed to ensure that what you should do is being done.

Medical Audit ensures uniformity of assessments, fairness and objectivity. It equally improves service delivery for both staff and client. It helps in reducing litigation in the hospital. It identifies and correct problem areas.

Medical Audit Protocols

Protocol is the official procedure or system of rules governing affairs of state or diplomatic occasions.

Audit Protocol is organized by rule and regulatory provision and addresses separately the elements of privacy, security and breach notification.

Steps for Medical Audit

1. Chose the focus of your audit.
2. Define measurement criteria.
3. Determine which record to review.
4. Develop record keeping.
5. Gather data.
6. Summarize your findings.
7. Make recommendations

Policy on Consultation by another Consultant

1. It is the responsibility of the consultant in charge of the patient to decide whether it is appropriate to seek consultation from another consultant.
2. It is the responsibility of the consultant to decide on the nature of consultation, viz whether to co-manage the patient or to completely transfer the care of the patient to the other consultants. In case of a transfer, there should be proper takeover of the patient by the new consultant before the consultant originally in charge can stop caring for the patient.
3. Consult letter must be promptly written and delivered to the nurse on duty who should immediately ensure the consult is delivered to appropriate team working with the consultant being consulted not later than one hour. The team member who received the consult must immediately inform the consultant. In case of emergency, the consultant originally in charge of the patient should get in touch with the consultant being invited while effort is being made to deliver the consult.
4. The hospital intercom and Close Users' Group (CUG) should be put to use in the hospital.
5. In case of emergency, the patient should be reviewed as soon as consultation letter is received. The decisions taken on the patient by the invited consultant should be properly documented in the patient's medical record after review and this should be communicated to the consultant originally in charge of the patient.

Policy on conducting medical ward rounds on admitted patients

1. Participant during ward round should include various cadre of doctors, nurses, and other paramedics as appropriate who are directly involved in the care of the patients. The medical ward round would be led by the consultant in charge of the patient or the senior registrar/registrar working with the consultant.
2. All members of the ward round must always maintain confidentiality of the information of the patient.
3. Patient's medical records including vital charts, drug, chart, and other relevant records must be made available during medical ward round by nurses who are in custody of these records.
4. Nurses in charge of the wards are to keep all patients' medical records and prevent unauthorized access to them.
5. All necessary equipment such as sphygmomanometer, pulse oximeter, etc. are to be in custody of nurses who must make them available for patient care during ward round.
6. All reports must be channelled towards supervisors to HODs for onward processing (Organogram).
7. Emergency packs with emergency drugs should be made available in the emergency units, wards, clinics, laboratories and radiology departments and the ambulances of the hospital.

8. Emergency crash cart must be accessible, adequately restocked and expiry date of drugs should be monitored from time to time.
9. Children of age seven (7) and above should assent to procedures in addition to the consent given by the parents.
10. The patients and the managing team should be together when obtaining consent and signing it.
11. If the patient does not understand any procedure, the procedure should be suspended and appropriate mechanism including language should be adopted in educating the patient.
12. Conduct of Ethical Committee approved research should be monitored by members of staff in the field.
13. The theatre manager should ensure optimal utilization of theatre spaces and other relevant facilities such as water and electricity supply.
14. Every equipment procured for the hospital should be in line with specifications required by the user's department.
15. The Finance and Accounts Department of the hospital are to continuously monitor the payment of approved charges for services rendered to patients

Policy on Constitution of Multidisciplinary Board

1. It is the responsibility of the consultant who admitted the patient to constitute a multidisciplinary board by inviting relevant specialists to participate in the patient care when necessary.
2. In situations where decision in 1 above has been taken by managing consultant, multidisciplinary board should be constituted within 48 hours of taking such decision.
3. The multidisciplinary board should be constituted in such a way that all relevant stakeholders are well represented.
4. Criteria for Multidisciplinary Board should include by not limited to:
    a. 3 or more teams involved in care of patients
    b. Conflicting management plan observed by primary managing team
    c. Planning of complex or collaborative surgical procedures

Policy on Training

The policy under review below are applicable to the staff of the hospital. Managers of outsourced service providers are responsible for the training of their employees and should submit their schedule of training plan in details to the Medical Audit Committee.

1. Orientation program shall be conducted for newly recruited staff within three (3) months of recruitment. For transferred staff it should be immediately or as soon as possible on assumption of duty
2. All members of staff shall undergo training in basic life support at least once in a year to be organized by management.
3. All members of staff OR UNIT OF DEPARTMENT shall undergo yearly (within 3year) skill upgrade training as appropriate to be sponsored by management.
4. All members of staff shall undergo yearly drills in disaster response.
5. Students should be supervised at all times when interacting with patients or conducting procedures.
6. All training received by staff shall be stepped down to other members of staff in the department for staff who do not partake in the training.
7. All Staff must present the certificates (or evidence) of attendance on their returns from training.

SERVICOM (Service Compact Charter)

SERVICOM is an acronym derived from the words SERVICE COMPACT. Compact is a formal agreement between two or more people. In this case SERVICOM is a Service Compact (Agreement) between the Federal Government including all its organs and the Nigerian people.

SERVICOM was established in March, 2004 with a focus on improving the quality of life of citizens for better development. The establishment of SERVICOM Office in different Institutions, Ministries and Agencies is a commitment to provide the public service in Nigeria with respect, courtesy, honesty and professionalism.

The Objectives of SERVICOM are:

1) Learn the principles, ideals and tenets of Service Delivery in Government Establishments.
2) Develop mechanism for collating all complaints, both internal and external.
3) Institute a framework for resolving and escalating all unresolved complaints, including obtaining feedbacks from the complainants.
4) Assist the Staff to understand the need for Service Excellence.
5) Assist staff to take personal responsibility for customer satisfaction.

SERVICOM is hinged on four main principles:

1) Affirmation of commitment to the service of the Nigerian nation
2) Conviction that Nigeria can only realize her full potential if citizens receive prompt and efficient services from the state
3) Consideration for the needs and rights of all Nigerians to enjoy social and economic advancement
4) Dedication to deliver services to which citizens are entitled, timely, fairly, honestly, effectively and transparently.

SERVICOM Unit at University of Ilorin Teaching Hospital is concerned with timely, fair, honest, effective and transparent delivery of services to the Patients, Students and Members of Staff of the Hospital.

For effective and efficient delivery on its mandate SERVICOM UITH operates thus:

1. **Facility:** SERVICOM post shall be made available at every major service point with Desk Officers to monitor activities at such points.
2. **Information:** The Hospital SERVICOM department shall display her email, website, suggestion boxes, dedicated number for easy communication and dissemination of information to staff and clients of the hospital.
3. **Process:** The process of operation of SERVICOM is described in the grievance address mechanism of the hospital (SERVICOM charter).
4. **Output:** Number of cases successfully resolved amicably over a particular period shall be evaluated to monitor impact.
5. **On service for consumers through the National Health Insurance Act:** - wherever the fee for service rendered is less than the hospital charges, the enrolee shall pay the balance.

POLICY ON MORBIDITY AND MORTALITY REVIEW

Goal

1. To provide peer reviews, monitoring and evaluation of the outcome of the patient care to ensure appropriate and timely provision of care.
2. It provides mechanism for reporting and communicating appropriate findings through channels that ultimately lead to the implementation of the recommendations.

Special Notes on MODE OF OPERATION OF Medical Audit Committee

1. All information used for audit purposes are considered confidential.
2. Reviews to be done in physically secured area.
3. Minutes of previous meeting will be distributed at the beginning and retrieved at the end of the meeting.
4. Release of peer review information shall be carried out within all applicable legal, accrediting and ethical requirements.

Cases for Review by Medical Audit Committee

1. Patients who are expected to survive but died.
2. Patients identified through performance or intervention review process.
3. Patients whose outcome generate legal dispute or coroner cases.

Review Morbidity / Mortality Flow Chart

A. Primary Review-

Units and Firms- This is a weekly review that shall be conducted by members of the unit or firm and report submitted to the head of department or supervising units. The members of the primary review include all persons (clinical and non-clinical) that have directly or remotely participated in the care of the patients. i.e., doctors, nurses, portals, health information management etc.

The Chairman of the primary review panel is **HEAD OF UNIT/FIRM and the MODERATOR is the CONSULTANT OF THE UNIT/FIRM.**

Departmental Audit review shall be conducted monthly and report shall be submitted to the office of the Chairman, Medical Advisory Committee for review by the Medical Audit Committee. The members of the departmental Audit Committee comprise **Doctors, Lab. Doctors, Nurses, Lab. Scientists, and as appropriate Porters, Technologists, HIM, Technicians, Secretaries/Typists, Phlebotomist, *Physiotherapy*, *Pharmacist, Social worker*s**

The Chairman of the departmental audit review committee is the HOD, while the moderator is the Chief Resident.

B. **Secondary Review- This shall be a bi- monthly review by the Medical Audit Committee or as shall be considered necessary.** The report of this review shall be sent to the Chief Medical Director through the Chairman, MAC. The members are the medical audit committee members and the HOD of concerned department for focal cases and relevant staff who participated in the case management. The Chairman and Moderator is the Chairman, Medical Audit Committee

C. **Tertiary Review** - This shall be a quarterly review by the MEDICAL ADVISORY COMMITTEE comprising the Chairman, MAC and his deputies, members of the MAC and invited staff and managing Consultant(s). The Chairman is the CMAC, and the moderator is CHAIRMAN, MEDICAL AUDIT COMMITTEE

D. **Annual Morbidity /Mortality Conference-** this shall be held annually in the month of December to give an overview of all the audited morbidity and mortality reports including the recommendations therefrom so that the status of performance of the hospital is reviewed. The members of the annual Audit Conference are CMAC, DCMACS, Members of MAC, heads of units, matrons in charge of wards.
The Chairman shall be the Chief Medical Director, and the Moderator is the Chairman Medical Audit Committee.

Components of the Review Process

Primary Reviews

1. **Sources of Data for Primary Review:**
   a) Bed etiquettes
   b) Case notes
   c) Staff reports
   d) Observation of the care process
2. **Reasons for Primary Review**
   a) To review for performance improvement issues
   b) To review for appropriate care use
   c) Evaluation of the process/ outcome of pre hospital care
   d) Accuracy and timeliness of the diagnosis
   e) Quality and timely provision of hospital care
   f) Outcome of utilizing audit criteria processes
   g) Identification of patients that need further peer review
   h) Determine if death was preventable or not.
3. **Flow of Information**
   The collated review based on audit criteria will be submitted to the HOD of the managing department who will in turn forward it monthly to the medical audit committee.
4. **Process**
   Presentation and discussion of death cases and selected morbid cases.

Secondary Review

1. SOURCES OF DATA FOR REVIEW
   a) Reviews received from HODs
   b) Case notes
   c) Staff reports
   d) Observation
   e) Bed etiquettes
2. REASONS
   a) To identify cases of death that are related to:
      - System ineffectiveness
      - Disease related
      - Care related
      - Preventable/non preventable death
   b) Develop guideline for case management
   c) Identify cases for tertiary review

3. FLOW OF INFORMATION
   The collated reviews will be submitted to the CMAC of the hospital.
4. PROCESS
   ED/Resuscitation
   Ward round
   Use of charts, case notes, staff reports etc.
   All based on audit criteria.

Tertiary Review

a) **Sources of Data for Review**

Reviews from the medical audit committee

b) **Reasons**

1) To review the outcome of care causing audit criteria to determine whether death was preventable by care or interventions.

2) To secure approvals for implementation of the recommendations by the audit committee.

3) To determine the quality of care for any patient that died.

c) Flow of Information

The collated reviews, recommendations, and implement plan will be presented at the annual morbidity, mortality conference.

d) Process

Review of the reports of the Medical Audit Committee

e) MORBIDITY AND MORTALITY ANNUAL CONFERENCE

Sources of information- Review from the Tertiary Audit (CMAC+ MEDICAL AUDIT)

Reason

To relay or affirm the implementation of the recommendations from the tertiary level.

To review system related problem is very urgent

Flow of Information

Information received should be used for hospital policy.

STANDARD OPERATING PROCEDURE FOR THE UNIVERSAL SERVICE DEPARTMENTS AND UNITS

These units and departments provide services that cut across most clinical departments of the hospital, and they comprise the department of:

1. Health Information and Management
2. Nursing services
3. Catering services
4. Medical and Social works
5. Works
6. Laundry
7. Dietetics and Nutrition
8. Laboratories-
    a) Microbiology and Parasitology,
    b) Chemical pathology and Immunology,
    c) Haematology and blood transfusion,
    d) Morbid anatomy and pathology
9. National Health Insurance Agency and staff clinic

HEALTH INFORMATION AND MANAGEMENT DEPARTMENT

Standard of Carrying Out Common Task in the Department

The Health Information and Management Department shall be responsible for the following:

1. Maintenance of Patient Master Name Index. This makes patients that lost their Personal Reference Hand Card to have access their Records easily.
2. Registration of all new patients by the documentation and registration of their demographic data within the shortest time to see their physicians.
3. Prompt attention to the follow-up patients at the Appointment office to avoid overcrowding.
4. Maintenance of Clinic lists of patients coming for an appointment on daily basis. In preparation for the clinic appointment all old patients shall have their case files sorted on the eve of the clinic date to avoid delays.
5. Effective quantitative and qualitative analysis of patient Records by collation of Statistical data on all clinics and wards for planning, policy making, and administration.
6. Maintenance of incoming and outgoing Registers that listing the Patient Records from the various wards and to various specialties, to monitor their movement.
7. The Electronic Health Record (EHR) facility shall be utilized where and when it is available in the departments and units of the hospital. This EHR should integrate the Health Information Management, accounts, clinical service units including theatres, laboratory & radiology, NHIA clinics and outpatients.
8. The attending physicians shall ensure accurate documentation in the Discharge Summary Sheet is done to enhance quality Coding.
9. There shall be Records Clerk at NHIS and all outpatient to move files to specialty clinics to avoid the situation in which Staff on duty leave his or her duty post.

COMMON TASK OR ACTIVITIES	COMMON CASES	TURN AROUND TIME
Appointment Unit	-Preclinical preparation - Clinical Preparation - Booking of appointment for patient	- A day before the Clinic Day - 1 minute. All the booked patient's folders make available at once to the Clinic - 2 minutes per patient
Library Unit	- Filing of patient folders - Retrieval of patient folders - Monitoring the movement of patients' folders in and out of Records Library - Maintaining the list of the borrowers of patient's folders	- As at when due - 2 minutes per folder - Every time - Anytime the need arises
Coding and Indexing Unit	Assigning of the International Classification of Disease code number to the final diagnosis written by the attending Consultant in the patient folder	The time taken to check through the ICD depends on how faithful the attending physician comply to the documentation of patient data during the course of treatment. If the documented patient data accurately completed it takes 5 minutes per folder
NHIS	- Compilation of daily statistics - Documentation and Registration of new patients - Dispatch of patient folders to their various referral centre - Retrieval of patient folders to the NHIS Clinic - Filing of the retrieved folders	- Daily and Monthly - 4 minutes per patient - Within 2 minutes, as they are coming. - 2 minutes - Daily, after the clinic used.

Admission and Discharges	- Collection of patient folders from the ward - Dispatch of patient folders to the appropriate unit - Logical arrangement of contents in the folder - Updating of Admission and Discharged Register	- Daily - Daily - 5 to 10 minutes - Daily
Data Bank	- Compilation of statistics - Release of Statistical data for planning, decision, and action.	- Daily, Weekly, and Monthly. - As at when needed
Family Medicine **Antenatal** **E.N.T** **A&E** **E.P.U Unit** **Eye Unit** **NICU**	- Maintenance of IN and Out Registers - Compilation of daily statistics - Documentation and Registration of new patients - Retrieval of old patient's folders - Filing of the retrieved folders	- Daily and Monthly - Daily and Monthly - 4 minutes per patient - 2 minutes - Daily, after the clinic used.

DEPARTMENT OF NURSING SERVICES

Standard Operating Procedure for Patients' Care

Introduction

The SOP on patients' care focuses on the frameworks for the delivery of Nursing care to individual clients/patients for the purpose of meeting the needs of patient, reduce the health cost, improving and maintaining health through the utilization of limited human and physical resources.

This SOP includes: - Case management, care management, team Nursing and functional method.

Case management: - this involves strategy in managing health related conditions in group i.e., having different wards for different conditions. Case management comprises multi-disciplinary team that assume collaborative responsibility for planning, assessing needs, coordinating, implementing, and evaluating care for group of clients from admission to discharge or transfer. The method allows for the use of Nursing personnel of different specialty, educational preparation and skills to provide quality care at affordable cost.

Care management: - Entails health care delivery system with the aim of rendering quality care that will promote and improve patients' outcomes. Nurses collaborate with other health care providers to promote and maintain health as well as rendering preventive services that will guarantee patients satisfaction.

Nurses Responsibilities Include

i. Admitting patient
ii. Assessing patient
iii. Collaborating with other health care professionals
iv. Providing client-centered care by maintaining ratio of one Nurse to four (4) patients i.e., A Nurse is responsible for comprehensive care of four patients during eight to (8) -12 hours shift
v. Assessing the needs of clients and making Nursing plans to formulate Nursing diagnoses of care
vi. Functional care involves: - Bed making, observation of vital signs, wound dressing, skin assessment, serving of medication, bed bath, oral care and physical care.

Types of services rendered

The department in collaboration with other members of the healthcare team provides both acute care and chronic care. Acute care may be critical or transitory. While chronic care involves long-term diseases and respective follow-ups.

Model of care:

We integrate total nursing care with evidence-based nursing care to ensure quality and safety.

Total nursing care:

This entails the holistic care of patients with reverence for the total therapeutic and physiological needs of such patient(s). It includes the entire nutritional and elimination needs of the patient(s).

Total nursing care includes the following:

I. Accurate Assessment of physical and psychological needs. This is done by inspection, palpation, percussion, and auscultation.
II. Physical assessment.

III. Bed bath and assisted bathroom bath
IV. Oral care
V. Bed making
VI. Treatment of pressure areas
VII. Wound care (inspection and dressing)
VIII. Health teaching and education e.g., Nutritional needs
IX. Feeding
X. Passing of NGT (insertion)
XI. Intake and output maintenance
XII. Regulation of IV fluid flow rate.
XIII. Elimination needs
    a. Perineal care
    b. Catheterization where necessary
    c. Serving of bedpan
    d. Serving of urinal.
XIV. Oxygen administration where necessary
XV. Review of laboratory results
XVI. Vital signs monitoring
XVII. Serving of medication
XVIII. Secure IV access using the aseptic technique.

EVIDENCED-BASED NURSING CARE

This involves strict adherence to the therapeutic needs of the client. Nursing procedures are instituted for the patient, focusing on identified therapeutic needs. Both models are guided by the use of Nursing process frameworks and standardized nursing languages, with minimal inclusion of significant others in the latter. The entire framework of nursing process as utilized in the hospital is summarized in the Nursing Process Booklet.

SERVICE POINTS

Access points

These are units/wards where patients could gain access to healthcare delivery services within our facility. All fresh or old patients of the hospital could access this facility through:

1. **The Medical and Surgical Accident and Emergency Wards:** the two units admit all forms of adult casualties with either medical or surgical conditions. Children who sustain physical injuries are also referred to the adult surgical accident and emergency ward
2. **Adults Intensive Care Unit (ICU):** this is the critical care section of the hospital where adult patients with life threatening conditions that require various forms of critical care. Other two critical care sections are the Cardiothoracic Special Unit, and the Trauma Care Centre.
3. **Emergency Paediatric Unit (EPU);** is the healthcare access point for all paediatric cases of medical and surgical emergencies with an exemption the neonates. Physically injured children are referred to the adult surgical accident and emergency unit for proper attention.
4. **Neonatal Intensive Care Units (NICU):** there are two of these units, one for inborn and the other for outborn. All life-threatening conditions of neonates are received and cared for at the NICU. Those whose mother were booked and were birthed in this hospital are received and cared for at the inborn section, while unbooked cases are attended to at the out-born section.

5. **Obstetrics and Gynaecology Emergency Unit;** as the name implies, this unit takes care of the emergency healthcare needs of expectant mothers and those of utmost urgency about female reproductive wellbeing.
6. **Antenatal Clinic:** This is the specialty clinic in charge of the expectant mothers from confirmation of pregnancy through a safe delivery. Expectant mothers are committed to preventive and curative care of our revered gynaecologists and midwives during this period. Care is rendered from diagnosis through childbirth. Other obstetric and gynaecological health issues are attended in this clinic as well.
7. **Family Planning Clinic**: This is the clinic in charge of the family planning services for childbearing women and men, as required respectively. The clinic offers all scientific evidence-based family planning procedures.
8. **General Outpatient Department (GOPD)** is known as a family medicine unit/department. It accommodates patients with general common complaints, convalescent patients, or peculiar wellness clinics. It plays a major part in both preventive and curative care of our patients. Follow-up care is done and referral note submission and acceptance are ensured through the unit.
9. **Multi-Specialty Clinic** is a tertiary facility and referral centre. Our hospital either accepts a direct referral to a specialist of interest from outside the hospital or within. Most referrals are sometimes initially directed to the GOPD for triaging and to maintain a proper record of our clients and ensure clear patient record flow from inception. The clinics are however grouped into surgical and medical specialties with reverence for both adult and paediatric needs and specialties.

BASIC SERVICES

Our services are broadly categorized as health promotion, disease prevention, and therapeutic/curative services.

The diagnostic services involve the use of nursing process tools for comprehensive assessment and planning of appropriate care. The therapeutic services involve actual intervention and rendering of nursing care by nurses.

The Nursing process is a holistic framework of care with the use of standardized nursing languages and procedures.

Standard Operation Protocols for Nursing Services

This section presents the specific standard of nursing services rendered in this hospital as obtainable in each of our sections. It is however to be presented in terms of adult inpatient and special units of the hospital. It contains the expectations of the nurses towards the quality and safe care of the patient. All medical and surgical wards share basic standard operation protocols with minimal inter-ward differences based on the needs of our patients.

i. Nurses mainly interact with clients or patients based on their due registration at the health records department and the initial assessment of the attending physician or surgeons.
ii. Nurses are also expected in this facility to provide immediate nursing care as soon as possible on patients' arrival, all cases requiring resuscitation must be acted upon with the confines of the competences of such attending nurses.
iii. All cases of admission are accepted to our wards on basis of available documentation of adequate registration.
iv. All rounds conducted must be duly prepared for and collaboratively conducted.

Surgical Accidents & Emergency Ward

1. Admission procedure:
    i. Triage according to patients' condition

ii. Utilize the nursing process framework
iii. Admission into the emergency ward
iv. Physical examination of the patient
v. Resuscitation where necessary
vi. securing IV line using the aseptic technique where necessary
vii. Maintaining fluid and electrolytes balance
viii. Catheterization where necessary
ix. Effective communication with doctors, patients, and the stakeholders
x. Nursing documentation
xi. Vital signs measurement- includes temperature, pulse, respiration, pain assessment, and blood pressure to serve as a baseline for treatment.
xii. -Notifying casualty officer on call

2. Physical care
   a. Bed bath
   b. Assisted bed bath
   c. Treatment of pressure areas
3. Dressing
   a. Inspection of wound
   b. Wound dressing with aseptic technique
4. Medication
   a. Serving oral medications with a spoon and saucer.
   b. Giving of injection with an aseptic technique

Medical Accident & Emergency Ward

1. Triaging.
2. Review of referral letter (if applicable).
3. Direct relatives to open or retrieve the folder.
4. Taking and monitoring vital signs medical officers should be notified through the right channel during assessment and resuscitation
5. Oxygen administration PRN
6. Serving of prescribed medications.
7. Rendering of autonomous nursing care such as bed bath, oral care, enema, etc.

TRAUMA CARE CENTRE (TCC)

1. Assessing patient's health status using the nursing process.
2. Assessing and monitoring the level of consciousness using the Glasgow coma scale.
3. Suctioning of the patient PRN (if required).
4. Oxygen administration.
5. Close monitoring and vital signs and documentation.
6. Application of monitor accessories on all patients e.g. ECG monitor lead, BP cuff, oxygen saturation probe, etc.
7. Regular turning of patients and treatment of pressure areas.
8. Ward round participation with the medical team.
9. Ensuring aseptic techniques for wound dressing and all sterile and invasive procedures.
10. Close monitoring of all patients on admission.

OBSTETRICS AND GYNAECOLOGY EMERGENCY (O&G EMERGENCY)

1. Prompt and adequate care is given to all obstetric and gynaecological cases with active resuscitation on admission.

2. Brief physical assessment with medical history taken on arrival and baseline vital signs for further evaluation.
3. All patients should be triaged.
4. Pre- and post-operative care for all emergency surgical cases.
5. All patients must obtain/retrieve folders for proper documentation.
6. Visiting hours should be strictly adhered to.

NEONATAL INTENSIVE CARE UNIT (NICU) / EMERGENCY PAEDIATRIC UNIT (EPU)

1) Admission Procedure:
2) Prompt and adequate care of babies
3) Daily weighing of babies
4) Make babies cots
5) Bathing
6) Assessment
   i) Check colour for neonatal jaundice, cyanose
   ii) Check eye for discharges
   iii) Check skin for rashes
   iv) Urine for amount and colour
   v) Check stool for colour and consistency
   vi) keep babies warmth
   vii) observe for convulsion
7) Fixing intravenous infusion
8) Cord Care –Clean cord and apply Chlorhexidine gel
9) Gastric Lavage with warm saline through Nasogastric tube before feeding commences
10) Two hourly feeding through–

a) Direct breast feeding
b) Nasogastric Tube
c) Cup and Spoon

11) Vital signs monitoring: hourly checking of Vital signs precedes documentation
12) Medication
13) Dressing using an aseptic technique
14) Ward round with the doctors
15) Health education for mothers

NB: Emergency paediatric cases of neonates are handled in the NICU while from the infantile stage (above 28 days/ 1 month) they are cared for at the EPU of the hospital.

INTENSIVE CARE UNIT (ICU): this is the adults' critical care unit, and the following are the care expectations from nurses in the unit:

1. Assessment: Level of consciousness (Glasgow coma scale) on a daily basis or as prescribed by managing physician
2. Airway management including the tubes by suctioning with different suction catheters
3. Oxygen administration through oxygen prong, face mask, endotracheal tube or tracheostomy tube and SpO_2 monitoring
4. Cardiovascular monitoring includes ECG, Vital signs i.e. Temperature, pulse rate, respiration, blood pressure, and SpO_2 recording hourly
5. Physical Care includes- daily bed bath, daily oral care, daily treatment of pressure areas (two hourly turning of patient, hourly emptying and recording of urine)

6. Fluid Replacement. Rehydration is maintained with prescribed IVFs and proper recording at a given time. Strict maintenance of intake and output and adequate recording.
7. Nutrition: Feeding with fortified Pap via NGT at prescribed amount and recorded at due intervals
8. Aseptic dressing of wounds using dressing tray from CSSD.

ADULT IN-PATIENT SERVICES

There are diverse multispecialty in-patient services within this facility. This document has however broadly classified them into surgical and medical wards. Nurses in all surgical wards do care for the patients who are either being prepared for, and have successfully undergone surgical procedures, including orthopaedic cases, while those working in medical wards treat patients with medical conditions. All Medical multi-specialty patients are admitted into medical wards with the exception of few subspecialties. Surgical subspecialties' patients are also admitted as in-patients in surgical wards. The sub-specialties of special considerations are Cardiac Center, Stroke Care Unit, Behavioural Science wards, Pain and Palliative care unit, Day case surgery ward and Theater Suites.

The followings are however the basic general guidelines for nurses in the in-patient wards;

i. Patients are received from the clinics in the company of a porter and at least a relation to take care of some patients' needs.
ii. Any transfer in from outside or within other sections of the hospital are received in the company of their relations, a porter, and a nurse (at least an Intern nurse must be present on handing over)
iii. There must be proof of adequate registration and due deposit of money in the patient's folder. On no occasion would any patient be admitted without proper documentations.
iv. Due wards orientation should be given to patients and relations on admission for anticipated cooperation from patients and all stake holders.
v. Patients' valuables are to be kept safe with them or handed to their chosen relation for safe keeping.
vi. All medications are kept in the medicine cupboard to prevent medication error

The Medical Wards:

The four wards under the above section are 2 male and female wards with general basic requirements as described in the previous section. The following are however the anticipated care for patients on the wards:

i. Comprehensive assessment of patients nursing care needs and drawing of corresponding plans of care.
ii. Administration of medication
iii. Hygiene, including oral care
iv. Nutritional and ambulatory care
v. System-Based care as related to the peculiar conditions of the patients, e.g. endocrinology, GIT, etc. patients.
vi. Care of cold cases of unconsciousness,
vii. Establishment and maintenance of patent IV line
viii. Administration of IV drugs
ix. Monitoring of patients' hydration status through fluid input and output balancing.

Surgical Wards

In addition to the protocols of care in the medical wards, nurses in the surgical wards must comply with the principles of surgical nursing care. Hence, the following is the outline of the perioperative care for the inpatients.

Perioperative / Theatre care (for all surgical units)

i. Assessment with the use of the nursing process
ii. Provision of emotional support by allowing the patient to verbalize his/her feelings and concerns related to the intended surgery.
iii. Review pre-operative investigation results e.g.: scans, PCV, E, U, Cr, Urinalysis, etc.
iv. Patient and family education on the importance of surgical intervention and the need for cooperation.
v. Obtaining informed consent.
vi. Preoperative care includes shaving and marking the checklist
vii. Bowel and bladder care.
viii. Vital signs monitoring.
ix. Maintaining nil per oral.
x. Care of patient's valuables.
xi. Postoperative care i.e., receiving a patient from theatre and follow-up assessment and treatment.

Infection prevention and control

To mitigate against any infection risks in the hospital, UITH nurses practice and maintain the following standard infection control precautions measures according to the centre for disease control (CDC)

1. Hand hygiene
2. Use of personal protective equipment (PPE)
3. Safe Management and Care of Environment
4. Safe management of Equipment
5. Safe Management of Linen
6. Respiratory and Cough hygiene
7. Safe management of blood and fluids
8. Safe disposal of waste
9. Occupational Safety

Specialty protocols

In addition to the basic general medical and surgical SOPs described above, the followings are the specialty sensitive protocols of care:

1. **Delivery Suite**: this suite takes comprehensive care of the woman in labour and all other necessary healthcare services requirements peculiar to the needs of the expectant mother. The Midwives are therefore expected to ensure, among others, that:
    a. Every woman in labour is duly assessed, respectfully addressed, and checked in for admission at the delivery suite, without any form of bias.
    b. A preliminary assessment of the expectant mothers, including vital signs and vaginal examination is conducted as the patient presents.
    c. Inform the doctor on call of the arrival of cases as they come.
    d. Note the red flags of complications and alert the resident doctor on duty or the consultant gynaecologists of imminent dangers.
    e. Care involvement and expectations are duly explained to patients' relations and significant others, especially in terms of their financial, and moral support for the success of healthcare delivery.

f. Patients are duly monitored with the nursing process framework and commenced on pathography as necessary.
g. Normal Spontaneous Vaginal deliveries are promptly attended to with professional skills within the competencies of the primary midwives, and/or under due supervision of senior midwives respectively.
h. Expectant mothers with non-complicated deliveries are duly cared for all through the intra- and post-partum phases. Midwives are therefore expected to duly complete their care of every woman in labour that may require episiotomy repair.

2. **Eye Complex:** the ophthalmology unit of nursing services is housed within the eye complex. Ophthalmic nurses are saddled with the following responsibilities in addition to their basic general nursing skills:
    a. Eye specific health promotion education at the clinic section and during follow-up care
    b. Perioperative care of both elective and emergency eye surgical procedures, including eye dilatation.
    c. Assessment of vital signs and eye-specific examinations including but not limited to visual acuity
    d. Treatment of eye defects with prescribed medication, eye dressing, and/or eye Swabbing
    e. Epilation of eyelashes
3. **Otorhinolaryngology Unit:** also known as the Ear, Nose, and Throat unit, is another peculiar specialty in the hospital. Nurses here are expected to contribute their caring quota through:
    a. Basic general nursing and health assessment
    b. Perioperative care with close monitoring of patients throughout the phases of surgery.
    c. Holistic care of patients on tracheostomy
    d. Treatment of patients' condition with their respective peculiarities and prescribed treatment regimen.
    e. Conduct therapeutic procedures like aural syringing, wound dressing, and removal of foreign bodies.
4. **Renal care centre:** This is another specialty in the Hospital that offers care related to kidney diseases. The nurses in this unit are expected to offer the following treatment:

a) Admission of patients with kidney-related diseases
b) Identifying and rendering patient individualized care
c) Emotional support to patient and relative
d) Assisting and caring for the patients during renal biopsy and cannulation
e) Haemodialysis services with an aseptic technique
f) Rehydration is maintained with a prescribed intravenous infusion with proper recording at a given time
g) Maintaining strict intake and output recording
h) Assessment of Vital signs and pain management
i) Administration of Oxygen where necessary
j) Counseling patients for renal replacement therapy
k) Health teaching about preventive Nephrology as well as health promotion to maintain optimal health status.

5. **Very Important Personnel (VIP) Ward:** The ward is meant exclusively for distinguished individuals with special privileges. However, the treatment offered

should be the same as any other patient but should follow standards. Therefore, the nurses here are expected to provide the following treatment:

a) Admission to a therapeutic environment
b) Identifying and rendering patient individualized care
c) Physical care entails basic general nursing care
d) Oxygen administration
e) Drug administration according to prescription
f) Pre- and post-operative care with close monitoring
g) Dressing of wound with aseptic technique

6. **The Stroke Care Unit**: Responsible for care of patient with acute and chronic phases of cerebrovascular accidents. The unit utilizes the protocols of the medical wards and include dependent care services with the adoption of the holistic care model as earlier described.
7. **The Cardiac Centre**: This the centre where critical heart conditions are care for. While cases of heart congestion and hypertension are still admitted on the medical wards. Patients requiring pacemaker care and care for other critical heart disease are admitted and cared for at the cardiac centre. It also suffices to state that the centre also accommodates the cardiothoracic specialty clinic.
8. **Behavioural Science**: this unit deals with mental health and psychiatric care as applicable to the presenting patients. In addition to the general medical and surgical requirement. There are procedures peculiar to the department. A mention of the contribution of nurses in decision making for allowing patient to be discharge or go on parole is noteworthy.
9. **Theatre**: The main theatre of the hospital has 8 suites and there are Satellite theatre units in A&E, Eye complex, EPU, cardiac centre, day case surgery centre and delivery suites respectively. A wide range of surgeries is held in these facilities and the appropriate suite is utilized based on the type and urgency of the surgery. The perioperative care has been discussed above, but it is worth mentioning that nurses must ensure that they confirm the consent of procedure already obtained and that the patient or significant others signed the necessary forms after due explanation and understanding of the planned procedures.

THE CENTRAL STERILE SUPPLIES DEPARTMENT (CSSD)

The above department is responsible for the supply and maintenance of all equipment used in the hospital. This service unit receives, stores, processes, controls, and distributes professional supplies and equipment (both sterile and clean) to and from all the department of the hospital for quality and safe care of the patients. The unit has facilities to receive, clean, pack, disinfect, sterilize, store and distribute instrument and equipment. Every activity of the CSSD is supervised by perioperative nurses in order to ensure complete asepsis across the hospital.

Scope: the unit covers all the departments and units within the hospital and outside the hospital as need be.

Objectives and functions of CSSD:

1. To provide sterile equipment and consumables.
2. To contribute to the reduction in the incidence and spread of nosocomial (hospital acquired) infection.
3. To maintain record of effectiveness of cleaning, disinfection and sterilization process.
4. To monitor and enforce controls necessary to prevent cross infection.
5. To maintain an inventory supply of instruments and equipment.
6. To provide safe and therapeutic environment for patients and staffs.

Quality Assurance in CSSD

- Done via the use of service performance indicators to ascertain the sterility of the instrument and equipment (medical indicator).
- Monitoring: recording time equipment and supply turn over times, ensuring right temperature, humidity, and pressure during the sterilization cycle.
- Ensuring the right concentration and dilution ratio of sterilization lotions and chemicals with the adequate parameters of sterilization cycle.

Procedural Steps

The unit has five major work areas

i. Decontamination area
ii. Assembly and Processing area
iii. Sterilizing area
iv. Sterile storage area
v. Distribution area

Steps in Decontamination Process:

Transportation: used supplies and equipment will be collected and taken to the decontamination area, in a way that the personal or any area within the unit will not be contaminated.

Use of Protective Wears: personnel working in the decontamination area ear personal protective equipment (PPE) like gloves, apron, face mask, goggle etc. to prevent self-contamination.

Sorting: Done by removing used and/or contaminated disposable supplies, sharps and discarding single use items that may be returned to the CSSD.

Soaking: all used reusable trays and instruments are soaked in big bowl of disinfectant lotion to remove the debris and blood-stained instrument.

Washing: Soaked instrument and items are thoroughly washed with brush, crushed and dry with towels.

Inspection: this is done after drying all the instruments for completeness and appropriate packaging for autoclaving.

Storage: Sterilized items and equipment are kept and shelved ready for use in respective dry cabinet for 14 – 21 days before recycling if unused. Sterilized items are not used after epiration date or when found to be wet or torn.

Nurses Role in the CSSD

i. Supervision of other categories of staff in the CSSD.
ii. Proper handling of items brought in from collection to decontamination room.
iii. Proper inspection of all instruments for completeness.
iv. Proper monitoring of washing and arrangement of instruments.
v. Proper disposal of all hazardous/infected debris.
vi. Proper labelling of all passed /assemble pack/boxes for carry identification.
vii. Proper storage after autoclaving to prevent Re-contamination.
viii. Make sure all autoclaved packs are given to appropriate units and duly monitored with the use of movement books and proper recording.

Steps of Distribution of Materials to the Ward from the CSSD Unit

i. About 10-12 rolls of unsterile gauze are packed for sterilization per day.
ii. 5-6 roll of unsterile gauze are rolled, cut and packed to make 18 sterile abdominal pack per day.
iii. 4 roll of cotton wool are packed to make 30 packed of sterile gauze per day.

iv. The unit auditor supplies about 100-150 pieces of sterile theater gauze and 20-50 packed of sterile abdominal pack to O & G theater.
    a. About 40-50 sterile dressing trays are often distributed to various wards including GOPD trays, about 30-50 per day from GOPD clinic.
    b. Other sterile trays are supplied to wards and outside the hospital based on request with evidence of payment in all situations.

Discharge, follow up, the Last office:

Nurses care for every individual from the cradle to the grave, within our health promotion and disease prevention roles. Nurses thus follow-up patients' care from health, through illness, back to health. However, we still care for our patients even in death and the last office procedure is done to care for the corpse and move it to the morgue with appropriate cultural consideration for the care of the deceased.

S/N	TEMPLATE ON PATIENT'S CARE	PURPOSE	AUDIT PARAMETERS
1	NURSING PROCESS BOOKLET	To systematically solve patient's problem(s) from admission to discharge through proper assessment, diagnosis, planning, implementation and evaluation.	There shall be training and re-training of nurses on the use of the nursing process booklets and updates therefrom. There shall be adequate proportion of nurses to patients obtaining service in the hospital
2	WOUND ASSESSMENT FORM	To evaluate the wound, guide on the management, monitor progress and prevent complications	All nurses shall have training on wound assessment and care There shall be provision of dressing materials for innovative wound care on the wards
3	PHYSICAL MEASUREMENT (VITAL SIGNS FLOW SHEET)	To track patient's health progress over time or to detect any abnormal findings	There shall be regular supply of the vital signs flow sheets, measuring tools e.g., thermometer B/P apparatus, pulse oximeter, weighing scale
4	SKIN ASSESSMENT SHEET	It helps to predict the development of pressure sores/ulcers, know the patients at risk and also to effect precautionary measures	There shall be adequate supply of bed sheets (linens), good Lightning, lifting gadgets and appropriate beds and beddings for the condition of patient on admission
5	SURGICAL SAFETY CHECKLIST SHEET	To reduce errors and promote safety To minimize morbidity & mortality	The surgical safety checklist shall be utilized for all surgical procedure
6	CONSENT FORMS	To provide adequate information to clients/patients on their ailments and options of care. To engage the clients/patients/guardians and involve them in the care being provided	There shall be informed and understood consent for all procedures on clients in our hospital.

Standard Operating Procedure for Catering Department

A. Feeding of patients on admission

1. The inpatient unit of catering department provides food for all patients on admission following the submission of a copy of their receipts of payment and full names of the patient.
2. The nurse in charge or on duty should furnish the Catering department with the Full names of newly admitted or transferred patients from Emergency room
3. The patients with special dietary needs should be indicated and in case further requirements are needed on a patient a letter from the dietetic unit should be sent to Catering department.
4. All patients are billed for the first 3 days of admission feeding except NHIS patients, and staff of the hospital.
5. Patient relation should visit the hospital canteen for pay as you eat food which should be receipted.
6. Routine ward round to make sure all patients are fed and obtain feedback for maximum satisfaction.

B. Feeding of staff on call

1. Staff on call duty are served a meal while on duty.
2. The list and roster of the staff on duty should be sent to the Chairman, MAC office for onward processing on a monthly basis.

DEPARTMENT OF CHEMICAL PATHOLOGY AND IMMUNOLOGY
UNIVERSITY OF ILORIN TEACHING HOSPITAL, ILORIN.

Standard Operating Procedures (SOPs)

Sample Rejection

Reject (non-conformers)

1. Samples with no request forms
2. Samples with incompletely filled request forms
3. When the sample and request form labels do not match
4. Wrong sample submission e.g. urine instead of blood
5. Torn request form
6. Leaky or broken sample bottle
7. Blood-stained sample bottle or request form
8. Samples in wrong specimen bottle
9. Samples taken at wrong time
10. The lysed samples
11. Sample with evidence(s) of deterioration
12. Samples with no evidence of payment or its equivalent (NHIS, exemption)
13. Delayed time lapse between the collection time and submission
14. Poor or inappropriate patient's preparation

Sample Reception and Processing

1. Verify the patient's details on the sample bottle and the request form (at least two patient's identifiers)
2. Reject non-conformers (see SOP for sample rejection)
3. Attach the evidence of payment to each request form
4. Register it appropriately
5. Arrange the samples in appropriate orders
6. File the form in the jacket
7. Allow the blood samples in the plain bottles to stand, clot and retract at room temperature (1-2 hours)
8. Centrifuge the blood sample at appropriate revolution and time (5mins for most routine samples)
9. Transfer the clear supernatant into separation bottle and label accordingly for immediate analysis or stored frozen (in case of pooled samples)

Sample Analysis and Result Generation

1. Distribute the separated samples to appropriate benches for analysis (analytes that require immediate analysis)
2. Pooled samples to be analyzed within stipulated turnaround time e.g., special tests like hormonal assay and other special proteins
3. Generate the results
4. Record the results in the workbook and the form.
5. Transfer the filled forms to the Consultant Pathologists/Residents for appropriate clinical interpretation
6. File and dispatch the results appropriately (jacket, clinic and emergencies)
7. Store the samples in the freezer for retrieval or onward and appropriate disposal according to sample retention time for the department.

Occult Blood Test

Preparation

1. Assess the patient's eligibility for the test
2. Tell the patient the cost of the test
3. Tell the patient not to take iron-containing food (red meat, Vegetables, raw fruits) and certain medications (haematinics, vitamin C, NSAIDS) at least 3 days before the test
4. Ask the patient to take a small aliquot of the stool (early morning) into a plain sample bottle (provided) and submit it at the Chemical Pathology and Immunology laboratory between 8:00-10:00am
5. Ask the patient to come for the result 2hrs after submitting the sample

Procedure:

1. Take a small aliquot of the stool sample and add a diluent
2. Stir gently and ensure it homogenize well
3. Add the homogenized sample into the space on the strip
4. Allow to stay and flow on the plane
5. Take the readings after 5-10mins
6. Record the result on the request form and pass to the pathologist/resident doctors for appropriate interpretation
7. File the result(s) in the appropriate jacket

Fasting Blood Sample

(FPG- fasting plasma glucose, FLP-fasting lipid profile)

Preparation/Procedures

1. Counsel the patient
2. Assess the patient's eligibility for the procedure
3. The patient should avoid any form of stress on the morning of the test
4. The patient should fast from 8:00-10:00pm in the night to 8:00am in the morning
5. The patient will go to the phlebotomy room at 8:00am on the day of the test for sample collection
6. The blood sample should be collected only when the patient has shown evidence of payment or its equivalent (NHIS or exemption)
7. Allow the patient to seat calmly on the couch or chair
8. Collect the blood sample (2mL) into the Fluoride oxalate bottle (for FPG) and 3mL into plain bottle (for FLP)
9. Ask the patient to submit the sample at Chemical Pathology and Immunology laboratory
10. The patient to come for the result 4hrs after submitting the sample for FPG and after 24hrs for FLP (depends on power and water availability)

OGTT (Oral Glucose Tolerance Test)

Preparation/instructions:

1. Counsel the patient
2. Assess patient's eligibility for the test
3. Write OGTT materials for the patient
4. The patient to be on his normal diets 3 days before the test
5. The patient to avoid any form of stress on the morning of the test
6. The patient should not smoke 3 days before and during the test
7. Educate the patient on drugs that may affect the result
8. Ask the patient to fast from 8:00-10:00 pm in the night to 8:00 am the following morning

Procedure:

1. Ask the patient to come to the Metabolic Clinic at 7:30 am on the day of the test
2. Crosscheck the OGTT materials brought by the patient
3. Ask the patient to first void urine into universal sample bottle (0hr)
4. Allow the patient to seat calmly on the chair
5. Collect the first blood sample, 2mLs into fluoride oxalate bottle at 8:00am (0hr)
6. The patient to drink the prepared glucose solution gently within 5mins
7. Take second blood sample after 1hr 2mLs into fluoride oxalate bottle at 9:00am
8. Take another blood sample at 2hr 2mLs into fluoride oxalate bottle at 10:00am
9. Ask the patient to void urine into universal sample bottle (2hr)
10. Patient to come for the duly interpreted results 6hrs after submitting the sample
11. Thank the patient

NB: there would be little modification in pregnant woman

24-HRS Urine Collection
Preparation/procedure

1. Counsel the patient
2. Assess patient's eligibility for the procedure
3. Write test materials for the patients
4. The patient to start the procedure by 8:00am and end it by 8:00am next day
5. Day 1: The test starts at 8:00am when the patient discards the first voided urine
6. The patient should subsequently void the urine into the container (the container has to be with the patient until the following day)
7. Day 2: The patient should empty the bladder at 8:00am next day into the container
8. The patient brings the urine container and its contents as well as the request form to the Chemical Pathology and Immunology laboratory immediately
9. The patient collects the duly interpreted results after 24hrs

Reproductive Hormonal Assay
Preparation/procedure

1. Counsel the patient
2. Assess patient's eligibility for the procedure
3. Collect a random blood sample for patients with amenorrhea or irregular menses
4. Do a day-3 hormonal profile with mid-luteal progesterone for patients with (fairly) regular menses
5. Ask the patient to avoid any form of stress on the morning of the test
6. Ask the patient to fast from 8:00-10:00 pm in the night to 8:00am in the morning
7. The patient should come for the test 8:00am in the morning
8. Collect the blood sample only when the patient has shown evidence of payment or its equivalent (NHIS or exemption)
9. Ask the patient to come for the duly interpreted result 3weeks after submitting the blood sample

Water Deprivation Test
Preparation

1. Counsel the patient
2. Assess patient's eligibility for the test
3. Write test materials for the patients
4. The patient to be on his normal diets 3 days before the test

5. The patient should not eat 6hrs before the test

Procedure

1. The patient to come to the Metabolic Clinic at 8:00am on the day of the test
2. Allow the patient to seat calmly on the chair
3. The blood/urine sample should be collected only when the patient has shown evidence of payment or its equivalent (NHIS or exemption)
4. Weigh and record the patient stat, then hourly
5. Collect the first blood sample, 4mls into lithium heparin and first urine sample 5mls into plain bottle
6. Serially collect blood sample, 4mls into lithium heparin and first urine sample 5mls into plain bottle hourly
7. Immediately measure the plasma and urine osmolality hourly
8. Stop the procedure if the patient becomes distressed or lost 3% of his/her weight or plasma osmolality of >300 mOsmol/kg

Growth Hormone (GH) Challenge Test

Preparation

1. Counsel the patient
2. Assess patient's eligibility for the procedure
3. Choose appropriate challenge test
4. Write test materials for the patient
5. The patient should avoid any form of stress on the morning of the test
6. The patient should fast from 8:00-10:00pm in the night to 8:00am in the morning

Procedure

Exercise challenge

1. The patient to come to the Metabolic Clinic at 8:00am on the day of the test
2. Allow the patient to seat calmly on the couch
3. The blood sample should be collected only when the patient has shown evidence of payment or its equivalent (NHIS or exemption)
4. Collect the first blood sample at 8:00am, 2mls into plain bottle (0hr)
5. Then ask the patient to climb a staircase briskly for 20-30 minutes
6. Take another sample immediately after the exercise
7. Thank the patient after the procedure
8. Ask the patient to come for the results after 2wks

Clonidine Challenge Test (HCCT)

1. The patient to come to the Metabolic Clinic at 8:00am on the day of the test
2. Allow the patient to seat calmly on the couch
3. The blood sample should be collected only when the patient has shown evidence of payment or its equivalent (NHIS or exemption)
4. Secure peripheral IV access
5. Collect the first blood sample at 8:00am, 2mls into plain bottle (0hr)
6. The patient to take 100ug of clonidine tablet and to remain on the couch
7. Take serial 2mls blood sample at 30mins intervals into plain bottle (a total of 5 samples)
8. If patient becomes symptomatically hypotensive, give IV N/S 500mls fast, allow to lie flat with elevation of foot of the bed
9. Discontinue the procedure and reassess the patient
10. If the patient improves, observe for two hours and discharge home

11. If not, keep the patient for 24hrs and then re-assess
12. Thank the patient and ask him or her to come for the appropriately interpreted results after two weeks

Dexamethasone Suppression Test

Preparation/Procedure:

1. Counsel the patient
2. Assess patient's eligibility for the test
3. Determine appropriate dexamethasone test
4. Write test materials for the patient
5. For AM and PM cortisol level, ask the patient overnight and to avoid stress from 8:00-10:00pm to 8:00am and take the blood samples next day at 8:00am and then at 4:00pm.
6. For Dexamethasone suppression test, give oral dexamethasone tablet (2mg or 16mg 6hrly for 48hrs)
7. Ask the patient to come and take the last dose at Metabolic clinic
8. Take the first blood sample immediately after last dose and second dose after 6hrs.
9. Thank the patient after the procedure
10. Ask the patient to come for the result after 2weeks

Turn Around Time

S/N	TEST	TIME
1	Emergency samples: Serum bilirubin, Electrolytes, CSF glucose and protein, RPG, troponin	2-4hrs
2	FPG	4-6hrs
3	Basic chemistry test: E, U, Cr, Calcium, phosphate, FLP, HbA1c, LFT, uric acid	24hrs
4	Thyroid function test	1 wk
5	Reproductive hormonal profile	2 wks
6	PSA and other tumor markers	1 wk
7	Other hormonal assays (GH, cortisol) and vitamins (Vit D, Vit B12)	1 wk

DEPARTMENT OF HAEMATOLOGY AND BLOOD TRANSFUSION

Acute Leukaemias

1. All patients suspected of having acute leukaemia must be admitted.
2. Patients with suspected cases of acute leukaemias detected on routine blood film reporting in the haematology laboratory must be reviewed by a haematology resident within 30mins of receiving such result.
3. Consults received for patients suspected to have acute leukaemia must be reviewed by a haematology resident within 30 minutes of receiving the consult.
4. Full blood count, Peripheral blood film and Bone marrow aspiration procedure (after consent) must be done within one hour of assessment.
5. Peripheral blood film slides and Bone marrow aspiration slides must be reviewed by the unit consultant within 2 hours of performance of the procedure.
6. Baseline investigations (Serum electrolytes, urea, creatinine, uric acid, liver function tests) must be sent within one hour of assessment and results must be available within 24 – 48 hours of being sent.
7. IV fluid rehydration and measures to prevent tumor lysis syndrome must be given to all patient with acute leukaemia.
8. Samples for grouping and crossmatching of blood and blood products must be sent within one hour of assessment.
9. Once a diagnosis has been reached, the patient and patient's relatives must be counselled about the nature of illness, treatment options, side effects of treatment, duration of treatment, and cost implication of treatment and prognosis of the illness.
10. Patient must be properly optimized/stabilised before commencement of cytotoxic chemotherapy.
11. Written and signed consent must be obtained from patient or patient's parents (paediatrics) before administration of any cytotoxic chemotherapeutic agent.

Hyperleucocytosis/Leukostasis

1. All patient with suspected hyperleucocytosis must be admitted.
2. Patients with hyperleucocytosis detected on routine blood film reporting must be contacted through phone calls to the requesting doctor to alert them or through phone calls to the patient if their phone numbers are available.
3. Patient with hyperleucocytosis/Leucostasis must be reviewed by a haematology resident within 15minutes of receiving the notification.
4. IVF and other measures to prevent tumor lysis syndrome must be instituted within 30minutes of review.
5. Baseline investigations (serum electrolytes, urea, creatinine and uric acid) must be sent within one hour of assessment and results must be available within 24 – 48 hours of being sent.
6. Full blood count and Peripheral blood film review to determine the cause of hyperleucocytosis must be done within 2hours of assessment.

Disseminated Intravascular Coagulation (DIC)

1. Patients with suspected DIC must be reviewed by a resident within 30minutes of receiving a consult.
2. Blood samples and requests for grouping and crossmatching of blood and blood products, FBC, clotting profile must be sent within 1hour of review.
3. Blood and blood product support should be commenced within 45 minutes of sending request to the laboratory.

4. Other baseline investigation (Serum electrolytes, urea, creatinine, urinalysis) must be sent within one hour of review.
5. Patient must be monitored closely with follow up FBC and clotting profile done daily initially and then as required until discharge.

Sickle Cell Disease in Crisis

Crises may be vasoocclusive, hyperhaemolytic, sequestration, aplastic or mixed. The type of crises should be determined within 1 hour of presentation except aplastic crises which should be determined within 24hours of presentation

1. Patient with crises should be admitted at the Haematology Day care unit or the Accident and Emergency unit.
2. Patient with severe pain should be given a potent analgesic to abolish the pain within one hour of admission.
3. Intravenous fluids should be commenced within 1 hour of admission.
4. Blood samples for FBC, MP and E/U/Cr, urinalysis should be taken within 1hour of admission
5. Empiric antibiotics should be commended for febrile patients while awaiting septic workup results.
6. Patient must be closely monitored and pain score reassessed regularly to determine if pain is optimally controlled.
7. Precipitating factors should be identified and treated within 12 hours of admission.

Venous Thromboembolism (DVT/PE)

1. All patient with suspected DVT must be reviewed within 30 minutes of receiving consult.
2. A clinical probability score should be determined and if patient classified into low probability or high probability within 1 hour of assessment.
3. Baseline investigation (FBC, E, U, Cr, clotting profile) should be sent within 1 hour of review.
4. Radiological investigation should be done as soon as possible however treatment should not be delayed for radiologic investigation.
5. Anticoagulation should be commenced within 1hour of review in patients with high clinical probability scores.
6. Patient should be monitored with daily clotting profile until anticoagulation target is achieved
7. Thrombolytic agents should be administered in selected cases of pulmonary embolism if available.
8. Supportive care for example oxygen therapy should be given to patient and patient should be closely monitored.

Chronic Myeloid Leukaemia

1. Patients with suspected CML are usually referred after routine FBC shows hyperleucocytosis.
2. Patients whose FBC result shows hyperleucocytosis and which are detected during routine FBC film reporting from the haematology laboratory should be contacted via the phone number submitted with the form or by informing the requesting doctor's name written on the form. Patient should be encouraged to present in the hospital as soon as possible to prevent leucostasis.
3. Patient who present via consults must be reviewed within 1 hour of receiving such consult.

4. Patient must be counselled on the diagnosis, treatment options, cost implication, duration of treatment, course of the disease, possible side effects of medications and prognosis.
5. Patient should have baseline investigations done including FBC, ESR, E, U, Cr, LFT, uric acid and other tests as deemed appropriate.
6. Patient should be adequately rehydrated and measures to prevent tumor lysis syndrome must be instituted.
7. Patient must be properly optimized before commencement of cytotoxic chemotherapy.
8. Written Consent that is duly signed by all parties must be obtained before the commencement of any cytotoxic chemotherapy.
9. Patient should be duly referred karyotyping and commencement of Tyrosine kinase inhibitors.
10. Patient must be followed up as required in the haematology day care unit and out - patient clinic.

Chronic Lymphoid Leukaemia

1. Patient must be reviewed as soon as possible after consult has been received. Patient with hyperleucocytosis whose result were picked from routine reporting of FBC must be contacted or their requesting doctor contacted. In this case, patient should be encouraged to present to the hospital as soon as possible to prevent leucostasis.
2. Patient must be counselled on the diagnosis, treatment options, cost implication, course of the disease, possible side effects of medications and prognosis.
3. The patient disease must be staged at presentation and duly recorded
4. Patient should have baseline investigations done including FBC, ESR, E, U, Cr, LFT, uric acid and other tests as deemed appropriate
5. Patient should be adequately rehydrated and measures to prevent tumor lysis syndrome must be instituted
6. Patient must be properly optimized before commencement of cytotoxic chemotherapy
7. Written consent that is duly signed by all parties must be obtained before commencement of any cytotoxic chemotherapy.
8. Patient must be followed up as required in the haematology day care unit and out – patient clinic.

Hodgkin's Lymphoma

1. Patient must be reviewed as soon as possible after consult has been received. Patient must have a histology report establishing the diagnosis
2. Patient must be counselled on the diagnosis, treatment options, cost implication, course of the disease, possible side effects of medications and prognosis.
3. Patient should have baseline investigations done including FBC, ESR, E, U, Cr, LFT, uric acid, Echocardiographs and other tests as deemed appropriate.
4. Patient should be adequately rehydrated and measures to prevent tumor lysis syndrome must be instituted
5. Patient must be properly optimized before commencement of cytotoxic chemotherapy
6. Written consent that is duly signed by all parties must be obtained before commencement of any cytotoxic chemotherapy.
7. Patient must be followed up as required in the haematology day care unit and out – patient clinic.

Non – Hodgkin's Lymphoma

1. Patient must be reviewed as soon as possible after consult have been received. Patient must have an histology report establishing the diagnosis.
2. Patient must be counselled on the diagnosis, treatment options, cost implication, course of the disease, possible side effects of medications and prognosis.
3. Patient should have baseline investigations done including FBC, ESR, E/U/Cr, LFT, uric acid, Echocardiographs and other tests as deemed appropriate.
4. Patient should be adequately rehydrated and measures to prevent tumor lysis syndrome must be instituted.
5. Patient must be properly optimized before commencement of cytotoxic chemotherapy
6. Written consent that is duly signed by all parties must be obtained before commencement of any cytotoxic chemotherapy.
7. Patient must be followed up as required in the haematology day care unit and out – patient clinic.

Multiple Myeloma

1. Patient must be reviewed as soon as possible after receiving the consult.
2. Diagnostic evaluation must be properly done to reach a diagnosis including FBC, ESR, E/U/Cr, LFT Ca++, Phosphate, Total protein, albumin, Bone marrow aspiration, Urine Bence Jones protein, Serum protein electrophoresis, Serum free light chains, B2 microglobulin and skeletal survey.
3. The stage of the disease should be documented at presentation
4. Patient should be adequately rehydrated and measures to prevent tumour lysis syndrome must be instituted
5. Patient must be properly optimized before commencement of cytotoxic chemotherapy
6. Written consent that is duly signed by all parties must be obtained before commencement of any cytotoxic chemotherapy.
7. Patient must be followed up as required in the haematology day care unit and out – patient clinic.

Blood Transfusion

1. The blood transfusion procedure must be properly explained to the patient with possible complications and written consent must be obtained before the procedure.
2. The patient information written on the blue form, blood tag and the patient folder must be verified before transfusion.
3. Drugs for emergency resuscitation including Hydrocortisone, Promethazine, PCM, and Adrenaline must be verified to be available in the emergency tray before commencement of transfusion.
4. A Blood transfusion note must be written and must include the following information: Patient name, blood group of patients, Blood bag number, Blood group of donor, date of collection, expiry date of blood, indication for transfusion, type of blood product, duration of transfusion and instructions to be carried out in case of blood transfusion.
5. Patient vital signs must be recorded before commencement of blood transfusion
6. Transfusion must be commenced slowly, and the patient must be duly monitored during the duration of the blood transfusion.
7. Post transfusion vital signs must be documented after the transfusion.

Blood Donations

1. Blood donation is done in collaboration with the nursing staff and laboratory staff.

2. Blood donation drives are done periodically outside the hospital and walk – in donors are also attended to in the department.
3. Pre – donation assessment of prospective blood donors include history, physical examination, checking and recording of the vital signs, fitness testing (PCV/Hb check) and testing for transfusion transmissible infections (HIV, HBV and HCV)
4. Prospective donors who test positive for any of the transfusion transmissible infection are counselled appropriately, referred for repeat testing and management at the appropriate clinic.
5. Fit donors are bled and observed for about 15 minutes in the blood donation bay before being allowed to leave.

Laboratory Results Reporting

1. All laboratory requests are registered at the reception and analyzed as appropriate in the various benches.
2. The result generated are reviewed, reported and signed by the pathologist considering the clinical information provided on the request form before being released to the clinicians.
3. Specialized tests such as bone marrow aspiration and biopsy are done by the Haematologists for the diagnosis and management of various haematological disorders.

DEPARTMENT OF PATHOLOGY

TITLE:	Sample Management Policy	Document Number:	SMPHISTO:002
Section:	Process Control	Date Adopted:	3/4/2018
Prepared By:	Departmental Quality Team	Date Prepared:	1/2/2018
Revision Number:	SM/002/2021	Date Revised:	11/1/2021
Revised By:	Quality Team	Total pages:	12

Information on Request Forms (Green Card)
Request form must be filled with following patient's data:

- Surname
- First name
- Age
- Sex
- Ward
- Hospital number
- Hospital name
- Nature of specimen
- Organ or area of body
- Clinical manifestations and pre-operative diagnosis
- Duration of disease/symptoms
- Relevant surgical findings
- Name of Consultant and GSM Number
- Name of Physician/doctor and GSM Number
- Date
- Time of surgery
- Time of fixation

Procedure (Rejection criteria) for receiving specimens at the Histopathology Reception must be fully adhered to by the laboratory staff on duty.

Acceptance/Rejection Criteria

- Histopathology laboratory reception shall receive well fixed, labeled samples accompanied with a dully filled request form
- All samples must be pre-fixed in 10% neutral buffered formalin (NBF) except testicular biopsies which must be fixed with Bouin's fluid (Requesting physicians, clinics, hospitals etc to collect fixative at the histopathology laboratory on request)
- Samples NOT fixed in 10% neutral buffered formalin shall be rejected except when otherwise stated (e.g. fixation normal saline)
- Rejected samples should be documented using the rejection sheet and given to the patient to deliver to the requesting Physician/Surgeon/Clinic
- Patient/ relatives are to be guided on how to make payment at the revenue pay point after which the sample is registered and a Histopathology Lab. Number assigned to the specimen.
- The GSM number of the patient/relative should be boldly written on the Green Card for the purpose of SMS alert once the Pathology report is ready.
- Registered specimen with Histology Lab Number boldly inscribed is immediately transferred to the Cut-up room.

- The attention of the Chief Resident should be called when breast/big specimens are received so they can be bread loafed for proper penetration of fixative.

Analytic Sample Management

The Sample should go through the following processes as prescribed with appropriate documentation

1. Samples should be moved to the Cut-up bench for sampling
2. Samples should be grossed within 24hrs – 72hrs depending on the size and degree of fixation.
3. Hard tissues should be moved to the decalcification bench
4. In any instance whereby, soft tissue is taken for processing in any hard sample, the decal should reflect it through serial numbering for continuity and archiving purpose
5. Cut samples should be screened before processing
6. Processing fluids should be quality-controlled and changed as prescribed.
7. Processing of big specimens takes 14hrs (usually processed overnight).
8. Processing of small specimens takes 6-7hrs (rapid processing)
9. Poorly fixed specimens should be allowed to fix properly before processing
10. All processed blocks should be moved to the embedding work station for embedding
11. During power outage, the gas burner should be used as an alternative to melt the wax
12. Sectioning should be done within 24hrs for all embedded and trimmed blocks of tissues
13. Drying of sections on hot plate/hot air oven should be done same day sectioning was done.
14. Staining should be done immediately after drying using quality-controlled stains and SOPs provided
15. Stained slides should be reviewed before dispatch
16. Special request cards should be used for Histochemistry and Immunohistochemistry
17. Reporting of specimens and review of results by Consultant Pathologists takes 24-48hrs
18. Emergency requests should be specially handled as prescribed using the incidence sheet
19. Reported slides should be archived as prescribed
20. Sectioned blocks should be archived as prescribed
21. Reports should be dispatched as prescribed
22. Discard of reported specimens should be handled as prescribed
23. Out-going blocks/slides should be handled as prescribed

Handling Urgent Requests

Urgent biopsies shall be given priority by:

- Calling the attention of the Doctor and MLS on duty
- Rapid processing/Embedding should be carried out within 6-7hrs
- Sectioning should be done same day
- Rapid H&E procedure should be followed by the MLS on duty

Sample Storage, Retention and Disposal

- Blocks of tissues shall be kept in good condition in the archive room which must be well air-conditioned
- Reported slides are to be kept permanently inside the slides cabinet in the archive room
- SOP must be fully complied with by MLS handling the specimens, tissue blocks, slides etc.
- Procedures Shall be carried out with appropriate control
- Proper documentation must be ensured at all times.

- Unusual occurrences shall be documented in the occurrence sheet
- Proper storage and preservation of reagents and chemicals must be ensured as appropriate (2-8 ^{0}C)

Waste disposal shall be as follows:

- Reported specimens shall be discarded six months post-reporting and releasing of histology result(s).
- Yellow container for infectious waste e.g. gloves, used tissue paper
- Red container for highly infectious waste e.g. sample container, bloody tissue paper etc
- Black container for non-infectious waste e.g. office paper and other domestic dirt
- Puncture resistant containers labelled 'Biohazard' for sharps e.g. needles, broken tubes, blades, pipette tips etc.
- Discard specimens are to be well deposited at the refuse disposal points for onward transportation to the incinerators.

Policy on Accepting Bodies

- Body must be accompanied with information form/ request form from the clinic.
- Corpse should be rejected if the form is not presented or reason for death / clinical diagnosis not stated.
- The mortuary request form/information slip presented should be authenticated by the Medical Laboratory Scientist in charge.
- Coronal cases should be brought to the attention of the Chief Resident doctor /Director MLS/ Consultant Pathologist.
- Body should be intact and proper documentation done before transferring the body to the cooling compartment.
- Routine embalmment should be done except for corona cases and those excluded for religious reasons.
- All bodies must be well identified with name labels/tag.
- Matters beyond the mortuary attendants should be referred to the Medical Laboratory Scientist in charge.
- Administrative protocols for payment should be fulfilled and receipts issued should be filed

Policy on Release of Bodies

- The identity of the body should be confirmed using the mortuary register
- Body should be matched with the identity tag in correlation with register entries.
- Body should be laid on the trolley in the open extension room for dressing and identification by relatives of deceased.
- Body should be released after appropriate dressing/clothing and due payments

Note: Two relatives /next of kin must properly identify the body and sign the provided body release sheet with their GSM number written down.

DEPARTMENT OF PHARMACY

OPERATING PROCEDURES FOR PHARMACEUTICAL SERVICES

OPERATIONAL PROCEDURE FOR PREPARING DRUG FORMULARY.

a. Work with the hospital drug formulary committee.
b. Make use of the latest edition of the Nigerian Standard Treatment Guidelines for the list of drugs in the formulary.
c. List the drugs according to their therapeutic class using their generic name.
d. In selecting the medicines consider the benefit, risk, and cost information with minimum adverse effect.
e. Include information on the drug such as name, uses, precautions, dosage, adverse effects and contradictions.
f. Give information of drug interaction based on pharmacodynamics and pharmacokinetic principles.
g. Include information on the use of drugs in pregnancy.
h. Include list of drugs which should not be used in breastfeeding or with precaution during breastfeeding.
i. List drugs that may cause hepatic renal or cardiac impairment.
j. Give alphabetical index of drugs and disease conditions.
k. The formulary is printed and distributed to physicians, pharmacists, nurses, and other health workers.
l. Periodic review of the Hospital Formulary and Standard Treatment Guidelines is done every five years.

OPERATIONAL PROCEDURE FOR PROCUREMENT OF MEDICINES AND MEDICAL COMSUMABLES

a) The Chairman Medical Advisory Committee heads the Hospital committee on the procurement of medicines and medical consumables.
b) The revolving fund unit supervises the process of procurement of medicines and medical consumables.
c) Companies register with the hospital for the supply of medicines and medical consumables.
d) There are four methods of procurement namely bulk purchase, general tender, urgently needed drugs and items and imprest.
e) Select the procurement method and follow the operation procedure.

OPERATION PROCEDURE FOR BULK PURCHASE IN THE PHARMACY CENTRAL SSTORE.

a. The central store pharmacist compiles list of it medicines to be purchased and states brand specifications.
b. The quantities are calculated based on monthly consumption rate.
c. Only manufactures and major distributors of specified brands are eligible to participate in bulk purchase.
d. Only pharmacy companies are eligible to supply drugs.
e. The prices are extracted from the negotiated price lists of the eligible companies.
f. The HOD-pharmacy vets the compiled list.

g. The HOD-pharmacy writes to the CMAC requesting for approval for bulk purchase of medicines.
h. The CMAC obtains CMD approval for bulk purchase.
i. The drug procurement committee meets to consider the list for bulk purchase and make award.
j. The revolving fund unit prepares the local purchase order and the CMAC signs the L.P.O.
k. The companies collect Their L.P.O and it is mandatory for them to deliver their items within two weeks of award.
l. Follow the operation procedure for supply and receiving medicines in the pharmacy central store.

OPERATION PROCEDURE FOR GENERAL TENDER FOR DRUGS AND MEDICAL CONSUMABLES.

a. General tender applies to items not handled under the bulk purchase and which are open to competitive binding.
b. The companies eligible to participate in general tender are registered with the hospital.
c. Only pharmacy companies are eligible to supply drugs.
d. The central store pharmacist compiles the list of needed items and states the quantities and brands.
e. The HOD-pharmacy vets the list.
f. The HOD-pharmacy writes to CMAC requesting for general tender for drugs and medical consumables.
g. The CMAC obtains the CMD approval for the general tender of the listed items.
h. The CMAC through the R.F.U invites the companies to tender for the listed items.
i. The drug procurement committee meets with the companies to open the bids.
j. The drug procurement committee meets to consider the quotations and make awards.
k. The R.F.U prepares the L.P.O and the CMAC signs them.
l. The R.F.U invites the companies to collect their L.P.O and the companies should deliver their awarded items within two weeks of the award.
m. Follow operating procedure for supply and receiving drugs in the pharmacy central store.

OPERATING PROCEDURES FOR PROCUREMENT OF URGENTLY NEEDED MEDICINES AND MEDICAL CONSUMABLES.

a. This is followed to address the stock out in urgent circumstances.
b. The central store pharmacist compiles the list of items stating the companies, brands, prices and quantities.
c. The HOD-pharmacy vets the list.
d. The HOD-pharmacy writes to the CMAC requesting for approval to purchase urgently needed items.
e. The CMAC obtains the approval of the CMD.
f. The CMAC directs the R.F.U to prepare the L.P.O for the companies.
g. The companies collect their L.P.O and must deliver the awarded items within the two weeks of award.
h. Follow the operating procedure for supply and receiving drugs in the pharmacy central store.

OPERATING PROCEDURES FOR PURCHASE OF DRUGS THROUGH DRUG IMPREST.

a. The current amount of the drug imprest is 100,000.00 naira.
b. The HOD-pharmacy writes to the CMD requesting for release of money for drug imprest.
c. The CMD approves the release of money.
d. Money released to the HOD-pharmacy.
e. Central store pharmacist draws up list for drugs to be purchased through drug imprest.
f. The HOD-pharmacy releases to the central store pharmacist.
g. The central store pharmacist purchases the drugs.
h. Follow the operating procedure for supply and receiving drugs in pharmacy central store.

OPERATING PROCEDURES FOR SUPPLY AND RECEIVING DRUGS IN THE PHARMACY CENTRAL STORE.

a. The companies must deliver all the items within two weeks of award.
b. L.P.O not delivered within the two weeks must be re- validated.
c. Items should be delivered to the specified store on official working days between 8:00am and 3:00pm.
d. The delivery must be witnessed by an auditor, store officer, and a pharmacist.
e. The company must submit the original copy of the L.P.O, receipt of payment of service charges, delivery note and invoice.
f. For drug imprest, submission of copy of L.P.O and payment of service charges are not required.
g. Conduct physical checks on every item supplied in line with the award document.
h. The pharmacist enters the supply information into the Tally card namely the company, quantity, cost price, expiry date and batch number.
i. The auditor, store officer and pharmacist sign all necessary document submitted and Tally card.
j. The supply documents namely the L.P.O., delivery note and invoice are submitted to the store officer to prepare the store received voucher (SRV) for the payment of suppliers.
k. The HOD-pharmacy receives and vets the SRV and signs it.
l. The central store pharmacist makes final check on the SRV and signs it.
m. The store officer enters the SRV number on the Tally card
n. The store officer dispatches the SRV to the CMD through the CMAC for approval of payment to the suppliers.
o. Companies are paid by the account department.
p. For imprest purchase, the imprest is retired when the imprest money is exhausted and request for re- imbursement.
q. Follow operating procedure for storage of drugs in the store.

OPERATING PROCEDURES FOR STORAGE OF DRUGS IN THE STORE.

a. Medicines are arranged alphabetically according to the classification of drugs on shelves and pallets.
b. Products of similar name and different strengths are stores separately.
c. Heavy items are stored in lower shelves.
d. Items requiring refrigeration are stored in the refrigerator.
e. List of all drugs to be stored in the refrigerator is maintained and displayed near the refrigerator.
f. A temperature logbook is maintained for regular temperature control and monitoring.
g. The temperature is recorded on daily basis at least twice a day.
h. Look alike and sound alike drugs are stored separately.
i. Light sensitive medications are stores in closed chambers.
j. Costly medications are kept in a different storage and checked every day in all units of pharmacy and monitored closely.
k. Physical verification and stock taking are conducted regularly especially every three months.
l. Pest control activities should be carried out regularly in pharmacy store.

OPERATING PROCEDURE FOR ISSUE AND DELIVERY OF DRUGS TO THE PHARMACY UNITS AND SATELITE CENTRES.

a. Drugs are supplied through requisition forms dully signed by the appropriate officers.
b. Each unit must submit monthly returns before a supply can be made.
c. The Tally card and computer entries are made after each issue.
d. The records of each are maintained in the pharmacy central store.

OPERATING PROCEDURES FOR ISSUE OF DRUGS TO THE WARDS.

a. Requisition forms dully filled and signed are sent to the pharmacy units.
b. Drugs and medical consumables are issued by the pharmacist.
c. The pharmacist raises debit notes for the items issued.
d. Document all issues of drugs in wards in relevant records.
e. Forward debit notes to the Director of Finance for re- imbursement.

SUPPLY OF DRUGS TO WARDS.

a. Medication requisition forms duly signed are sent to pharmacy units.
b. Drugs and medical consumables are dispensed or issued by the pharmacist.
c. Prepare debit notes for the re-imbursement of the supplies.
d. Forward debits note to the Director of Finance for re-imbursement.
e. Document supplies in the relevant records.

SOP FOR DISPENSING TO IN-PATIENTS.

a. Receive the patient folder on the prescription.
b. Review the prescription.
c. Reconcile any observations with the prescriber.
d. Cost the prescription for 24hours need.
e. Patient / relatives/care giver pays for the drugs.
f. Dispense the medication.
g. Label all the containers appropriately.

h. Hand over the medications to the care giver.
i. Document the information on drugs dispensed in appropriate records.

SOP FOR DISPENSING TO OUT-PATIENTS.

a. Receive the prescription.
b. Ascertain the owner of the prescription.
c. Do prescription vetting.
d. Review the prescription.
e. Reconcile any observation with the prescriber.
f. Cost the prescription.
g. Patient pays for the drugs.
h. Dispense the medications.
i. Label medication containers appropriately.
j. Hand over the medication to the patient.
k. Counsel the patient adequately.
l. Document the drugs dispensed in appropriate records.

SOP FOR COMPOUNDING.

a. Draw up the Formulary for the compounding using appropriate official reference books.
b. Check your calculations.
c. For extemporaneous compounding sustained release tablets and capsules should not be used.
d. All equipment must be washed thoroughly.
e. All products must be properly labelled, and date of compounding stated.
f. Follow SOP for dispensing to outpatients.

SOP FOR OPERATION PACKS REVOLVING FUND.

a. User units submits list of items needed for various packs.
b. Compile list of items needed for purchase stating quantities and brands.
c. Follow SOP for procurement of drugs.
d. Follow SOP for supply and receiving drugs.
e. Follow SOP for storage of drugs.
f. Prepare various packs for various units and their cost.
g. Patient pays for packs and receives the packs.
h. Document in appreciate records.
i. Do periodic stock check especially 3months stock taking.

SOP FOR NHIA PHARMACY.

a. Patients are enrolled under NHIA.
b. Patient has approval to receive primary or secondary care.
c. All drugs prescribed are under NHIA drug list.
d. Patients pay 10% of cost of drugs for primary care.
e. Follow the SOP for procurement of drugs.
f. Follow the SOP for supply and receiving of drugs in pharmacy store.
g. Follow SOP for storage of drugs.
h. Follow SOP for dispensing of drugs to patients.
i. Keep records of drugs dispensed to patients.

j. Send monthly requests to Director of Finance for re-imbursement of NHIA claims or bills.
k. Prepare 3 monthly report.

OPERATING PROCEDURES FOR DISPENSING PRESCRIBED MEDICINE.

a. Receive, read and validate the prescription.
b. Confirm the owner of the prescription.
c. Identify the disease condition being managed by the prescriber.
d. Confirm that the medicines and medical consumables prescribed are available in the pharmacy.
e. Cost the medicines prescribed and inform the patient about the cost.
f. Send the patient to the prescriber for a review if necessary.
g. Direct the patient to make necessary payments and to present the appropriate receipt confirming payments to be dispensed.
h. Select the correct medicines or items in the pharmacy and read the label on the package before during and after dispensing and fill the container.
i. Write the label on each medicine container to give information about the drug and how to use it
j. Hand the dispensed medicine to the patient or relation.
k. Counsel the patient on how to use medicine.
l. Allow the patient chance to ask questions and give the patient appropriate answers.
m. Keep all the patient medication record.

OPERATING PROCEDURES FOR UNIT DOSE DISPENSING SYSTEM.

a. Produce the patient's medication profile.
b. Receive, read and validate the prescription.
c. Establish the prescriber's intention for the patient.
d. Ensure the medicines or items required are available in pharmacy.
e. Open the patient medication profile and cost the medicines or items prescribed.
f. Inform the patient of the cost implication of the items prescribed or contact the physician for any necessary reviews.
g. Direct the patient to make necessary payments and to present the receipt of payments for items to be dispensed.
h. Select the correct medicines or items, read the label on the container before, during and after dispensing.
i. Put label on the container which should contain patient name, name of drug, strength, quantity dispensed, directions for use and date.
j. Ensure that all dispensed items are put in patients' respective cassettes.
k. Deliver the trolley to the ward and give necessary information to the nurses.
l. Carry out therapeutic drug monitoring where necessary.
m. Records patients medication compliance and discuss with the prescriber.

OPERATING PROCEDURES FOR PATIENT COUNSELING.

a. It should be carried in a room dedicated for such purpose.
b. Ensure the patient is comfortably seated.
c. Ensure the patients identity matches that written on the prescription.

d. Find out if the patient has been counselled by the prescriber or any other staff member of the hospital.
e. Confirm if it is the first time the patient is receiving the medication on prescription.
f. Let the patient know what the medication looks like, the name of the medication, the use, dosage frequency, route of administration and duration of drug therapy.
g. Explain to the patient any drug interaction, special directions and precautions.
h. Explain to the patient common side effects and contra indications and actions to be taken.
i. Place the medicines in appropriately labelled containers and hand over to the patient.
j. Explain appropriate storage conditions and advice that all medicines be kept out of the reach of children.
k. Emphasize the need for compliance.
l. Confirm if the patient understood the instructions.
m. Inform the patient to return any used medicine to the pharmacist for destruction.
n. Tell the patient not to share their medication with another person.
o. Let the patient know how to refill the prescription.
p. Explain to the patient that in case of missed dose, take the next dose and reschedule time accordingly.

SOP FOR EXPIRY OF DRUGS

1. All drugs and medical consumables received in Pharmacy should have a minimum of 24 months expiry date.
2. Any item received that had less than 24 Months expiry date should be backed up with letter of guarantee from supplier of replacement of unused quantity at date of expiry.
3. All drugs and Medical consumables should be monitored regularly for expiring
4. The principle of first in and first-out or last expiry date first out should be followed
5. All expired items should be withdrawn from the shelves and dispensary areas from all Pharmacy Unit and Hospital Wards and kept at expiry drugs room.
6. The cost of the expired items should be ascertained.
7. Proper records of the expired drugs should be kept.
8. The HOD- Pharmacy writes to the management requesting for the destruction of expired drugs
9. The Hospital Management writes to NAFDAC requesting for permission to destroy expired drugs.
10. NAFDAC inspects the expired drugs and schedules date for the destruction of expired drugs
11. NAFDAC carries out the destruction of expired drugs in conjunction with the Hospital Management
12. NAFDAC issues Certificate of evidence of destruction of expired drugs.

CHECKLIST FOR MEDICAL AUDIT OF PHARMACEUTICAL SERVICES.

S/N	CHECKLIST	MEASUREMENT
1.	**INVENT MANAGEMENT AND CONTROL.** Medicines and medical consumables are in stock and are managed in compliance with relevant regulations and principles of medicine inventory management and control.	1. Each listed medicine and medical consumable is available at the time of audit in the particular store. 2. Updated computerized or manual (stock cards) inventory management system for medicines is in place. 3. Physical stock corresponds to stock on the inventory management system.
2.	**MEDICINE SUPPLY.** Medicines and medical consumables are supplied in compliance with regulations and guidelines.	1. Operating procedures for procurement, receiving of medicines and issuing of medicines are available and are being followed. 2. Necessary documentations are done. 3. Issuing of medicines according to FIFO is followed. 4. System in place to check expiry dates. 5. Are expired drugs observed.
3.	**MEDICINE STORAGE.** Medicines and medical consumables are stored and managed in compliance with relevant regulations and guidelines.	1. Observe the pharmacy store and check if they comply with the listed rules and guidelines. 2. Are proper storage temperatures maintained? 3. Does arrangement of medicines follow certain order? 4. Drugs are stored on pallets and shelves.
4.	**AVAILABILTIY OF EMERGENCY MEDICINES.** Pharmaceutical services support care of high-risk patients.	1. Emergency trays are available. 2. Emergency medicines according to the list developed by the hospital are available in the emergency trays. 3. Emergency trays are checked daily.
5.	**AVAILABILITY OF MEDICINES AND MEDICAL CONSUMABLES.** Medicines and medical consumables for care of patients are in stock (in accordance with Essential Drug List, Hospital Formulary and Treatment Guidelines).	1. Each listed item is present or the equivalent s available and not expired. 2. EDL, Hospital Formulary and STG are available and sighted. 3. List of stock available and price list are sighted.
6.	**HANDLING OF MEDIINES IN THE WARDS.** Medicines in the wards and clinics are properly stored and managed.	1. Medicine cupboards and emergency trolleys are available in the ward. 2. Control of access to cupboard to only authorized persons. 3. Documentation of ordering, receiving and dispensing of medicines is done. 4. Regular checks on expiry of drugs. 5. Are expired drugs observed?

7.	**RATIONAL PRESCRIBING.** Prescribing is done in accordance with relevant regulations and guidelines.	1. Essential Drugs list, Hospital Formulary and Treatment guidelines are available. 2. Drugs prescribed should be listed in the EDL, Hospital Formulary or STG.
8.	**DISPENSING OF MEDICINES.** Dispensing of medicines comply with relevant regulations and guidelines.	1. Person dispensing medicines are qualified (Pharmacist, Pharmacy Technician, Nurse). 2. Prescriptions are checked for appropriateness before dispensing. 3. Owner of the prescription is verified. 4. Labels on medicine containers are legible and contain relevant information. 5. Patient adequately counselled on the use of medicines.
9.	**PATIENTS COUNSELING.** Patients are adequately counselled to ensure proper use of medicine.	1. Patient was told the name of the medicine. 2. Patient was informed what the medicine is used for. 3. Pharmacist explained to the patient how to use the medicine. 4. Pharmacist informed the patient about the side effects and precautions. 5. Patient was given opportunity to ask questions.
10.	**PATIENT SATISFACTION WITH SERVICES.** Patient obtained all prescribed medicines with minimal delays and are satisfied with services.	1. Checks on dispensed medicines show that medicines are dispensed as prescribed. 2. Patients received all the medicines prescribed. 3. The duration of filling a prescription is recorded and compared with a reference stand.

LIST OF EQUIPMENT/INSTRUMENT

S/NO	EQUIPMENT/INSTRUMENT	SPECIFICATION	QUANTITY	STATUS	
				Functional	Non-functional
1.	**Refrigerator**				
2.	**Computers**				
3.	**Shelves**				
4.	**Palates**				
5.	**Weighing balance**				
6.	**Volumetric apparatus**				
7.	**Mortars and Pestles**				
8.	**Spatula**				
9.	**Funnel**				
10.	**Ointment slabs and pads**				
11.	**Stirring rods**				

12.	**Beakers**				
13.	**Crucibles and evaporating baths**				
14.	**Suppository molds**				
15.	**Volumetric flasks**				
16.	**P.P. Equipment**				
17.	**Filter papers**				
18.	**Scissors and Razor blades**				
19.	**Brushes**				
20.	**Thermometers**				
21.	**Hot plates**				
22.	**Microwave ovens**				
23.	**Hot water baths**				
24.	**Sieves**				
25.	**Homogenizers**				
26.	**Electric mixer**				
27.	**pH meter**				
28.	**Tableting machine**				
29.	**Capsule filling machine**				
30.	**Stainless bucket**				

TURN AROUND TIME (TNT)/ DRUG AVAILABILITY (DA)

S/N	ACTIVITY	TNT/ DA	COMMENTS
1.	Waiting time, Normal Medication Costing	5minutes	
2.	Waiting time, Normal Medication Dispensing	15minutes	
3.	Waiting time, Emergency Drug Costing	3minutes	
4.	Waiting time, Emergency Drug Dispensing	5minutes	
5.	Waiting time, Normal Medication Compounding Costing	5minutes	
6.	Waiting time, Normal Medication Compounding Dispensing	10minutes	
7.	Waiting time, Emergency Drug Compounding Costing		
8.	Waiting time, Emergency Drug Compounding and Dispensing	10minutes	
9.	Emergency drugs	100%	No stock out
10.	Other drugs and medical consumables	85%	Never less than 15% of normal stock level
11.	Procurement request	50%	Request must made at 50% Stock level
12.	Actual procurement	25%	Procurement must not be at <25% stock level

SURGICAL RELATED DEPARTMENTS, DIVISIONS AND UNITS

1. Department of Surgery
2. Obstetrics and Gynaecology
3. Ear, Nose and Throat, Head and Neck
4. Ophthalmology
5. Radiology
6. Orthopaedics
7. Physiotherapy

DEPARTMENT OF SURGERY

Standard Operating Procedure

General Surgery

General Evaluation and Documentation Pattern

The following cadres of patients should have the long pattern of evaluation and documentation by the junior cadre doctors (Interns, Registrar and Senior Registrars) which should be reviewed in order of the cadres and eventually by the Consultant.

1. New emergency admission in the emergency room (ER)
2. Admission for operation,
3. Patient referred in without prior detailed clerking,
4. First clinic visits however, long pattern of evaluation might be deferred till admission, replacing with focused clerking based on Consultant's discretion

Focused evaluation and documentation using **SOAP** approach for the following cadres of patients:

1. Clinic follow-up,
2. Continuing care on admission,
3. Ward rounds, pre-round reviews, perioperative reviews

All documentations should have the name of the patient, hospital number, ward, date and time of review, names of doctor or Surgeon with or without signature.

Content of Long evaluation pattern

1. Biodata
2. Presenting complaint
3. History of presenting complaint (including positive and important negative symptoms)
4. Past Medical history (include past operations, allergies, anaesthesia and drugs especially for patient already reviewed in the hospital, clinic, ER, other units, ensure to include review of current medications, drugs, investigations and comment or adjust as appropriate in the new plan)
5. Obstetrics and gynaecology history
6. Family history
7. Social history
8. Review of other systems
9. General examination (include vital signs)
10. Systematic regional examination
11. Assessment
12. Problems /immediate life-threatening complications.
13. Indication for admission
14. Plan: Investigations and treatment plan by

NB: *All patients admitted or under in-patient Surgery care should have separate long pattern documentation by Senior Registrar, Registrar, and Interns.*

Content of Focused evaluation and documentation using SOAP approach

Subjective (**POINT** of subjective documentation):

a. **P**ersonal history-provisional diagnosis, premorbid conditions –

b. **O**bservations -presenting symptoms and signs, changes in symptoms and signs since presentation
c. **I**nterventions and **I**nvestigations available, **I**nvited units and pending drugs and fluid charts
d. **N**otable challenges of treatment and cooperation with treatment including financial challenges
e. **T**rend since presentation -performance of treatment or interventions, performance status, improvement pain score.

Objective (General examination and focused regional examination): vitals must be checked and documented -no carryover of previous vitals documented, side of lesion or wound or tenderness must be reviewed and noted

Assessment of **Problem**: diagnosis and identified immediate life-threatening conditions and other challenges of treatment

Plan: Investigations, treatment, and appointment or follow-up schedule based on identified problems/challenges, information to patient and relation and response received

In-patient Ward Rounds and Review of Stable Patient

1. Postoperative patient: Surgery patient must have Senior Registrar's review within 3-6 hours post operation
2. Critically ill patients must be seen by SR every day- critical ill is a systemic condition marked by the presence of Systemic inflammatory response syndrome
3. Intern Preround (IPR) will start at 8:00 am except on operation day when it will start at 7:30 am
4. The Resident's ward round will start at 9:00 am.
5. Patient designated as clinically ill should have Intern Pre-round at 7:00 am
6. The timing and days of IPR and Registrar ward round is inflexible
7. The timing of the senior registrar's ward round is flexible, but the days are inflexible
8. All units have designated days for consultant ward round however the timing and days of consultant ward rounds are flexible to accommodate for events that may obstruct Ward rounds

Frequency of in-patient Review

a. All in-patients should be reviewed at least once daily during the week.
b. All post-operative patient should have the first post-operative review within 6 hours of Surgery.
c. The frequency of review for the unstable patient should be individualized based on the clinical findings/scenario. For example, a patient in shock should have continuous monitoring and a minimum of hourly review by SR until they are out of shock or pronounced irreversible shock.

Indications for admission

a. Patients who are dependent on invasive systemic support.
b. Patients requiring continuous monitoring.
c. Patients requiring major surgical intervention, or interventions that is not possible as an outpatient.
d. Patients requiring continuous infusion or blood transfusion.
e. Patients requiring parenteral medications that is not feasible as outpatient care.

f. Other indications for admission as determined by unit personnel of at least Senior registrar cadre

Discharge Criteria to out-patient care

a. Independent of invasive support.
b. Indications or symptoms for admission resolved
c. Symptoms/indication for admission resolving or stable and able to return safely in case of new exacerbation
d. No new symptoms or new symptoms treatable as outpatient or new symptoms does not preclude independent care as outpatient
e. Able to comprehend instruction or has relations that can comprehend instructions.
f. Patients being co-managed with other teams/units/divisions can be discharged from the care of the General surgery unit, but not from the hospital without informing other managing teams/units/divisions.
g. If the risk or demands of continuing to stay in the hospital is judged to be greater than continuing on outpatient care
h. Other indications for discharge as determined by a unit personnel of at least Senior registrar cadre

Patients discharged on short appointment/ but with incompletely resolved symptoms/ will be given the option of return immediately if symptoms worsen and can be called on phone every 48 hours to review symptoms by a designated SR or Registrar. The reason for such discharge will be explicitly documented.

Admission and discharge chart will be completed for all inpatients, or outpatient surgery

NB Decision to discharge a patient should be taken only by a unit Senior registrar or a Consultant

Content of Unit Discharge note (to be completed by registrar)

1. Statement of vital sign pattern in the last 44 hours
2. Statement about the resolution of persistent of symptoms present at admission
3. Statement about new symptoms
4. Reason for discharge
5. Statement of any invasive gadget, implant or drains
6. Statement about care at home
7. Column for the take-home medications
8. Statement about co-managing team information/referral
9. Documentation of performance index
10. Instructions on when to return for clinic or follow-up visit

General Follow-up plan upon discharge from in-patient care

1. Patient with incompletely resolved symptoms 1-3 times per week
2. Patient with healed wound (stitches removed) and resolved symptoms – 2 weekly
3. Patient with unhealed wound on outpatient wound dressing or outpatient care – 1-2 times per week
4. Patient on chemotherapy– every two weeks

Monitoring Patient Progress

1. All inpatient and outpatient will have a system of monitoring and documenting progress of treatment

2. Use the appropriate/standard risk stratification system
3. Use Performance status
4. Vital signs daily Intern IPR and repeat by residents
5. All patients will have objective (clinical or radiologic or biochemical parameters for monitoring progress based on standard clinical practice
6. All patients deviating from the expected recovery tract will have a review of treatment plan promptly, guided by best/standard clinical practice obtainable in the Nigerian clinical setting. All limitations of care should be communicated and documented.

Guides for selecting Treatment
General guide on antibiotics selection
First line parenteral antibiotics for acute abdomen (including intestinal obstruction, localized and generalized peritonitis)
Ciprofloxacin 200mg 12 hourly or ceftriaxone 1000mg daily
Metronidazole 500mg 8hourly

Or

Ceftriaxone/ Metronidazole combination
Advanced first line
Ceftriaxone/ Ciprofloxacin/ Metronidazole combination
Second line antibiotics
Augmentin /Metronidazole/Ciprofloxacin
Third line Antibiotics
Imipenem inclusion

NB: This is the minimum combination for patients suspected to have peritoneal infection, risk for peritoneal infection, or soft tissue infection requiring antibiotics therapy. The dosage should be per kilogramme body weight in children. The dosing and combination may vary depending on the severity of the infection. Other antibiotics might find use depending on the clinical scenario. Change in the routine antibiotics can only be instituted by a Senior Registrar or a Consultant

Changing antibiotics
Based on organism isolated if the symptoms are not improving

After 48 hours of empirical use if vitals and clinical features are not improving

Fluid therapy
The daily maintenance fluid is 3 Litres in the adult, given as 1 litre every 8hours. Children, malnourished and chronically ill patient with risk of fluid overload should have fluid replacement based on weight

The routine maintenance regimen is 5% D/W alternating with Normal saline or ringer's lactate 1 Litre 8 hourly. D10% in 0.18 saline is used for children.

Other fluid types such as Darrows, dextrose saline, 10% DW, 5%DSaline and 4.3% D saline, etc might be useful depending on clinical indications.

Emergency fluid and the resuscitative fluid regimen should depend on the best judgment of the attending surgeon/personnel irrespective of cadre because the requirement is dynamic.

Pain control
Use of Numerical Pain Score (0-10) is encouraged to grade and tailor the use of pain reliever
Paracetamol is first line for mild pain

Other severe pain should have use of pain control medications depending on availability and guided but not ruled by the WHO analgesic ladder

All pain should be reviewed at least once daily and re-scored

Severe pain not improving after 48 hours should be referred to the Pain and palliative unit

Moderate and severe pain of malignancy should be referred to pain and palliative on the first review.

1. First step. Mild pain: non-opioid analgesics such as nonsteroidal anti-inflammatory drugs (NSAIDs) or acetaminophen with or without adjuvants
2. Second step. Moderate pain: weak opioids (hydrocodone, codeine, tramadol) with or without non-opioid analgesics, and with or without adjuvants
3. Third step. Severe and persistent pain: potent opioids (morphine, methadone, fentanyl, oxycodone, buprenorphine, tapentadol, hydromorphone, oxymorphone) with or without non-opioid analgesics, and with or without adjuvants

Handling treatment prescriptions
1. All treatment prescriptions should be documented in patient case note
2. The patient should be informed of all treatment prescription and indication for the treatment
3. All prescribed treatment should be confirmed as being received/given on the next review
4. All treatment not received should be documented with reason for nonreceipt.
5. All treatment not received should be communicated to patient and risk explained

Cytotoxic chemotherapy
All patient on chemotherapy should have a review of clinical side effect and response to chemotherapy on 2weeks after the chemotherapy (using Performance status, RECIST criteria, and other symptoms review)

During ongoing care in follow-up clinic by other members of the team, patient noticed not to be improving after two cycles of chemotherapy will be reviewed with the Consultant

the hematologic and limited biochemical parameters (as standard) should be reviewed before every cycle of chemotherapy

The complete Radiologic and biochemical parameters and hematologic and cardiac indices parameters should be reviewed/recorded before commencing cytotoxic chemotherapy and after every three cycles.

The general request of investigations
1. The minor investigations for minor procedures are Packed cell volume and Urinalysis

2. Additional investigations for minor procedures will depend on the clinical findings/Scenario
3. The minimum investigations for major elective cases are FBC, Chest X-ray, LFT, E/U/Cr, Urinalysis.
4. Additional investigations for major surgeries will depend on the clinical findings/scenario
5. The patient should be informed of all investigations requested and the indication(s)

Handling investigations

Frequency of investigation

1. Should depend on the demands of the clinical scenario, the guides include:
2. All patients on intravenous fluid should be requested to have a minimum of twice-weekly E/U/Cr
3. Patients on Nil per Oris should have daily RBS
4. Patients managed for electrolyte derangement should have daily or twice electrolyte assay
5. Patients treated for sepsis and malnutrition should have FBC twice weekly
6. Patients on anaemia treatment and risk of ongoing blood should have PCV daily

Investigation charting

1. All investigations requested must be followed up and documented in an investigation chart
2. Any bizarre result should be repeated and followed up at least once, with the laboratory releasing the result
3. All in-patients should have an investigation chart including the date of request and date or result.
4. All investigations should reflect in an investigations chart.
5. The investigations chart should be updated regularly, at least once daily.
6. All outpatient investigations report should be documented with the date sample was collected
7. All available investigations should be noted in the next review.
8. Any investigation lacking at the time of the next review should be documented with reasons for the lack.
9. Patients/relations should be informed about the need to complete all investigations that are lacking in order to ensure timely and effective care.
10. Results of investigations, excluding histology, can be communicated to relations or patients by personnel at the level of a Junior residency.
11. Histology report and implications should be communicated by a Senior resident or Consultant receiving the result.
12. The histologic diagnosis, date of diagnosis and histology number should be recorded in the patient's case note.
13. Explicit documentation should be made about counseling based on the histology report.

Handling inconsistent laboratory or imaging results

1. The investigations should be repeated if the laboratory or radiologic test results are not consistent with the clinical evaluation. If the repeat result is still inconsistent, then a second opinion should be sought from a different laboratory.
2. If the laboratory result is non consistent and in a life-threatening range, patient on admission will be kept and the result repeated immediately before discharge whereas

outpatient will be asked to repeat and return the same day or next day for review with result.

3. In any circumstance, the patient should be treated according to the best clinical evaluation or best clinical judgment of the immediate clinical condition.
4. When there is a conflict between clinical judgment and laboratory results, the doctor should consult with the next senior colleague
5. When there is a conflict between clinical judgment and laboratory result at the level of the senior registrar and above, clinical judgment should take preference in directing treatment while the test is being repeated

Ordering repeat perioperative investigations

1. Investigations result inconsistent with the clinical scenario should be repeated
2. E and U for elective Surgery>2 weeks (without any comorbidity or acute illness)
3. Haemogram result more than 7 days without any co-morbidity
4. Electrocardiogram result >6 months in elective cases without additional or specific indications
5. Chest X-ray result > 6 months in elective cases without additional or specific indications
6. CT scan or MRI results needed for decision making > 4 weeks without additional or specific indications
7. Frequency of Ultrasound Scanning should be based on the clinical scenario
8. If the laboratory or radiologic test results are not consistent with the clinical evaluation, the investigations should be repeated. If the repeat result is still inconsistent, then a second opinion should be sought from a different laboratory.
9. If the laboratory result is inconsistent with clinical status, but in a life-threatening range as reported, the patient on admission will be kept on admission and result repeated immediately before discharge whereas outpatient will be asked to repeat and return the same day or next day for review with the result

Role of Microscopy, Culture, and Sensitivity (MCS) in caring for surgical infection

MCS is not a routine investigation in patients with surgical infection as the majority of antibiotics selection in surgical care are syndrome-based rather than organism-based treatment. However, MCS might be required for wounds that continue to fester with copious suppuration requiring more than once daily dressing after 72 hours of syndrome-based antibiotics selection.

Using the result of MCS

Changing the antibiotics regimen based on MCS result is not required nor advised if the syndrome -based regimen already results in obvious and significant clinical improvement

Counselling, breaking news, communication of diagnosis

1. Patients/ relation should be informed of the clinical condition/ diagnosis
2. The patient/relation should be informed about the plan of treatment before commencing treatment.
3. The patient/Relations should be informed about the goals of treatment before commencing treatment.
4. Patients wish to decline treatment after adequate counselling should be respected and explicitly documented.
5. All counselling to patients and relations about the disease state or patients state, prognostication, content of operative intervention, and risks should be communicated by a doctor in the cadre of Senior registrar or Consultant.

6. All prognostications and outcome predictions should be accompanied with clear expression of the subjectivity and uncertainties around such predictions.

Handling schedule of Surgery

1. Scheduling of time for surgical intervention should be by the senior registrar or the Consultant
2. Patient should be informed of the time scheduled for surgery
3. Any in-hospital surgery delay should be clearly documented in patient's case note with reason
4. Any in-hospital surgery delayed should be communicated to patient with explanation or reason, and options of referral should be provided where possible and appropriate
5. Any patient-related surgery delay should be documented, and the risk clearly communicated to patient/relation
6. Consent of elective cases should be taken in the clinic at least a week before surgery with the support of patients information leaflet where available
7. Preoperative round should be in the day before surgery
8. First postoperative review should be within 3-6 hours of surgery by SR

Communications within units, divisions and department

1. Intern should document all patient review with name date and time
2. Intern should complete the electronic unit register of all patients seen and problem identified
3. Intern should communicate to registrar or SR on all patients reviewed and problems identified
4. Registrars and SR should document and complete the electronic record for all patients seen alone or with consultants
5. Registrars and SR should communicate identified problems with immediate superior colleague by physical contact, or through phone or text message as appropriate. When text message is not replied direct physical or phone communication should be established to ascertain delivery/ seeing of message
6. All communication on patient treatment with Consultant should be documented with time and date, and all consultant instruction should be documented with time and date

Communications across units and departments

1. SR should oversee writing and delivery of consult
2. SR should ensure record and copy of consult is present in the case note with timelines
3. SR should communicate directly with SR in other units and oversee the organization of MDT at least once for every critically ill patient being co-managed by other units
4. SR should communicate directly on patients discharged from in-patient unit care with all other units co-managing

Communications on referred patient

1. All referred patients should have referral note
2. SR should request for referral note from all patients received without referral
3. All patients operated without before referral should have details of the operation in the referral note, otherwise it should be requested to guide decision making and treatment.
4. SR should communicate treatment/outcome to referring personnel
5. In the instance of difficulty with communication, it should be clearly documented
6. All patients referred in after operation should have details of operation and findings in the referring hospital

7. It is appropriate to Feedback communicated to the referring hospital by writing or by phone

Communicating emergency within the unit

1. Information should be communicated from the intern upwards through the ranks to the superior cadre personnel.
2. If the next person in the hierarchy cannot be reached, then the next higher-ranking personnel should be informed.
3. The personnel nearest to the patient or the hospital (who can attend most quickly to the patient) should be informed earlier. Hence when the unit personnel are not on call or in the hospital, the information flow should be first to persons on call and in the hospital before informing persons not in the hospital to avoid delay and failure to rescue.
4. If persons outside the hospital are informed first, they should alert persons in the hospital to hold brief before they arrive.
5. All communications regarding patient management should be explicitly documented in the patient case note

Diagnosis Documentation

Clinical diagnosis should be documented as provisional diagnosis

1. Presence of systemic inflammatory response should be acknowledged and documented explicitly
2. Problems should be listed (medical and social, resources, logistics) after the provisional diagnosis
3. Invitation to review emergent condition in the absence of owner team
4. Any personnel invited to review an emergent life-threatening condition on a patient in the surgical ward, when physically present as the closest and immediately available surgeon , is expected to honor the invitation
5. Such personnel should briefly and quickly review the prior management and the emergent condition before instituting treatments
6. Any treatment instituted should be clearly documented in the case note and same communicated to the managing team by phone call or physically

Counselling for surgery

- Consider the psychological and medicolegal issues investigation and counselling
- The disease and likely cause in the context of the patient
- Options of treatment available and reason for offering surgery
- The benefits of surgery and risk of nonsurgical intervention
- The goals of surgery and follow up plan
- The risk of surgery and how to mitigate
- Establish patient expectations and ensure patient and surgeon are on the same page
- Establish a patient proxy to take the decision in case of incapacity in the perioperative period
- Counselling for operation will be by a designated SR or Consultant
- Counselling for elective surgery will be at the surgery outpatient clinic.
- The timing of counselling for emergent surgery will be at the point of review

Interacting with new patients in the outpatient clinic

All new patients will be reviewed by a consultant or a designated SR

Terms of review of new patients

- Review vital parameters

- Use the SOAP approach or long case review method
- On first review all patient will have details of provisional diagnosis, treatment strategy and proposed treatment plan and goal. Timeline will be documented where possible
- Details of treatment plan will be communicated to the patient on the first review
- Maximum of 5 new patients will be standard accepted per clinic session
- New patient will be based on referral/appointment

Interacting with old patient in the outpatient clinic

1. Maximum of 15 old patients will be standard accepted per clinic session
2. Follow-up visits will be based on referral/appointment kept in the records department
3. Other designated members of the unit will review all returning or follow-up patient
4. Patients plan of treatment, specified by the Consultant or SR on the first visit, will be the reference for review and ongoing care
5. Patients deviating from the plan of treatment or expected response to treatment will be reviewed with the Consultant.
6. Patient making adequate recovery and progress on the plan of treatment should be discussed with the Consultant before the long appointment exceeding two months,
7. Patient on treatment plan spanning in months should be discussed with the Consultant every two months in the clinic
8. Patient on treatment plan spanning over weeks should be discussed with the Consultant every two weeks
9. Any patient needing change, truncation of the treatment plan should be reviewed with the Consultant

Invitation to join other units for emergency surgery

A unit will honour the invitation to join emergency surgery; if the surgery is planned for the period when the unit is on call, prioritizing the emergency will be dependent on the urgency in relation to the existing emergency of the unit. Other units planning for a period outside the call hours of any unit will be advised to invite the unit on call.

Invitation to join elective surgery from other specialty or units

1. Elective consultations will not be honoured during the emergency call period
2. Outpatients will be reviewed in the clinic before admission
3. The unit will review inpatient needing elective surgery during working hours (outside call hours), and the surgery will be planned with the managing team taking into account the existing elective plan of the invited unit
4. Timing of admission and surgery for elective surgery will be planned along with the inviting unit. The timing and day of surgery will be considered in the context of planned surgical procedures and personnel availability of that unit.

Referring patients out of the unit

1. All patient needing referral should be informed of the reason for referral
2. All patient needing referral should have a referral note (template)

Managing patients with other units

1. Patients for which we are invited to co-manage will be reviewed as appropriate for the severity of the surgical condition
2. Invitation of other subspecialty will be the responsibility of the managing team
3. All change in the treatment plan will be communicated to the managing team before being instituted

4. When a unit invites other unit(s) or specialty to co-manage a patient, their input will be considered in the decision making
5. When the invited unit fails to review patient for two consecutive days, a reminder will be sent requesting a plan or directives of continuing care or to document closure of treatment for the patient.
6. In patients whose surgical in-patient care is completed, they will be discharged to the care of the other managing units

Documentation of operation note

The documentation shall be done by the surgeon who carried out the procedure or his designated Assistant. In case the Assistant does the documentation, the Surgeon shall review the content and counter sign. The Theatre Register shall be filled by the Assistant surgeon.
The documentation of operation note should include

i. All surgical team members should utilize the surgical safety checklist
ii. surgeon/assistant /Scrub nurse/anaesthetist
iii. Patient particulars
iv. Responsible Consultant: this is the Consultant in charge of the patient
v. Supervising/ in-suite Consultant: This is the consultant supervision/directing in-suite but not scrubbed for the procedure
vi. Provisional diagnosis
vii. Indication for surgery
viii. Postoperative diagnosis
ix. Intra-operative findings
x. Swab counts
xi. Sutures used especially for closure and anastomosis
xii. Drain and prosthesis used
xiii. Blood loss
xiv. Intra-operative challenges/morbidity

Responsibility to proper documentation and records of patients primarily managed by general surgery

As part of subjective review, all nurses' documentation and recordings in the preceding day should be reviewed during the daily Registrar or Senior registrar's ward round. Any irregularities, inconsistencies, or omissions in care should be adequately noted, communicated to the nurses, and escalated through the ranks to the responsible Consultant

1. All pages on the patient record should be numbered as it is being used
2. All sheets should have patient name, hospital number, ward and page number
3. All investigation and monitoring chart should be properly labelled and updated

SUMMARY TABLE FOR THE DIVISION OF GENERAL SURGERY

STANDARD OPERATING PROCEDURES FOR MEDICAL AUDIT

Common tasks or activities	**Common cases**	**Turnaround time**	**Audit parameters**
EVALUATION AT EMERGENCY POINT	Surgical acute abdomen	60 minutes	should be assessed and management commenced within 75 minutes (pain relief, IVF, catheterization, NG Tube, antibiotics, oxygen if indicated) First line investigation requested: 90min Second Investigations requested (if indicated) 180 minutes Surgical intervention: within 24 hours if emergent, within 72 hours if urgent.
	Acute non-abdominal Painful surgical conditions (fistula, hemorrhoids, perianal sepsis, abscesses		Pain control within 60 minutes Investigations 90minutes Antibiotic and other supportive treatment if indicated within 90minutes Investigations and stabilizing treatment commenced within 120minutes Decision on admission or referral within
	Cold cases /malignant conditions		
	Shock Situation	60minutes	Specific treatment of cause of shock commenced within 90minutes
Clinic	New cases	45-60minute/ case	Complete review, prescribe treatment and investigations, planned documented and communicated within 75 minutes
	Cold cases	20 minutes/case	Complete review, prescribe treatment and investigations, planned documented and communicated within 30 minutes Handwritten report ready within 24 hours of receipt of request and case file received
	Request for referral, medical report, etc.	24hours	

WARD	**DAILY REVIEW** **REVIEW BY CONSULTANTS**	30 minutes Total duration 5-6 hours (ward round)	All inpatients should be reviewed at least once daily by a unit member Postop patient: Surgery patient must be reviewed by Senior Registrar within 3-6 hours postop Critically ill patients must be reviewed by Senior Registrar every day- critical ill is a systemic condition marked by the presence of Systemic inflammatory response syndrome. Frequency of review of critically ill patient will depend on the dictates of the clinical condition IPR will be at 8:00 am except on operation day when it will start at 7:30 am The Resident's ward round will start at 9:00 am. Patient designated as clinically ill should have IPR at 7:00 am All units have designated days for consultant ward round however the timing and days of consultant ward rounds are flexible to accommodate for events that may obstruct Ward rounds Time to review ward cases : 30 minutes per patient ongoing care New cases ward adimission:60 minutes
SURGICAL CASES	Elective operation performed	30days	Urgent Cases: 15-30 days Non-urgent case: 60-120 days

DIVISION OF PAEDIATRIC SURGERY

Medical Audit Standards Attainable in Carrying Out Most Common Task

I. Out-Patient Service

a. Surgical out-patient service for children should be at least twice in a week
b. All paediatric surgical out-patient (PSOP) consultation should be within 2 hours of arrival
c. There should be facilities appropriate for age for play arena in the out-patient clinic for the children
d. All PSOP should have routine base line vitals signs and parameters i.e., PR, BP, Temp, weight, height, before seeing the surgeon
e. All PSOP should have baseline investigations such as PCV, FBC, Haemoglobin genotype, serum electrolytes (Na, K, Cr, Urea, HCO_3)
f. Minor elective surgeries should be earned within less than a week and maximum a month
g. Major elective surgeries should be scheduled within four weeks of visit. Hoping that all investigations have been conducted.

II. In-Patient Service

a. Children have peculiar characteristics that demand special care in the hospital
b. The ward facilities should be made paediatric friendly with appropriate age specific equipment
c. The paediatric surgical ward should have attached mothers' inn so that the parents could be physically and emotionally supported
d. Counselling facility could be available in the ward
e. Multidisciplinary management must have joint review of patients at least once in a week
f. Laboratory investigations should be conducted by the house officer within 1 hour of arrival in the ward and results of investigations should be available with 3 hours
g. Parents of the children should receive health education relevant to the pathology during the admission and at discharge.
h. Admitted patient should be reviewed with 1 hour of arrival in the ward
i. All post operative patient must have hourly monitor and record of vitals within the first 12 hours post operation
j. All post operative patient must have hourly monitor of urine output for the first 24 hours of surgery
k. The side laboratory and procedure room should be adequately equipped to facilitate pre and post-surgical care of the children.

III. Paediatric Surgical Procedure

a. All patients should be accompanied by laboratory investigations results, radiologic films, and needed consumables for surgery including prosthesis
b. All neonatal surgeries and critical ill or emergency surgical cases must be managed in the high dependency unit before transfer to the ward after being certified fit
c. Paediatric blood bags should be available to minimise wastage of blood
d. Blood products such as packed cells, plasma, platelet concentrates should be available

IV. Paediatric Emergency Surgery

a. The surgeon should be invited within 1 hour of arrival of the patient in the emergency rooms (EPU or A&E)
b. Basic clerking and investigations (full blood count, electrolytes and urea, plain abdominal x-ray (erect and supine), grouping and cross matching) should have been carried out by the casualty officer on duty
c. Investigations should not preclude resuscitation
d. Intravenous fluid therapy should be commenced within 1 hour of admission
e. Patient with acute abdomen should be placed on nil by mouth immediately
f. Patient should be reviewed every 2 hours until surgical intervention
g. All post operative children should be reviewed 6 hourly by the surgeon for the 1st 24 hours and daily thereafter.

V. Day Case Surgery

a. All day cases must be reviewed by the anaesthetist at the pre-anaesthesia evaluation clinic and on the day of surgery.
b. All babies must have detailed investigation results as requested for the disorder and procedure before admission in the day case ward
c. All day case surgeries must have an IV infusion line set up at admission to maintain glucose supply and ease induction of anaesthesia

VI. Elective Surgery

VII. Neonatal Surgery

a. All neonatal surgery should be electively ventilated post operation
b. Parenteral nutritional supplements should be provided for all gastrointestinal surgeries that are accompanied by intestinal failures, short bowel syndrome and prolonged ileus.
c. All neonatal jaundice should be screen early for surgical causes and should have full liver function tests (Bilirubin, ALT, ALP, AST, GGT, protein, albumin), viral screen and enzyme deficiency screen.

VIII. Children Surgical Oncology

a. Tumour board should be constituted, and multidisciplinary team review should be done
b. Protocol for individual patient and pathology should be designed and monitored

IX. Disorder of Sexual Differentiation

a. Multidisciplinary team review required
b. Parental counselling should be done on initial care as unisex
c. All patient with DSD should have the following investigation: Karyotype, hormonal assay (17 OH progesterone, cortisol) and serum Electrolyte

X. Craniofacial Cleft

a. Patient with cleft lip should be at least three months of age for lip surgery and over six months of age for palate surgery.
b. Should be at least 5 kg and demonstrates age-appropriate weight.
c. There must be a gap of at least 90 days between two surgeries to allow time for proper healing following surgery (except for emergency)
d. Chest x-ray (CXR) and Electrocardiogram (ECG) must be obtained if the patient's history or physical exam suggest cardiac or pulmonary abnormalities.

e. All patients with Craniofacial cleft must have complete blood count with a minimum preoperative hemoglobin level of 10g/dL.
f. Patients must not receive blood transfusions prior to surgery to meet hemoglobin requirement.
g. Cleft palate patients must have additional PT/PTT.

DIVISION OF NEUROLOGICAL SURGERY

Standards of Operation in Carrying out Common Tasks in the Division

A. Out-Patient Services

i. Neurosurgical clinic sessions should be held at least twice in a week preferably based on sub-specialties e.g one clinic day for General and Oncologic cases and another clinic day for Paediatric and Spine cases.
ii. All patients attending the clinic should have their neurovital signs and anthropometric parameters checked before consultation i.e. GCS, Pupillary reactivity, PR, BP, Temperature, Weight and Height. This should be done by the nurses in clinic and documented in each patient's folder.
iii. Patients for elective surgeries should have all requested investigations done on out-patient basis with normal results before booking and admission.
iv. Elective surgeries should be scheduled and done within 2 weeks of clinic visit.

B. In-Patient Services

i. Neurosurgical patients are a peculiar lot with tendency for sudden and rapid neurological deterioration, hence the need for very close monitoring. Every patient should be seen at least once daily by a resident and at least once weekly by a consultant.
ii. There should be dedicated neurosurgical wards for both adult and paediatric neurosurgical cases.
iii. The wards should be manned by trained neurosurgical nurses who will provide a 24-hour coverage.
v. The wards should be well equipped with multi-parameter monitors, functional pulse oximeters and fully equipped side laboratories amongst other things.
vi. There should be a dedicated neurosurgical intensive care unit (NICU) with trained neurosurgical intensive care nurses and anaesthetists providing round the clock services. Facilities for arterial blood gases, patient monitoring and mechanical ventilation should be a given.

C. Neurosurgical Procedures

1 Emergency Surgeries

i. Patients presenting in the Emergency room should be reviewed by the Casualty officer who should also ensure necessary haematological and radiological investigations are done i.e FBC, E/U/Cr, Clotting profile, Blood grouping and crossmatching, Cranial CT scan etc
ii. The attending casualty officer should also ensure appropriate resuscitation measures are instituted when necessary.
iii. Patients in the Emergency room should be reviewed within an hour of presentation by a resident or consultant of the neurosurgery unit.
iv. All patients with Traumatic Brain Injury (TBI) should be placed on nil per os until a contrary directive by the Neurosurgical team.
v. Patients with severe TBI (GCS < 9) should be reviewed by anaesthetists and promptly transferred to the ICU for mechanical ventilation.
vi. Surgeries for TBIs should be done within four hours of the traumatic event
vii. Immediate post-op care should be in the Neurosurgical ICU or high dependency unit until patient is stable to be transferred to the open ward. Where Neurosurgical ICU is not available the general ICU or Trauma centre should be used.

viii. Patients with cervical spinal cord injury should be appropriately resuscitated by the casualty officer who should also invite the Physiotherapists to apply a Philadelphia collar before the patient is moved out of the Emergency room for any investigations.
ix. The cervical spinal cord injured patient should be nursed flat in bed or spine board and placed on nil per os until a contrary directive by the Neurosurgical team.

2 Elective Surgeries

Brain & Spinal Cord Tumours, Degenerative & Traumatic Spine Pathologies

i. All patients should have cranial/spinal CT and/or MRI done.
ii. There should be a pre-operative round to assess patients' readiness for surgery and to effect any instructions from the anaesthetist review. Availability of blood for surgery should be ensured and consent for surgery obtained. All these should be done a day before surgery.
iii. IV access should be secured for patients for elective surgery on the morning of surgery on the ward.
iv. iv Post-op care following surgery for brain tumours and high cervical spine pathologies must be in the ICU. Monitoring of neurovital signs by the residents closely depending on the peculiarity of the case.
v. Drains to be assessed by the residents and removed after 48hours of surgery unless otherwise stated.
vi. All patients must be on TED socks in the peri-operative period and commenced on pharmacological anticoagulation within 48-72 hours of surgery.

Hydrocephalus

i. All patients must have a pre-operative neuro-ophthalmic review to document base line ophthalmic function
ii. A post-op shunt x-ray series should be done en-route the ward.
iii. The patient should be on nil per os till bowel sounds return
iv. Post-op PCV and E/U/Cr should be done on post-op day 1.
v. There should be daily measurement and charting of the occipitofrontal circumference (OFC)

Myelomeningocele

i. There should be proper counselling and re-counselling of patients' relatives on prognosis and long-term neurological outlook with or without surgery.
ii. Patients should be nursed in the prone position and wound dressed with saline before surgery.
iii. Patients should be nursed prone post-operatively until the surgical wound has healed satisfactorily.
iv. The OFC should be monitored and charted at least every other day.
v. Management should be multidisciplinary from the outset involving the Orthopaedic and Paediatric surgeons depending on the presence of other congenital anomalies.

Neurosurgery outpatient facility checklist

1. New patients must present with well written referral letters before they can be seen in the clinic.
2. The outpatient service should run at least twice in a week including special clinics for catheter change.
3. All patients must have pulse, blood pressure and temperature checked and documented at each clinic visit by the staff nurse.

4. There should be facilities to check for weight and height for all oncological patients.
5. Point of care facilities such as glucometer, urinalysis, and uroflowmetry must be available always at each clinic.
6. Adequate numbers of wheelchairs must be available and accessible for paraplegic and frail patients.
7. Basic materials such as latex gloves, cotton wool, spirit, povidone and xylocaine gel must be available in each consulting room.
8. Patients for minor procedure should be seen in the clinic at least once by the senior resident before the proposed surgery.
9. Patients for major procedures should be seen at least once by the consultant and twice by the senior resident before the proposed surgery.
10. All patients must be present in the clinic prior to the proposed day of the procedure.
11. Oncological surgeries should take precedence during booking for elective procedures.
12. Management of all oncological conditions should be discussed at multidisciplinary tumor (MDT) board meeting.

SUMMARY TABLE FOR THE DIVISION OF NEUROSURGERY

STANDARD OPERATING PROCEDURES FOR MEDICAL AUDIT

Common tasks or activities	Common cases	Turnaround Time	Audit parameters
1.EVALUATION AT EMERGENCY POINT	A) TRAUMATIC BRAIN INJURY	30 minutes	Patients should be assessed, and management commenced within 30 minutes (IVF, Analgesics, oxygen supplementation if indicated) RBS should be done bedside at presentation FBC, E,U,Cr, Grouping and crossmatching should be requested for All TBI patients should be nursed 30-45 degrees head up Cranial CT scan must be done within 60 minutes Neuro-vital signs should be monitored every 30 minutes Surgical intervention (for patients who require such) should be performed within 4 hours of presentation
	B) SPINAL CORD INJURY	30minutes	All severe TBI patients should be admitted into ICU immediately after cranial CT scan (within 90 minutes of presentation) Patients should be assessed and management commenced within 30 minutes (IVF, Analgesics, oxygen supplementation if indicated) All spinal cord injured patients must be nursed flat

	C) COLD CASES/MALIGNANT CASES	60minutes	To be on Philadelphia neck collar immediately on arrival (these collars should be available at surgical emergency ward) To have spine radiographs done with 60 minutes (oxygen cylinder to accompany patients who need to be on oxygen supplementation to and from radiology department) Patients should be assessed and management commenced within 60 minutes (IVF, Analgesics, oxygen supplementation if indicated) Stabilization and investigations commenced within 120 minutes Decision on admission or referral to clinic within 12 hours
2.CLINIC	A. NEW CASES	60-90minutes/ case	All patients must have vital signs checked and documented by the clinic nurses (and weight in addition for children) Complete review, prescribe treatment and investigations, planned documented and communicated within 90 minutes
	B. OLD CASES	30-45 minutes/case	Complete review, prescribe treatment and investigations, planned documented and communicated within 45 minutes
		24hours	

	Request for referral, medical report, e.t.c		Hand written report ready within 24 hours of receipt of request and case file received
WARD	DAILY RESIDENTS WARD REVIEW BY CONSULTANTS		All in-patients should be reviewed daily by the residents, starting by 7am Critically-ill patients should have at least twice daily review Postop patients must be reviewed within 3-6 hours post-operative Weekly ward round Other patients review as deemed fit, depending on peculiarity of patients
SURGICAL CASES	Emergency operation Elective operation	4-12 hours 7-30days	Emergency cranial operations should be performed within 4 hours of presentation VP shunting for acute hydrocephalus and ruptured myelomeningocele should be performed within 12 hours Urgent Cases: 7-14 days Non-urgent cases: 15-30 days

UROLOGIC SURGERY STANDARD OPERATING PROCEDURES

1. All patients must present with recent laboratory investigations, radiologic films, and consumables for surgery.
2. Patients with comorbidities should be investigated as appropriate and must be seen by relevant specialists.
3. All patients for major urological procedures should have their medications reviewed prior to surgery.
4. All patients must be accompanied by at least an adult relative.
5. Informed consent must be obtained by the surgeon or the assistant.
6. Blood and blood products must be available as appropriate.
7. Post operative patients must be reviewed within 2 hours post-surgery.
8. Histology forms and the post operative specimen where applicable should be properly labelled and the request form filled by the unit registrar.
9. Post operative pack cell volume and renal function test must be done 1st and 2nd day post operatively respectively.
10. Drain removal should be determined by the surgeon or first assistant.
11. The decision for discharge of post op patients should be made by the managing consultant or the senior registrar.
12. All patients must have a detailed discharge summary at the point of discharge

Day Case Urologic Surgery

1. All patients must be reviewed in the clinic prior to the proposed day of procedure.
2. All patients must present to the ward on or before 7am on day of surgery.
3. Patients for regional anaesthesia should be reviewed by the anaesthetists before.
4. All patients must be reviewed before discharge.

In Patient Care

1. All admitted must have laboratory investigations done within an hour of admission and results obtained as soon as possible.
2. All septic patients must have full sepsis work up done.
3. All patients admitted via the emergency must be transferred to the ward within 48 hours.
4. Patients with haematuria should have pcv checked at least once daily.
5. Patients who are relieved of chronic retention must have hourly urine output charting.
6. Decision to send consult to other specialties for patient's management must be made by at least the senior resident.
7. All consults must be seen within 1 hour of receipt.
8. All admitted patients must be seen every day by the managing team.
9. All discharged patients must be seen not more than two weeks for outpatient follow up care.

DIVISION OF PLASTIC AND RECONSTRUCTIVE SURGERY UNIT (PRSU)

1. **Outpatient Service**
   a. Surgical outpatient clinic is a morning clinic appointment and should run from 9am to 2pm.
   b. All patients should be seen on a first-come first-served basis.
   c. The Medical Records staff should ensure patients' cards are retrieved as such and arranged accordingly without discrimination.
   d. Patients' vitals (pulse, BP, weight and height) should be recorded by nurses prior to seeing the doctor.
   e. Patients should be seated according to their time of arrival at the SOPD.
   f. Gloves and minor dressing materials (methylated spirit, cottonwool, chlorhexidine solution) should be made available on a side desk.

2. **In-Patient Service**
   a. PRSU patients span across all age groups and anatomic regions, and differ in their in-patient requirements.
   b. All burn patients should be managed in a burn ward (usually within a burn unit or burn centre).
   c. All patients should have a detailed ward clerking and a clear treatment plan on the day of admission.
   d. All patients should have their laboratory results within 24 hours of admission.
   e. Radiological results should be made available within 72 hours of admission.
   f. Patients requiring pressure dispersion should be nursed on appropriate pressure dispersing mattresses within 24 hours of admission.
   g. All patients should have a reserve of materials necessary for a change of dressing at their bedside at all times.
   h. All wounds for inspection should be exposed on the morning of a consultant ward round and wrapped in a cling film.
   i. All wounds with soaked dressings should be changed as soon as possible with the exception of graft donor and recipient sites.
   j. All patients going for operation must have their relevant investigations updated and brought along with them to the theatre complex.
   k. Consent must be obtained within 24 hours for all procedures.

3. **Surgical Procedures**
   a. Planned technique for surgery should be reviewed within 24 hours of the procedure.
   b. All patients going for operation must have their relevant investigations updated and brought along with them to the theatre complex.
   c. The first patient on the list for the day should be brought to the operating theatre by 7:30am.
   d. Dermatome blade should be made available for all patients going in for a skin graft surgery.
   e. Adrenaline solution should be made available for all patients when needed.
   f. Joint surgeries with other units or departments should be discussed at least 24 hours pre-operatively and a planned sequence of intervention charted.
4. **Day Case Surgeries**
   a. All day case procedures should have their folders ready at the day case ward on the evening prior to admission.

b. All patients for day case surgery should be on admission by 7am on the morning of surgery.
c. The first patient on the list for the day should be brought to the operating theatre by 7:30am along with their relevant laboratory and radiological results.
d. All patients requiring the services of an anaesthesiologist should be reviewed by the same within 24 hours of the procedure.

5. Emergency Plastic Surgeries

a. The plastic surgeon should be notified within one hour of arrival of the patient to the emergency room.
b. Basic resuscitation and monitoring of the patient should be ensured by the casualty officer on ground.
c. Baseline investigation and preparation in view of surgery should be carried out by the casualty officer.
d. The anesthesiologist-on-call should be informed for a review within one hour of arrival of the patient.
e. Patient should be reviewed every two hours to ensure stability until surgical intervention.

DEPARTMENT OF ORTHOPAEDICS

Standard Operating Procedure

Open Fractures

A. At presentation:

- Admit for orthopaedic team on call
- For Gaustilo-Anderson (GA) type II and III open fractures, admit for ortho and plastic surgery
- Follow initial Advance Trauma Life Support (ATLS) resuscitation
- Take Samples for FBC and Group and cross match (GXM) blood where applicable
- Commence IV Cefuroxime 1.5g stat, then 750mg 8hourly (Adults)
- For dirty GA type III open fractures add IV Metronidazole 500mg stat and then 500mg 8hourly (Adults)
- Ensure appropriate dosage (per kilogram body weight) for children
- Give Tetanus prophylaxis

B. Within 3 hours of presentation:

- Wound irrigation and debridement with copious amounts of Normal saline in the A/E theatre
- GA type I and II open fractures to be sutured loosely with interrupted nylon sutures
- GA type III fractures should have closed sterile dressing applied after irrigation

Delayed primary wound closure for GA type III fractures within 3 days if wound remains clean

C. Within 12 hours of presentation:

- External fixation to be done for GA type II or III open tibial fractures
- Above knee cast with a window for GA type I open tibial fractures

D. Definitive fixation will depend on the state of the individual bone and soft tissues.

Septic Arthritis

A. At presentation

- Admit for orthopaedic team on call
- Resuscitate as appropriate (ATLS)
- FBC, CRP, ESR , joint aspirate for microscopy, Culture and sensitivity (MCS) and blood culture on admission
- For suspected hip septic arthritis, hip USS on admission
- For suspected hip septic arthritis, skin traction to the limb
- IV Cefuroxime on admission (IV Augmentin for sickle cell disease patients)
- Review IV antibiotics with MCS results

B. Within 6 hours of presentation

- Arthrotomy to be done:
- Under local infiltration and sedation in A/E theatre for the knee
- Under regional or general anaesthesia for the hip

C.

- IV antibiotics to continue for at least 5 days after arthrotomy, and then oral for at least 2 weeks if proper clinical response. However, if no response change antibiotics according to sensitivity pattern

Spinal Cord Injuries

A. At presentation:

- Admit for the orthopaedic team on call
- Resuscitate using ATLS protocol
- Maintain systolic BP at ≥100mHg
- Take samples for PCV and other desired investigations
- Catheterise at presentation and allow continuous drainage.
- Nurse as a spinal cord injured patient:
  - Lie supine on a rigid board.
  - Log roll when movement is necessary.
  - Rigid cervical collar if cervical spine injury is suspected
- If patient presents less than 8 hours after *injury* commence steroid protocol:
  - IV methylprednisolone 30mg/kg bolus over 15 minutes
  - 45 mins after the bolus, IV methylprednisolone in N/Saline 5.4mg/kg/hr for 23hrs
- Document **level** of injury & **completeness** of injury at presentation and daily for ≥3 days.

B. Within 6 hours of presentation:

- To be reviewed by orthopaedic team on call within one hour of arrival
- Appropriate plain radiographs should be ordered AFTER review of orthopaedic team
- Transfer to the spine unit as soon as reviewed by orthopaedic team on call
- Appropriate counselling of the PATIENT and appropriate relatives should be done by the spine unit *SR or consultant*.
- TED stockings and pharmacologic DVT prophylaxis to commence
- For **incomplete** injuries, a member of the spine unit is to accompany the patient during all intra-hospital transportation until surgery.

C.

- Pressure- dispersing mattress is to be obtained for all SCI patients
- Incomplete injuries to have urgent spine decompression and fusion
- Complete injuries to be counselled properly and offered spine stabilization
- When spine stabilization is not feasible, non-operative management may be employed

Closed Long Bone Fractures

A. At presentation:

- Admit for the orthopaedic team on call for review
- Resuscitate according to ATLS protocol
- Parenteral analgesics
- **No antibiotics** unless otherwise indicated
- Orthopaedic cast technologists to apply an appropriate splint
- During call periods when ortho cast tech are not available, splinting is to be done by casualty officer
- Appropriate plain radiographs should be done AFTER analgesics and splinting

B. Within 6 hours of presentation:

- To be reviewed by ortho team on call
- Orthopaedic team on call to review x-rays before patient leaves the A&E

C. Definitive fracture treatment depending on individual injury and patient characteristics

Major Joint Dislocations
(Shoulder, Elbow, Hip, Knee and Ankle)

A. At presentation:

- Admit for the orthopaedic team on call
- Parenteral analgesics at presentation

B. Within 1 hour of presentation:

- Appropriate plain radiographs should be done
  - Shoulder: AP and Scapular-Y views
  - Elbow: AP and Lateral views
  - Hip: Pelvis AP and Hip lateral views
  - Knee: AP and Lateral views

C. Within 90 minutes of occurrence

- Dislocation should be reduced by casualty officer if x-rays have been done.
- Conscious sedation with pentazocine and diazepam for reduction
- If x-rays cannot be done within 90 mins, it should be clearly documented then the dislocation should be reduced, and x-rays done afterwards.
- Obvious ankle dislocations should be reduced at presentation without waiting for x-rays

D. Post-reduction:

- Assess and document stability
- Assess and document pulses and capillary refill in the distal parts of the limb
- Knee dislocations: if distal pulses are normal, measure ankle-brachial pressure index (ABPI)
- If ABPI is >0.9, monitor serially
- If ABPI is <0.9, emergency doppler USS and CTSU consult
- Knee dislocations: if distal pulses are absent or diminished:
- Immediate CTSU consult
- Assess and document distal nerve status
- Splint limbs appropriately:
  - Shoulder: Arm sling or collar & cuff
  - Elbow: Above elbow back slab
  - Hip: Skin or skeletal traction
  - Ankle: Below knee back slab
- Post-reduction x-rays as appropriate

DEPARTMENT OF PHYSIOTHERAPY

Standard Operating Procedure for Physiotherapy Department

Objectives

i To remain one of the main pillars of the Medical Rehabilitation team offering physical treatment to patients.

ii To attend to referred patients within 24 hours or immediately depending on the nature of the referral to render appropriate therapy.

iii To keep good record and progress report of patient from the first assessment to discharge period all entries must be dated

iv To organize Clinical seminars/workshops where ideas that will enhance better physiotherapy services will be shared

v To ensure that only qualified and registered physiotherapist are employed and managed patient accordingly

vi To encourage the physiotherapists to participate in local, national and international conferences of the society and any other sister organization for continuous professional development.

vii To be a reference point to other institution rendering physiotherapeutic services within and outside the region

viii To offer specialized services

To Make the Objectives Realistics the followings will come to Play & Available

1. Multidisciplinary approach to all patients seen the referring team/Managing team must carry the physiotherapists along in their decision making.
2. Importance of the therapy sessions and procedures must be duly explained to the patient
3. Patients shall pay prescribed hospital fees for services
4. Referral should be received for preoperative physiotherapy for all patients that will require physiotherapy post surgically
5. Patients with Traumatic Brain Injury (TBI) and C-spine injury should be referred promptly for application of appropriate cervical collar
6. The management should make sure that consumables are readily available
7. High risk patients for DVT should be referred promptly for TED stockings –and should form in part of the initial recommend therapy for all patients that will stay long in the hospital
8. Mini physiotherapy unit in all the wards
9. Easy transportation of patients from VIP and Behavioural science wards to the department no direct link to the department and Shuttle buses attached to the department.
10. Shuttle bus should be made available for transportation at O&G department for ease
11. Communication from the referring team to be notified sudden discharge of patient from the ward without informing the PT'S is not tenable.
12. Accurate record keeping of patient in each ward by the Nurses is essential and proper handing over from one shift to the other to avoid unending/unnecessary searching for patients when consult is received.
13. Accommodation to be readily available for our intern physiotherapists for ease of call duty coverage before the arrival of the senior physiotherapists
14. Any referral to the orthotic/Prosthetic unit should be routed through the physiotherapy department.

Clinical Units in the Department

1. Cardiopulmonary unit
2. Community Physiotherapy/Palliative Care unit
3. Geriatric unit
4. Neurology /Mental Health Unit
5. Orthopaedic and spine unit
6. Paediatric unit
7. Pelvic and Women's Health unit
8. Orthotic and Prosthetic unit

Clinical Sections of the Department /Areas of Coverage

1. Out-patient Division
2. In-patient Division
3. NICU/EPU
4. Intensive care section/Trauma Centre
5. Stroke unit
6. Palliative care Centre
7. Antenatal /Postnatal/Labour Ward
8. Call duty service
9. Accident/Emergency
10. VIP ward
11. Orthotic and prosthetic unit
12. Community Physiotherapy section – CHO, KISHI, ESIE/Home based management of Palliative care patient

Ares of coverage

Out-patient section

I. Includes all patient seen by all the units on outpatient's basis

(a) Neurology – Mondays/Thursdays
(b) Geriatrics – Mondays/Thursdays
(c) Orthopaedic & spine- Tuesdays /Fridays
(d) Community/ Palliative Care- Tuesdays/Fridays
(e) Paediatric- Daily except Wednesday

(e) Pelvic /Women's Health- Daily except Wednesday
(f) Cardiopulmonary- Daily except Wednesday
(g) Orthotic/ Prosthetic- Daily except Wednesday

(ii) Gymnasium unit- Adult and Paediatric
(iii) Amenity/ Home visit- 24 hours service/Every Thursday
(iv) CHO, KISHI,/ESIE- Every Monday/Thursday
(v) Cryotherapy room
(vi) Electrotherapy unit
(vii) Thermotherapy unit
(viii) Antenatal /Postnatal unit
(ix) Hydrotherapy unit

In-Patient/Ward Section

- Renal unit
- Community and Palliative Care Unit

- Medical unit
- Surgical unit
- Paediatric unit
- Obstetrics and gynecology unit/ labour word
- NICU
- ICU
- Stroke unit
- Accident and Emergency
- VIP

3. Call Duty Service/Section

24 hours clinical services including Saturdays, Sundays and Public Holiday to the following areas

i. Intensive care unit (ICU)
ii. Neonatal Intensive care unit (NICU) Ward
iii. Accident and Emergency
iv. Emergency paediatric unit
v. Trauma Centre
vi. VIP ward
vii. Stroke unit
viii. Wards

4. Community/Palliative Care Physiotherapy Unit

There must always be community centers where physiotherapist would practice community physiotherapy as this is an area that the people can benefit for its direct accessibility and cost effectiveness to the community.

1. Presently the hospital has two **(2**) outfits:
   (i) Muslim hospital, Kishi
   (ii) Comprehensive Health Centre Esie

The Community Physiotherapy section requires for its operations

i. Adequate personnel
ii. Clinical unit
iii. Mobile unit
iv. Functional Vehicle for ease of mobility to and fro

Standard Operating Procedure (Sop) For Outpatient Section

1. All patients coming to the department must be registered in the record section by the record officer within 15 minutes of patient's arrival ---- To this end there must be at least two (2) record officers on ground per time.
2. The waiting hour of patient should not exceed 30 minutes post arrival.
3. The modality/equipment and procedures involve in the treatment must be duly explained to patient
4. All patients under treatment must be monitored to prevent any form of hazard e.g. the use of electrotherapy, thermotherapy, electromagnetic and ultrasonic waves and traction unit.
5. All cases must be reviewed after six treatment session for change of line of management and for possible discharge.
6. Patient must be referred back to the referring Doctor in case he/she does not benefit from physiotherapy and peradventure there is RED FLAG.

7. Frequency of treatment must be twice per week and daily in some cases/conditions depending on the number of personnel and specialists on ground.
8. Any home programme giving to patients must be carried out under supervision for possible corrections by the physiotherapists before the patient leaves.
9. The patient and the carer must be carried along in his/her rehabilitation. Always educate patient & relatives on the prognosis of patient's condition.
10. Any home programme administered should be well documented with appropriate dosage
11. Appropriate orthotic aid/appliances must be recommended for the patient by the physiotherapist when necessary.

Standard Operating Procedure (Sop) For Outpatient Section

1. All patients coming to the department must be registered in the record section by the officer within 15 minutes of patient's arrival – To this end there must be at least two (2) records officers on ground per time.

   Presently only one record officer is attached to the department.
2. The waiting hour of patient should not exceed 30 mins post arrival
3. The modality/equipment must be explained to the patient
4. All patients under treatment must be monitored to prevent any form of hazard e.g. the use of electrotherapy, thermotherapy, ultrasonic waves and
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The following should be readily available in the outpatient section

(i) Automated External Defibrillator (AED)
(ii) Pulse oximeters
(iii) Tilt bed
(iv) Electronic spinnerets
(v) Sphygmomanometers
(vi) Weighing scale with audiometer
(vii) Ambu bag
(viii) Prismatic compression machine
(ix) Interpreter
(x) Regular power supply
(xi) Good and regular water supply
(xii) Sound system in the gymnasium
(xiii) Air condition/ Good ventilation in the treatment area
(xiv) Pad Bank

Standard Operating Procedure (SOP) For Inpatient/Ward Section

1. All new referrals/ consults must be registered, assessed and treated within 24 hours by the physiotherapy team in charge of the patient.
2. All case must be seen and treated at least twice a week
3. All procurement of consumable for patients must be from the department
4. All inpatients must be received weekly by the physiotherapy team in charge
5. Maternity section of the hospital must be duly covered for the followings

(i) Antenatal & post-natal classes for health education and health promotion
(ii) Pre- and post-operative physiotherapy
(iii) Appropriate positioning to be taught during labour and pain reliving modality to be applied.
(iv) All cases must be treated in accordance with the current trends of management
(v) All patient who underwent pelvic surgery should be given TED stocking as prophylaxis

(6) Follow up visit on outpatient basis for every discharged patient who still require physiotherapy
(7) All team members (physician, surgeon, physiotherapy) should agree on the modality for discharge of patients
(8) There should be coordinated Teamwork, Training and Research

Standard Operating Procedures for Community/ Palliative Care Physiotherapy

1. Clinics must hold regularly at least once per week in the designated communities
2. The physiotherapist in charge must hold meetings regularly with the community leaders and other stakeholders.
3. There should be a Permanent physiotherapist residing in the community.
4. Home based management of palliative care patients every Thursday

Standard Operating Procedures for Call Duty

1. A good call roster duty must always be made available for effective 24hours coverage including weekends and public holidays to the following areas

(a) Intensive care unit (ICU)
(b) Neonatal intensive care unit (NICU)
(c) Wards – depending on where consults come from and where attention is much needed
(d) Accident and Emergency
(e) Trauma center

2. Consumables to be readily available especially at weekends/public holiday
3. Habitable call room for physiotherapist on call
4. Adequate security - presently inadequate
5. Department should always be well illuminated
6. Call food should be reasonable and adequate
7. Good intercom services should be made available to all wards for ease of communication- because at time there is problem locating patient

STANDARD OPERATING PROCEDURES OF THE DEPARTMENT OF PHYSIOTHERAPY

COMMON TASKS OR ACTIVITIES	COMMON CASES	TURNAROUND TIME	AUDIT PARAMETERS
EVALUATION AT EMERGENCY POINT	a. Spinal cord Injuries b. Traumatic Brain Injury	24 hours daily coverage Prompt response (not less than 10 minutes)	a. Treatment sheets b. Vital Signs
CLINICS (OUT-PATIENT) i. Paediatric unit ii. Neurology/Mental health unit iii. Orthopaedics unit iv. Cardiopulmonary unit v. Pelvic and Women's health unit vi. Community physiotherapy/Palliativeunit vii. Geriatric unit viii. CHC Kishi ix. CHC Esie.	a. d. Osteoarthritis		a. Treatment sheets b. Vital signs c. Outcome measures
	d. Degenerative spine diseases	CHC Kishi and Esie clinics are covered on Mondays/Thursdays	
	e. Spinal canal stenosis Community physiotherapy/Palliative unit a. Cancers b. Chronic kidney disease c. Chronic Liver disease d. Pott's disease e. HIV Neuropathy Paediatric unit a. Cerebral Palsy	Paediatrics, Cardiopulmonary and Pelvic/Women's health have daily ward round except Wednessdays and weekends.	

	b. Osteomyelitis c. Spinal cord injuries d. Traumatic Brain Injuries e. Fractures Cardiopulmonary unit a. Hemo/pneumo-thorax b. Pleural Effusion c. Pneumonia d. Atelectasis e. Heart failures Pelvic and Women's health unit a. Pre-Eclampsia b. Obstetric palsy c. Pubic symphysis diastasis d. Pelvic fracture Vaginal prolapse		

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

General Clinic Schedules and Ward Admissions

1. Antenatal and gynaecological clinics are run by TWO (2) different units (firms) per day, from Tuesday to Friday.
2. Antenatal clinics will be in the mornings between 9:00am and 12 noon and Gynaecology Clinics will be in the afternoon from 2:00pm to 5:00pm. There is an antenatal booking clinic on Monday to be conducted by the firm on call between 9:00am and 12:00noon.
3. All patients admitted into the Obstetrics and gynaecological emergency wards must be managed, triaged and transferred out for further care, WITHIN 24 HOURS OF ADMISSION, to designated wards and so decongest the Emergency ward.
4. Pregnant women admitted as emergencies for urgent or scheduled caesarean deliveries must be **delivered within 24 hours** and transferred to **Postnatal Surgical Ward after** Surgery.
5. Only unconscious Patients **MAY** remain in the emergency ward (O&G) provided there is no space in the Intensive Care Unit (ICU) or Trauma Centre.
6. Following manual vacuum aspiration, patients must be discharged as soon as possible.
7. NO PATIENT SHOULD BE NURSED IN THE OBSTETRICS AND GYNAE EMERGENCY AFTER DELIVERY.
8. Consultants on call and on monthly emergency oversight are to ensure compliance.

EMERGENCY CASES IN OBSTETRICS & GYNAECOLOGY

Severe Pre-Eclampsia/Eclampsia

1. Patient should be admitted by the doctor on call in the Emergency Obstetrics and Gynaecology (EMOG) ward and then call for HELP
2. Short history on events preceding presentation in the hospital or referral to UITH is quickly taken and referral note is reviewed to ascertain the gestational age of the foetus/foetuses as foetomaternal vital signs are taken.
3. Patient is resuscitated as needed promptly.
4. With blood pressure confirmed to be ≥ 160/110mmHg for both or either the systolic and diastolic blood pressure parenteral labetalol or hydralazine is commenced within 20minutes of admission
5. Urethral catheter should be passed to empty the bladder and monitor urine output as sample immediately taken for urinalysis
6. Samples should be taken for FBC+ differentials, kidney function tests, liver function tests, 24 hours urinary protein and creatinine clearance
7. With proteinuria confirmed to be significant from the urinalysis then Magnesium Sulphate to prevent convulsions is commenced with loading and maintenance dose using Zuspan or Pritchard regimen
8. Close monitoring of the foetomaternal signs
9. Obstetric ultrasound should be done within 2-4 hours of presentation to confirm foetal viability, lie, presentation, number of foetuses as well as confirm gestational age.
10. If the gestational age is ≤ 34 weeks, then steroid is administered for lung maturity within 6 hours of admission.
11. When patient has been stabilized and blood pressure controlled, delivery is considered depending on the gestational age by the fastest and safest route of delivery.
12. Magnesium sulphate (maintenance dose) is continued till 24 hours after delivery.

13. Depending on complications identified, other specialists should be invited for co-management

Eclampsia

1. Patient should be admitted by the doctor on call in the Emergency Obstetrics and Gynaecology (EMOG) ward and then calls for HELP.
2. Level of consciousness should be assessed and resuscitation commenced following the ABC of resuscitation
3. An oropharyngeal airway should be inserted to ensure patent airway in unconscious patient and those assessed to need same
4. Short history on events preceding presentation in the hospital or referral to UITH is quickly taken (from the accompanying relatives as patient may not be stable enough) and referral note is reviewed to ascertain the gestational age of the foetus/foetuses as fetomaternal vital signs are taken.
5. Loading dose of magnesium sulphate (4g stat) should be given to abort seizures
6. Urethral catheter should be passed to empty the bladder and monitor urine output as sample immediately taken for urinalysis
7. With urine output confirmed adequate, maintenance dose of magnesium sulphate should be commenced using Pritchard or Zuspan regimen.
8. With blood pressure confirmed to be ≥ 160/110mmHg for both or either the systolic and diastolic blood pressure parenteral labetalol or hydralazine is commenced within 20minutes of admission
9. Samples should be taken for FBC+ differentials, kidney function test, liver function test, 24 hours urinary protein and creatinine clearance
10. Close monitoring of the foetomaternal signs
11. Obstetric ultrasound should be done within 2-4 hours of presentation to confirm foetal viability, lie, presentation, number of foetuses as well as confirm gestational age.
12. If the gestational age is ≤ 34 weeks, then steroid is administered for lung maturity within 6 hours of admission
13. When patient is being stabilized and blood pressure controlled, delivery is considered depending on the gestational age by the fastest and safest route of delivery
14. Magnesium sulphate (maintenance dose) is continued till 24 hours after delivery or after the last fit (convulsion), whichever comes last.
15. Depending on complications identified, other specialists should be invited for co-management.

Antepartum Haemorrhage

1. Every pregnant patient that presents with bleeding per vaginam after the age of viability should be seen by a doctor within 15mins of presentation at the Emergency Obstetrics and Gynaecology unit (EMOG)
2. The ABC of resuscitation will be commenced immediately
3. Intravenous access is secured with 2 wide bore canulae and samples for urgent packed cell volume, grouping and cross matching of blood of at least 4 units of blood as well as bedside clotting will be taken and done. Other investigations like a full blood count, electrolyte, urea & creatinine, liver function tests can also be done
4. The vital signs must be immediately assessed to determine the severity of the impact of blood loss.
5. A quick history should be taken to determine the onset of bleeding, the gestational age of the pregnancy, the volume of blood loss and her antenatal records is also reviewed if she is a booked patient.

6. A quick general examination is done to assess the degree of pallor, abdominal examination to assess for abdominal tenderness, abdominal hardening, symphisio-fundal height, foetal lie and presentation as well as descent. Foetal heart tone is also auscultated
7. A urinary catheter should be passed to monitor urinary output
8. Vaginal examination **MUST** be differed till it is safe after ultrasound scan rules out a placenta praevia
9. An ultrasound scan should be done within an hour of arrival in the hospital to rule out a placenta praevia and to confirm foetal viability

Placenta Praevia

1. If ultrasound confirms the placenta praevia, further management will be based on the gestational age of the foetus, the volume of blood loss and the degree of ongoing loss
2. If gestational age is ≥ 36 weeks the patient will be counselled for emergency delivery.
3. If gestational age is ≤ 34 weeks and foetal viability confirmed with no further bleeding, the patient can be managed conservatively after packed cell volume has been optimized. However, if active bleeding persists, delivery must be expedited via caesarean section.
4. Parenteral Steroids must be administered to mothers whose foetuses are < 34 weeks to aid foetal lung maturation.

Abruptio Placenta

1. If ultrasound scan rules out placenta praevia and confirms foetal viability, the patient will be counselled for an emergency caesarean section once the diagnosis of an abruptio with a live baby is confirmed
2. If the ultrasound however confirms intrauterine foetal death in the absence of placenta praevia, then induction of labour is commenced while active maternal resuscitation continues.
3. Blood transfusion should be instituted as necessary is performed- this may be part of the resuscitation while preparation is ongoing for a caesarean section.
4. Vital signs and clotting profile parameters are monitored closely because of the risk of Disseminated Intravascular Coagulopathy (DIC). This must include bedside clotting time as well as other laboratory investigations.

Ruptured Ectopic Gestation

1. The patient is seen by a doctor as soon as she arrives the hospital. The doctor must exhibit a high index of suspicion
2. The doctor calls for HELP
3. ABC of resuscitation is commenced
4. A quick history is taken alongside the other interventions to resuscitate the woman. History of the last menstrual period – period of amenorrhoea, abdominal pain, fainting spells and risk factors for ectopic gestation is taken including a quantitative pregnancy test ± serum βHCG.
5. Intravenous access is secured with two (2) wide bore canulae and samples taken for urgent packed cell volume, for grouping and crossmatching of at least 4-6 units of blood, serum βHCG.
6. The vital signs are immediately checked, urethral catheter passed and plasma expanders commenced

7. A quick general examination is done to assess the degree of pallor, abdominal examination to assess for abdominal distention, tenderness and guarding, and a pelvic examination to assess adnexal masses, cervical dilatation and motion tenderness.
8. She should have an ultrasound within 30 minutes of arriving in the hospital
9. Once qualitative serum βHCG is returned positive and diagnosis of ruptured ectopic is suspected/confirmed the patient is counselled on an emergency exploratory laparotomy which is best carried out within 30 mins of arrival in the hospital.

Miscarriage/Abortion

Every pregnant patient that presents with bleeding per vaginam before the age of viability should be seen by a doctor within 15mins of presentation at the Emergency Obstetrics and Gynaecology unit (EMOG)

1. The doctor calls for HELP
2. Immediate resuscitative measures are commenced using the 'ABC' of resuscitation
3. Intravenous access is secured and samples for urgent packed cell volume, grouping and cross matching of blood as is required by individual patient are taken
4. A quick history is taken alongside the other interventions. History of the last menstrual period – period of amenorrhoea, abdominal pain, fainty spells, passage of fleshy material per vaginam or drainage of fluid per vaginam.
5. The vital signs are checked to ascertain the degree of blood loss.
6. Available investigation like a previous ultrasound scan will be reviewed promptly
7. A quick general examination is done to assess the degree of pallor, abdominal examination to assess for abdominal tenderness, uterine size and cervical examination to assess cervical dilatation
8. An urgent pelvic ultrasound scan is done with 30mins of the patient arrival in the hospital
9. A diagnosis is made following a combination of clinical and radiological findings.
10. She will be counselled and a consent obtained for manual vacuum aspiration if clinical findings support incomplete abortion and same will be promptly done. In a case of threatened miscarriage, the woman will be admitted and managed conservatively. For complete miscarriage, management shall include antibiotic therapy, analgesia and discharged if she is clinically stable.
11. However, if findings suggest inevitable abortion. She will be counselled for a termination of pregnancy in view of remoteness of pregnancy from term.
12. Where applicable and not contraindicated, medical management with misoprostol may be engaged with appropriate dose based on the gestational age.

Labour Cases

Patients who present with history suggestive of labour such as intermittent abdominal pains of increasing intensity and frequency, passage of show and or fluid (liquor) drainage per vaginaam

1. A brief history is taken at the examination bay, history of last menstrual period, history of pregnancy and booking status and parameters are taken. If booked the folder is reviewed.
2. A thorough examination is done to confirm the stage/phase of labour
3. Samples for packed cell volume (PCV), urinalysis are taken as well as blood for grouping and crossmatch.
4. Patient is transferred to the labour room at ≥4cm cervical dilatation or antenatal ward if < 4cm.

5. When transferred to the labour room, the labour is monitored with the aid of a partograph
6. Delivery is conducted at full cervical dilatation and third stage of labour is actively manage

CAESAREAN SECTION

This is one of the commonly performed obstetric life-saving procedures in the department. However, data has shown that there are avoidable delays in this procedure thereby contributing to the associated maternal, foetal and perinatal morbidity and mortality.

1. A decision-to-delivery interval of 30 minutes should be targeted but attempts should be made to ensure that this does not exceed 60 minutes.
2. All caesarean sections (emergency and elective) are best performed at the labour ward theatre with indications and informed consent clearly documented
3. The Registrar and Senior Registrar of the managing team must ensure that preoperative and post operative investigations are done.
4. The anaesthetist should review patients before surgery and neonatologist should be present at all caesarean deliveries.
5. Except otherwise instructed by the managing team or NICU team, all patients and their babies should be transferred to the postnatal surgical ward for postoperative care.
6.

TRANSFER OF PATIENTS FROM THE DELIVERY ROOM/ THEATRE TO THE WARD

1. No woman should stay for more than two (2) hours after delivery in the delivery room of labour ward theatre except those who require additional care at the High-dependency unit.
2. Prompt response to request for transportation should be facilitated by the transport unit of the hospital.

COMMON TASKS OR ACTIVITIES	COMMON CASES	TURN AROUND TIME	AUDIT PARAMETERS	COMMENTS AND REMARKS
EVALUATION AT EMERGENCY POINT (EMOG/ labour ward)	1. Severe preeclampsia 2. Antepartum Haemorrhage 3. Abortions 4. Ectopic pregnancy 5. Labour cases	60-180 minutes	Time to evaluation Other parameters	1. Investigations: FBC+ Diff, RFT, LFT, 24 hours creatinine protein clearance, bedside clotting time, clotting profile, obstetric Ultrasound Treatment depends on the gestational age of the pregnancy, severity of condition and favourability of the cervix. 2. Investigations: FBC, with urgent PCV, bedside clotting time, clotting profile, RFT, LFT, grouping crossmatching of blood (4-6 units), Obstetric ultrasound 3. Investigation: FBC, urgent PCV, grouping and crossmatch for units compatible with volume of blood loss and vital signs, Obstetric Ultrasound Treatment such as medical termination of pregnancy with misoprostol or oxytocin or manual vacuum aspiration is offered depending the type of abortion and the gestational age at the time of diagnosis. 4. Investigations: urgent PCV, serum pregnancy test/ Qualitative βHcg, Pelvic Ultrasound. Treatment: exploratory Laparotomy and possible salpingectomy is done for tubal gestation as soon as diagnosis is confirmed In severe pre-ecclampsia delivery may be via emergency C/S or vaginal delivery following induction of labour. 5. PCV, Urinalysis, grouping and crossmatching for 2 unit of blood Treatment: labour is monitored with the aid of partograph and delivery is conducted when

				second stage of labour is attained
CLINIC	REGISTRATION	30MINUTES	Total Time	Routine antenatal follow-up Post-natal clinic visits/follow-up New gynaecological cases such as infertility, amenorrhoea, Leiomyoma etc
	NEW CONSULTATION	2 HOURS		
	FOLLOW UP CASES	1HOUR		Gynaecological on follow-up Post-surgical cases on follow up
WARD	DAILY REVIEW -By the Interns and Resident doctors who must report to the consultant in charge on a daily basis. Consultant review as deemed necessary based on the clinical condition. Consultants also conduct a weekly consultant ward round for all patients in the firm. CONSULTS from other departments are first reviewed by resident on call who	30 minutes per patient	TREATMENT SHEETs VITAL SIGNS CHARTS WARD ROUND DOCUMENTATIONS	

	informs the consultant, who also reviews ASAP VITAL SIGNS and DRUG CHARTS are kept by the nurses on the wards			
SURGICAL CASES/THEATER	LIST 3 COMMON SURGICAL CASES 1. Caesarean section 2. Exploratory laporotomy 3. Abdominal myomectomy	DEPENDS ON THE EXTENT OF SURGERY Duration of post-operative care also depends on type and extent of surgery. Usually 5days – 2 weeks	ANAESTHETIC CHARTS OPERATION NOTES POST-OP ORDERS/TREATMENTS	Preoperative investigations are generally, FBC, PCV, urinalysis, viral screening, Blood grouping and crossmatching and saving, serum electrolytes, urea and creatinine. Liver function tests, Chest Xray, ECG, Glycaemic profile and others are relevant in patients with underlying medical conditions or at risk of them. Postoperative care includes analgesics, antibiotics, fluids and calories, investigations and reviews.
OTHER PECULIAR ACTIVITIES				

DEPARTMENT OF ANAESTHESIA

Standard Operating Procedures
Elective Lists
Purpose
The purpose of this standard operating procedure is to ensure proper patient preparation and the smooth and safe delivery of anaesthesia to patients presenting for elective procedures and to avoid cancellation of patients on surgical lists.

Scope
This document describes the steps to be taken by anaesthetists in order to ensure patients for elective surgeries are properly prepared and anaesthesia is safely delivered.

Responsibility
It is the responsibility of the residents (registrar and senior registrar) to review all patients listed on elective lists the day prior to surgery and communicate the details of the review to the supervising consultants who will take final decisions concerning the patients. High risk patients e.g., patients with chronic medical conditions are to be reviewed by the consultant at least two weeks before surgery to be able to review medications and optimise the patient before the scheduled date.

Procedure
1. Patients on elective lists which get to the Department on the day prior to surgery should be reviewed by the residents.
2. Relevant history should be obtained from patients during review.
3. Proper examination of relevant systems should be done during reviews.
4. The basic investigations for elective surgery in adults above 40 years should include- chest X-ray, echocardiography (resting), electrocardiography (ECG; resting), full blood count (haemoglobin, white blood cell count and platelet count), glycaemic profile, kidney function (electrolytes, creatinine and sometimes urea levels)
5. Results of investigations should be reviewed and investigations not done should be requested.
6. The senior registrar should communicate the details of the review to the supervising consultant.
7. Decisions concerning rescheduling of cases should only be made by the supervising consultant.
8. Elective cases will be done with at least one supervising consultant present in the theatre.
9. Minimum monitoring equipment ((Non-invasive Blood pressure (NIBP), pulse oximetry, End tidal Carbon dioxide (EtCO2), Electrocardiography (ECG), Oxygen saturation (SpO_2 and Temperature), an anaesthesia machine, a functioning suction machine, airway equipment and resuscitation materials should be available before commencing an elective case.
10. Patients coming for major surgical procedure with risk of major blood loss should have blood cross matched and confirmed before transfer to the theatre.
11. Anaesthesia should not commence under any circumstance, without the availability of at least a trained assistant.
12. Resident doctors assigned to a case should ensure the anaesthesia chart is properly filled and all important information is documented.
13. All patients who have undergone anaesthesia care should be properly handed over to the recovery room nurse.

14. Patients that may require postoperative ICU care should be informed and ICU space be ensured before carrying out the surgery.

Emergency Cases

Purpose

The purpose of this standard operating procedure is to ensure the proper and timely review of emergency cases as well as proper patient preparation and safe anaesthesia delivery.

Scope

This document describes the steps to be taken in the reviews, preparation and delivery of anaesthesia to patients presenting for emergency surgical procedures.

Responsibility

It is the responsibility of the anaesthesia team on call to review all consults received for emergency surgeries and hand over cases yet to be done to the next team on call.

Procedure

1. Consults delivered by the various surgical units to the team on call for emergency surgical cases should be promptly reviewed by the residents in the team on call and communicated to the consultant on call. However, where the resident is engaged, he should contact the next on call.
2. Patients' clinical condition should be optimized before surgery.
3. Cases should be prioritized based on urgency as well as adequacy of patient's preparation.
4. All cases yet to be done at the end of a call period should be handed over to the next team on call.
5. Anaesthetic reviews of patients for emergency procedures are valid for 24hours and cases not done within that period should have a further/updated review.

ICU Cases

Purpose

The purpose of this standard operating procedure is to ensure a protocol for admission into and care of patients in the Intensive Care Unit (ICU).

Scope

This document describes the steps taken in the process of admission and discharge of patients to and from the ICU

Responsibility

It is the responsibility of the residents on call to review patients for ICU admission and communicate with the ICU consultant who will decide on patients to be admitted. The ICU consultant is to coordinate the care of ICU patients in conjunction with other clinical units.

Procedure

1. All consults received for ICU admissions should be reviewed by the residents on call and communicated with the ICU consultant on call.
2. The ICU consultant will make the final clinical decision on whether the patient will require ICU admission.
3. Patients who require and will benefit from ICU admission will be admitted, provided there is availability of bed space.

4. The ICU consultant along with the anaesthesia residents on call are primarily responsible for care of ICU patients.
5. Patients will be managed in the ICU in conjunction with the primary managing unit.
6. All other units whose expertise are required will be invited to participate in patient care by the ICU consultant.
7. The ICU consultant will determine which patients have improved and no longer require ICU care and in conjunction with the primary team agree to discharge of patients from the ICU. On no account should a patient be discharged from ICU without the consent of the ICU Consultant.

DEPARTMENT OF OPHTHALMOLOGY

Standard Operating Procedure

Orbital Cellulitis

1. Any patient diagnosed with Orbital Cellulitis should be admitted as an Ocular emergency to the Eye ward
2. Intravenous (IV) access should be secured.
3. Patient should be kept "Nil per oral" until need for surgery has been ruled out.
4. Investigation samples for FBC, Blood culture should be sent to the laboratory.
5. Consider urgent CT scan of the orbits, sinuses +/- brain
6. Commence Parenteral Antibiotics - IV Ceftriaxone 50-75mg/kg given12 hourly, & IV Metronidazole 7.5mg/kg given 8 hourly, and these should be continued until patient has been apyretic for 4days, then convert to orals.
7. Patients should receive Tetanus immunization (in cases of trauma).
8. Consults should be sent to ENT surgeons, Paediatricians etc as appropriate
9. Treat underlying sinus disease e.g., Nasal decongestants (guided by the ENT surgeons)
10. Monitor optic nerve function at least every 4hours – VA, Red colour desaturation, pupillary reaction, Light brightness.
11. Parents and /or patients should have health education relevant to Orbital Cellulitis before discharge and same recorded in the case note.

Hyphaema

1. Patient presenting with hyphaema must be seen as soon as possible
2. Visual Acuity (VA), Intra-ocular pressure (IOP) must be done as soon as patient presents
3. Detailed history must be taken to ascertain the cause of the hyphaema
4. Detailed slit lamp examination must be done to grade the level of hyphaema, as well as rule out other associated ocular injury.
5. Genotype of the patient must be ascertained. Samples should be taken for Haemoglobin Electrophoresis if there is no evidence of genotype result.
6. The patient should be admitted to the eye ward if the hyphaema is Grade 2 and above or if there is a risk of rebleeding or elevated IOP.
7. Patient should be placed on strict bed rest with minimal ambulation
8. Patient should lie with head elevated at 45^0 (Fowler's Position)
9. Patient should be placed on IOP-lowering medications such as Topical Timolol, Topical Misopt, Tab Acetazolamide, IV Mannitol, depending on the patient's presenting IOP
10. Acetazolamide and Mannitol should be avoided in patients with Sickle Cell Disease
11. Patient should also be placed on cycloplegic agents such as Topical Atropine or Topical Tropicamide
12. The VA and IOP must be monitored daily
13. Patient should have a daily Slit lamp examination while on admission to measure hyphaema level, as well as rule out corneal blood staining
14. The medications can be adjusted appropriately depending on daily findings
15. A Paracentesis/Anterior Chamber wash out should be done as soon as possible if there is
    a. Microscopic corneal blood staining at any time
    b. Four days after onset of total hyphaema without any resolution
    c. uncontrolled IOP of >60mmHg over 2day or >50mmHg over 5days or >35mmHg over 7days despite maximum medical therapy (value for SCD patients is >24mmHg for 24hour} or
    d. children with a high risk of amblyopia

This is done at the theatre under local anaesthesia or general anaesthesia.

Chemical Eye Injury

1. Patient presenting with Chemical Eye injury must have immediate copious irrigation of affected eye with Normal Saline (or any available water) as soon as history of chemical injury is obtained.
2. Detailed history can then be subsequently taken to ascertain the kind of chemical, the quantity, mechanism of injury and duration.
3. Visual Acuity should be done
4. Patient should have a slit-lamp examination, and the degree of Chemical Eye injury should be graded using the Roper-Hall or Dua Classification system
5. Depending on the grade and severity, patient can be managed as an in-patient or outpatient.
6. Patient should be placed on prophylactic Topical Antibiotics e.g. Ofloxacin 4hourly
7. Patient should be placed on topical cycloplegic agents e.g. atropine twice daily
8. Patient should be placed on topical steroids for the inflammation e.g. prednisolone or dexamethasone (frequency dependent on severity)
9. If IOP is elevated, patient should be placed on IOP-lowering medications such as topical Timolol twice daily or topical Timolol + Dorzolamide twice daily.
10. Patient should be placed on topical artificial tears as well.
11. Surgical interventions such as Amniotic Membrane Transplantation should be considered in patients with severe cases (Roper-Hall classification - Grade III & V)
12. Patient should be closely monitored and followed up weekly, watching out for long-term findings such as symblepharon, ankyloblepharon etc. Patients at risk of the above should have glass rodding done weekly for at least 6weeks.
13. Patient should also be properly counselled on measures of preventing chemical eye injury e.g. use of protective googles for industrial workers.

Adult Cataract

1. Pre-op Ocular evaluation
    a. Visual acuity
    b. Lid examination to rule out lid infections – blepharitis, stye etc.
    c. Cornea – endothelial cell count, opacities, old KPs
    d. Pupil – good reactivity
    e. Dilated funduscopy – good mydriasis, cataract morphology, fundus examiantion / light projection
    f. Intraocular pressure.
    g. Biometry – to determine IOL power

2. Pre-op Systemic evaluation – FBS, BP
3. Counsel for surgery under LA +/- light sedation, give cost implication.
4. Book for the next theatre session, but if bilateral, should be done as an emergency.
5. Done as a day case.
6. BP repeated on surgery day, informed consent should be taken.
7. Oral analgesics given post-op.
8. Eye pad removal 1DPO.
9. Patient to be placed on topical steroids, antibiotics, with/without mydriatric.
10. Patient is counselled on post-op care and need for compliance with follow up visits.

Diabetic Retinopathy

1. All known Diabetic patients should have detailed ophthalmic assessment for Diabetic Retinopathy.

2. Patient history should entail the duration of diabetes, past glycaemic control (FBS, HbAIC), medications, any co-morbidities.
3. Complete ophthalmic exam including
    a. Visual acuity
    b. Measurement of Intraocular pressure (IOP),
    c. Slit lamp biomicroscopy for Anterior segment evaluation,
    d. Gonioscopy when indicated (e.g in eyes with elevated IOP, iris neovascularization),
    e. Dilated fundoscopy exam at the slit lamp +/ or Fundus photography.
4. Patients with diagnosis of diabetic retinopathy should be referred to the Retinal Clinic.
5. Ancilliary tests like Optical Coherence Tomography (OCT), Fundus fluorescein angiography (FFA), OCT-Angiography should be requested where appropriate.
6. Patients with "No Diabetic Retinopathy" or Mild Non-Proliferative Diabetic Retinopathy (NPDR) should have reviews in 12 months and 6-12 months respectively
7. Patients with moderate NPDR and severe NPDR should be reviewed within 6months and 4months respectively.
8. Patients with Diabetic macular edema and / or Proliferative DR should be counselled and informed consent obtained for treatment which may include Intravitreal Anti-VEGF and/ or Laser photocoagulation.
9. Referrals to co-management units like Endocrinology, Cardiology, Nephrology etc should be made as appropriate.
10. All Diabetic patients should have health education relevant to Diabetic Retinopathy encompassing treatment plans, follow-up schedules and same documented in the case note.

Age-Related Macular Degeneration (ARMD)

1. Patients with diagnosis of ARMD should have a detailed assessment aimed at identifying risk factors especially modifiable risk factors such as smoking.
2. Complete ophthalmic exam including
    a. Visual acuity
    b. Measurement of Intraocular pressure (IOP),
    c. Dilated fundoscopy exam at the slit lamp +/ or Fundus photography.
3. Patients with diagnosis of ARMD should be referred to the Retinal Clinic.
4. Antioxidant vitamin and mineral supplementation as per the Age-Related Eye Disease Study (AREDS2) should be considered in patients with intermediate and advanced ARMD.
5. Patients should have Low-vision aids prescribed following assessment in cases of significant visual loss.
6. Diagnostic tests like Optical Coherence Tomography (OCT), Fundus fluorescein angiography (FFA), OCT-Angiography should be requested where appropriate to detect new or recurrent neovascular disease activity and guide therapy.
7. Patients with neovascular ARMD should have prompt treatment following adequate counselling and informed consent with Inravitreal Anti-VEGF.
8. Patients should be advised to seek urgent professional advice in the event of any change in vision.
9. Co-existent ocular pathologies such as Cataract, Glaucoma, should be identified and treated as appropriate.
10. All ARMD patients should have health education relevant to ARMD, encompassing treatment plans & follow-up schedules, and same documented in the case note.

Angle Closure Glaucoma

1. Patients are admitted immediately based on distressing (Acute) symptoms (severe eye pains, redness, tearing, nausea, vomiting, headaches with or without visual reduction and or a recent history of intraocular surgery) and characteristic initial ocular examination findings (raised IOP ≥ 45 mmHg, shallow AC, cataract or AC- or PCIOL and CDR ≥ 0.5 with cupping).
2. Initial treatment goal is to ensure IOP control (IOP ≤ 21mmHg) if possible, with systemic administration of Osmotic diuretics or CAIs and other topical agents, and ensure adequate pain control for detailed further ocular examinations. The IOP should be monitored and charted every 15 -30min for the next 2hr during initial hypotensive therapy, and subsequently every 4 hours.
3. Perform a thorough anterior segment examination including gonioscopy of the anterior chamber angles done or confirmed by a Senior Registrar to identify the cause and direct initiate further treatment after review by the consultant.
4. All patients without a visual field test should have one done (in case not previously done) when the patient is more comfortable and cooperative enough.
5. The final goal of treatment is to identify the cause of angle closure glaucoma and treat medically or surgical based on the consultant's assessment of the condition.
6. Patient should be discharged on treatment as appropriate based on clinical and subjective improvement of their condition and follow up in their respective clinics in 1 week or at discretion of the managing consultant.

Primary Open Angle Glaucoma

1. POAG is usually asymptomatic and most often managed on an outpatient basis. However, all such patients whose IOP is 45 and greater should be under consideration for admission under the following criteria:
    i. If said IOP values remain unacceptably high despite outpatient treatment with maximum ocular hypotensive agents for a week or two.
    ii. If such IOP values are found in an only seeing eye
    iii. If patient has advance disease CDR at least 0.8 in both seeing eyes.
    iv. If there is an unusual pain or visual discomfort (colored halos, cloudy vision, etc.) with such IOP levels.
    v. If previous filtering surgery procedure was done.
    vi. If current visual field show obvious progression compared to baseline field.
2. In case of a seeing eye, intraocular pressure control should be achieved by use of osmotic agents (IV mannitol) until IOP falls to acceptable level (<30mmHg), then follow by oral CAI and other topical hypotensive agents. While on osmotic agents, IOP must be checked and documented every 15 to 20min for the next 2hrs; followed by 4hr documentations of IOP.
3. If previous filtering surgery was done; needling or bleb revision may be considered (consultant's discretion)
4. If the patient has not had previous filtering surgery, the patient should be counseled for filtering surgery as soon as IOPs are in acceptable range; and surgery should be done as soon as possible (within a week if feasible) with the patient's consent.
5. If the patient has a painful blind eye, the patient is managed as an outpatient; cyclophotocoagulation and or retrobulbar alcohol should be administered with or without systemic or topical pain medication for a short course and discharge home to follow up as directed.

Pediatric Cataract

1. Pre-op Ocular evaluation
    a. Visual function/acuity
    b. Slit lamp examination
    c. Pupillary reactivity
    d. Dilated fundoscopy-good mydriasis, cataract morphology, fundus exam
    e. Ocular B-scan
    f. Intraocular pressure
2. Pre-op systemic evaluation
    a. FBC, EUCr
    b. Echocardiogram, ECG
    c. Urine for reducing sugars
3. Patient should be Counselled for surgery under GA
4. Patient should be given cost implication and list of operation materials and booked for the next theater session
5. Patient should be admitted on the ward a day before surgery with anaesthetist's review
6. Informed consent should be taken
7. For keratometry, A-scan, Corneal diameter measurement in the theatre under GA
8. Procedure should be done under GA.
9. Eye inspection on 1DPO
10. Patient should be placed on topical steroids, antibiotics with mydiatrics
11. Patient relatives should be counselled on post operative care and need for compliance with medications and follow up visit.

Corneo-Scleral Laceration

1. Patient with corneoscleral laceration should be admitted to the eye ward immediately
2. Detailed history should be obtained to ascertain the mechanism of injury
3. A thorough physical examination should be done
4. Visual acuity should be assessed
5. An ocular examination should be done at the bedside or with the slit-lamp, as much as tolerated by patient, to determine the extent of injury.
6. Patient should be given Tetanus Toxoid injection (0.5ml stat) as well as ATS 1500IU stat.
7. Samples should be taken for urgent PCV as well as Electrolytes, urea and creatinine
8. Patient should be booked for Emergency Examination Under Anaesthesia + Corneoscleral Repair +/- iris abscission under General Anaesthesia
9. Based on the presenting Visual acuity, as well as the presence of other associated ocular injury, patient/caregiver should be counselled properly on the visual prognosis and possible long-term sequelae e.g. cataract formation
10. Consent should be taken for the above.
11. Patient should have Examination Under Anaesthesia + Corneoscleral laceration under General Anaesthesia
12. Patient should be examined 1st Day Post-operatively
13. Patient should be placed on Topical antibiiotics e.g. Ofloxacin 2hourly, Topical steroids e.g. Dexamethasone 1hourly, topical ointment nocte.
14. Patient can be discharged 48hours post-operatively once stable.
15. Patient should be followed up weekly and medications adjusted appropriately.

Microbial Keratitis

1. Once a diagnosis of Microbial keratitis is made from the history and physical examination, patient should have corneal scraping of the ulcer and sample sent for MCS
2. Conjunctiva swab for MCS should also be obtained
3. Decide on treating as out-patient or in-patient
4. Start treatment empirically with mono-therapy (fluoroquinolones e.g. Moxifloxacin) or duo-therapy (Cefuroxime + fortified Gentamicin)
5. If fungal infection is suspected, topical antifungal (e.g. topical natamycin) should be commenced
6. Review MCS result in 48-72hrs
7. If there is improvement in clinical condition, continue the empirical therapy despite MCS result. If no improvement, medical treatment should be adjusted based on MCS result.

Retinoblastoma

1. Appropriate history should be taken from patients
2. Patient should be duely examined
3. Fundus photography should be done.
4. Patient should have ocular B-scan done, if no view from fundus photography
5. Patient relative to be counselled on the disease and the available options of care.
6. Depending on the group of the retinoblastoma,
    a. Patients can be commenced on intravenous chemotherapy. (after Samples have been taken for E, U & Cr and FBC with differentials, and all parameters are essentially normal. Patients needing transfusion are transfused and post-transfusion PCV evaluated before commencement of chemotherapy)
    b. In some patients, enucleation may be done.
    c. Enucleated specimen to be sent to histo-pathology lab and sample for genetic studies taken to molecular lab.
7. Patient to be seen on follow-up visit every 4 weeks.
8. Consult to be written to pain and palliative unit for patient with end stage disease.
9. Social workers to be invited for patient with financial constraint

Congenital Glaucoma

1. Pre-op ocular evaluation
    a. Visual function/acuity
    b. Slit lamp examination
    c. Pupillary reactivity
    d. Intra ocular pressure
2. Pre-op systemic evaluation -FBC, EUCR
3. Patient should be Counselled for surgery under GA
4. Patient should be given cost implication and list of operation materials
5. Book for the next theater session
6. Initial management is the use of pressure lowering drugs such as diamox 125mg constituted in vitamin c solution
7. Patient should be admitted on the ward a day before surgery with anaesthetist's review
8. IOP, corneal diameter, refraction and fundoscopy should be done intraoperatively
9. Procedure should be done under GA
10. Eye inspection on 1DPO
11. Patient should be placed on topical steroids, antibiotics with mydiatrics

12. Patient relatives should be counselled on post op care and need for compliance with medications and follow up visit

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DEPARTMENT OF EAR, NOSE AND THROAT

Standard Operating Procedure for Emergency Cases
Acute Tonsillitis

1. Patient should be evaluated within 15mins of arrival to the emergency.
2. Patients with Fever, stridor/difficulty breathing, progressive dysphagia, severe systemic symptoms, dehydration or peritonsillar cellulitis/abscess should be admitted.
3. Intravenous fluid should be commenced to rehydrate patients.
4. Intravenous antibiotics (preferably beta lactamase-containing penicillin) and non-steroidal anti-inflammatory (NSAID) should be given over the first 24-48 hours with continuation of oral medications over the first 1 week.
5. Throat swab microscopy, culture and sensitivity (MCS) and full blood count should be done as part of the initial evaluation. Antibiotics should be changed according to sensitivity especially if there is no appreciable improvement on empirical antibiotics.
6. Patient is also encouraged to gaggle with warm saline especially adolescents and adults.
7. Discharge home when fever is down, stridor/difficulty breathing has resolved and/or with, improving dysphagia and other systemic symptoms.

Peritonsillar Abscess (Quinsy)

Patient must be evaluated within 30minutes of arrival at the emergency.

1. A test aspiration must be done to confirm diagnosis, and sample sent for m/c/s. Also, full blood count, blood sugar and viral serologies should be done.
2. Intravenous fluid should be commenced to rehydrate patient. Intravenous antibiotics and non-steroidal anti-inflammatory drugs (NSAID) should be administered while working up the patient for incision and drainage of the abscess.
3. Drainage may be done in the procedure room under local anaesthesia for cooperative adults. Uncooperative adults and children should have incision and drainage under conscious sedation/ monitored anaesthesia care.
4. Patient may be discharged after observation to ascertain clinical stability on empirical broad spectrum antibiotics with anaerobe cover, adequate analgesia and vitamins.
5. Other care will include warm saline gaggle at intervals (3-5 times daily) and after meals for the first 5-7 days.
6. Patient is scheduled for interval tonsillectomy six (6) weeks later.

Nasal Septal Abscess

1. Patient must be evaluated within 30 minutes of arrival at the emergency.
2. A test aspiration must be done to confirm diagnosis, and sample sent for m/c/s. Also, Full Blood Count (FBC), blood sugar and viral serologies should be done.
3. Intravenous fluid should be commenced to rehydrate patient. Intravenous antibiotics and non-steroidal anti-inflammatory (NSAID) should be administered while working up the patient for incision and drainage of abscess.
4. Drainage may be done in the procedure room under local anaesthesia for cooperative adults. Apprehensive adults and children should have incision and drainage under conscious sedation/ monitored anaesthesia care.
5. A multidisciplinary approach should be adopted in complicated cases including Neurosurgeons and Ophthalmologists to treat intracranial and orbital complications respectively.

6. Wound care consists of daily dressings with abscess cavity drain and intranasal packing for the first 3-5 days or as required.

Epistaxis (nosebleed)

1. All cases of profuse nosebleed should be attended to immediately at the emergency.
2. Patient is expected to bend forwards, pinch his/her nose and ice pack applied over the nasal bridge while breathing through the mouth. Nasal packing should be done if this fails to stop nosebleed.
3. Ensure airway is patent and patient is breathing. Two large bore intravenous access should be secured. Intravenous fluid (Normal saline) should be commenced.
4. Samples for urgent Packed Cell Volume (PCV), FBC, blood grouping and crossmatch should be carried out.
5. Whole blood should be transfused if PCV is low (anaemia).
6. Samples for E/U/Cr, clotting profile and other ancillary investigations should also be done.

Foreign Body in the Upper Airway

1. Patient must be evaluated within 15mins of arrival at the emergency room and soft-tissue neck (AP, Lateral) and chest x-ray will be done within 30mins.
2. Continuous oxygen supplementation and monitoring of pulse oximetry must be ensured from presentation to surgical intervention in the theatre, including during radiological evaluation.
3. Emergency tracheostomy and foreign body removal must be achieved within 1 hour of presentation.
4. Intravenous antibiotics, and anti-inflammatory medications should be given over the first 24-48 hours with continuation of oral medications over the first 1 week.
5. Repeat x-rays should be done 24 hours after surgery to confirm complete and successful retrieval as well as to determine the feasibility of safe and timely decannulation.
6. Patient may be discharged home following sustained clinical recovery and successful decannulation, to be seen on the next clinic day.

Upper Airway Obstruction

1. Patient must be evaluated within 15minutes of arrival at the emergency and soft tissue neck/chest x-ray done within 30 minutes
2. Continuous oxygen supplementation and monitoring of pulse oximetry must be ensured from presentation to surgical intervention in the theatre, including during radiologic evaluation.
3. Airway must be secured by the fastest, safest possible means. This will be determined by the level and degree of obstruction as elucidated by clinical evaluation and radiological findings.
4. Oro-tracheally intubated patients should be admitted into the intensive care unit and co-managed with the anaesthetists. Intravenous broad-spectrum antibiotics, steroids, analgesics and proton-pump inhibitors may be given as required.
5. A tracheostomy should be considered for any condition requiring oro-tracheal intubation for a period of 10 days or more and/or patients with multiple episodes of re-intubation.
6. Flexible fibreoptic Laryngoscopy will be done and further evaluation and management will proceed depending on the suspected primary cause of upper airway obstruction.

Malignant Otitis Externa

1. Patient should be admitted at first contact.
2. Initial evaluation should include an ear swab for m/c/s, FBC, fasting blood sugar, viral serologies and a high resolution Petro-mastoid computed tomography scan.
3. Medications should include empirical broad-spectrum antibiotics, preferably a fluoroquinolone, with anaerobe cover for a period of 6 weeks. Other medications should include generous analgesia (preferably anti-inflammatory), multivitamins and adequate fluid hydration.
4. Ear care would largely depend on the severity of the ear discharge. Aural toileting and wick dressing may be done 1-2 times daily with subsequent adjustments with treatment response.
5. A multidisciplinary approach should be adopted including Endocrinologists and dietitians for blood sugar control, ophthalmologists and physiotherapists for facial palsy, and clinical microbiologists for infection control.
6. Discharge may be considered with optimal blood sugar control,as well as infection control characterized by resolving Otalgia, ear discharge and granulation tissue and the absence of lateralizing signs.

Peri- auricular abscess

1. Patient must be evaluated within 30minutes of arrival, including FBC, blood sugar and viral serologies.
2. A test aspiration must be done, and sample sent for m/c/s.
3. Drainage may be done in the procedure room under local anaesthesia for cooperative adults. Apprehensive adults and children should have incision and drainage under conscious sedation/ monitored anaesthesia care.
4. Patient may be discharged after observation to ascertain clinical stability on empirical broad-spectrum antibiotics with anaerobe cover, adequate analgesia and vitamins.
5. Wound care will consist of daily dressings for the first 5-7 days and to proceed according to wound healing and treatment response.

COMMON TASKS OR ACTIVITIES	COMMON CASES	TURN AROUND TIME	AUDIT PARAMETERS (Time to evaluate other parameters)	COMMENTS AND REMARKS. (List investigations and treatment for each of the listed cases)
EVALUATION AT EMERGENCY POINT	**Acute Tonsillitis**	30 mins	45 mins	Throat swab m/c/s, FBC, broad spectrum antibiotics, anti-inflammatory, warm saline gargle fluid rehydration.
	Peritonsillar Abscess	60 mins	75 mins	Throat swab m/c/s, Test aspiration, FBC, FBS, Viral serologies, Incision and drainage, Broad spectrum antibiotics, anti-inflammatory, warm saline gargle, fluid rehydration
	Upper airway foreign bodies	90 mins	120 mins	X-Ray soft tissue neck (AP+Lat), Chest xray, FBC, E/U/Cr, Viral serologies, Clotting profile. Urgent Direct Laryngoscopy and foreign body removal. Broad spectrum antibiotics, anti-inflammatory, anti-reflux, short-course steroids.
	Pharyngeal/oesophageal foreign bodies	90 mins	120 mins	X-Ray soft tissue neck (AP+Lat), Chest xray, FBC, E/U/Cr, Viral serologies, Urgent rigid esophagoscopy and foreign body removal, broad spectrum antibiotics, anti-inflammatory, short-course steroids.
	Epistaxis	45 mins	60 mins	Airway and fluid resuscitation, Stop the bleeding. IV antibiotics, tranexamic acid, anti-inflammatory. Diagnostic nasal endoscopy, FBC, urgent PCV, GXM and transfusion, if necessary, E/U/Cr, Clotting profile, Genotype, LFT.
CLINIC	**Registration** **Consultation** **Clinic Procedure (Ear syringing, Nasal endoscopy, indirect**	15 minutes 15 minutes 15-30 minutes	30-60 minutes	

	laryngoscopy, aural toileting and dressing)			
WARD	**Review by residents** **Review by consultant** **Consults** **Vital signs** **Drug chart**	daily at least once weekly within 30 minutes as per prescription by managing team or nursing process	45-90 minutes	
SURGICAL CASES/THEARTER	**Adenotonsillectomy** **Endoscopic Sinus Surgery** **Direct Laryngoscopy**	60 minutes 120 minutes 60 minutes	60-120 minutes	
OTHER PECULIAR ACTIVITIES	**Ward Procedures** -Removal of aural, nasal, and oropharyngeal foreign bodies. -Incision and drainage of peri-aural abscesses, septal abscess/ haematoma and neck space abscesses above the investing cervical fascia	 10-20 minutes 30- 60 minutes		

	-Excisional and incisional biopsies of superficial neck and peri-auricular masses	30-60 minutes	30-60 minutes	
	-Pinnaplasty	30-60 minutes		
	-Per-nasal biopsy	30-60 minutes		
	-Tracheostomy care (Change of tubes, suctioning, dressing)	15-30 minutes		
	-Bedside wound dressing	15-30 minutes		

DEPARTMENT OF RADIOLOGY

Standard Operating Procedure

Imaging modalities in radiology department include the following: Digital radiography, digital mammography, ultrasonography (US), magnetic resonance imaging (MRI) computed tomography (CT) fluoroscopy (C-arm)

Ultrasonography

Ultrasound scan is done daily on Monday to Friday based on referrals from other clinical departments. Patients are booked by the nurses as close as possible to the date of next appointments with the clinicians. Emergencies are not booked and are done as the request is made and during calls (daily, including weekends). Porters from the wards should contact the doctor on call.

Abdominopelvic, obstetric, gynaecological as well as small parts (scrotal, ocular, soft tissue, neck etc) are done daily, based on booking.

Patients for abdominopelvic ultrasound are usually required to have fasted from food for at least 4- 6 hours but can drink water to have a full urinary bladder to allow proper evaluation of structures.

Specialised ultrasound scans like Doppler, trans-fontanelle and breast are done once or twice weekly as fixed by the consultant in charge.

Ultrasound reports are made available the same day

Digital Radiography

This is done based on referrals from clinicians. Routine x-ray examinations are done daily from Monday to Friday. The patients are usually booked as close as possible to their next appointment with the clinicians. Emergencies are done daily (during working hours, call and weekends) without bookings. Routine ward cases that are not emergencies are done on Tuesdays and Thursdays. X-ray examinations are not carried out on pregnant women due to hazards of ionising radiation to the developing foetus.

Contrast examinations like hysterosalpingography (HSG), Intravenous Urography (IVU), Retrograde urethrocystography (RUCG), micturating urethrocystography (MCUG), sinography and some gastrointestinal studies are carried out twice a week (Tuesday and Thursday) due to availability of just one digital x-ray

The patients are booked based on appointments with the clinicians except HSG which follows the 10-day rule from last menstrual period. IVU also requires that the patient has the result of a recent renal function test and bowel preparation for at least 3 days before the examination. Emergencies are done without booking.

The booking of x-ray examinations is done by the imaging scientist while the contrast examination is booked and done by the resident doctors

Reports of these examinations are made available to the patient within 24-48 hrs

Fluoroscopy
The use of the C-arm in the theatre is based on requests from the surgeons, usually orthopaedic, cardiothoracic, paediatric surgery and neurosurgeons for routine as well as emergency cases. A consult is usually written to the imaging scientist whenever the use of the machine is required

Computed Tomography
Computed tomography of all parts of the body is done daily on a routine basis as booked by the imaging scientists and resident doctors as close as possible to the patient's next appointment.

Renal function tests are required in abdominopelvic CT and any other examination that requires a large volume of contrast. Bowel preparation is also done before abdominopelvic CT especially if a bowel-based mass is suspected. Oral as well as intravenous contrast agent are given depending on the clinical indication. CT scan are not done for children unless benefits outweighs the risk.

During the booking, the patient is given further instructions on what to do before the examination

The reports for these examinations are made available within 24-48hrs.

Magnetic Resonance Imaging
Coils for the brain ad spine are available. MRI is contraindicated in some patients e.g., patients with pacemakers and metallic implants. The MRI patients are usually booked and done by the imaging scientists and radiologists. Due to logistics of power, MRI is not done on emergency basis, only routine

Patients are usually clerked by the doctors before the examination to obtain more clinically relevant information

Mammography
Done for screening and diagnostic purposes in women who are 40 years and above and in high-risk women from the age of 35 years. Women are usually booked after their menstrual period in most cases and in menopausal women as close to their appointment day or based on the urgency of the request.

The report of the mammogram is made available within 24-48 hours

Request form
It is the responsibility of the referring clinician to ensure that all request forms are adequately filled with patients' biodata, clinical details, and the type of investigation (views for x-rays and pelvic or renal scan). All requests not properly made will be returned to the clinician.

Dosimeter- All staff working in radiology department must wear the dorsimeter and take it for assessment at stipulated times. Patients must be protected from unnecessary exposure to irradiation.

DEPARTMENT OF ACCIDENT AND EMERGENCY (SURGICAL)

Standard Operating Procedure

As a rule, all patients presenting at the emergency must be seen within five minutes of arrival. However, in cases of mass casualty at the surgical ward of AE, all must be attended to within one minute for triaging and subsequently managed in order of acuity.

As a rule, consider the following as major trauma if any of the following is present

1. All penetrating injuries (Head, Neck, Chest and Abdomen).
2. Blunt injuries
3. Patient with specific injury to a single region e.g. Head, Neck, Chest, Abdomen, Axilla and Groin.
4. Patient with injury involving two or more of the above body regions.
5. Specific injuries
   a. Limb amputation/limb threatening injuries
   b. Suspected spinal cord injuries
   c. Burns (≥20% for adults/10% for children) or with suspected inhalational injury
   d. Serious crush injury
   e. Major compound fracture or open dislocation
   f. Fracture to two or more of the following, Femur/Tibia/Humerus
   g. Fracture Tibia
6. Physiological anomalities during vital signs
   a. Respiratory rate ≤8 or ≥20
   b. Blood pressure ≤90mmhg for SBP or ≤50mmhg for DBP
   c. Pulse ≤50 or ≥100/minute
   d. Conscious state GCS ≤13
   e. Oxygen saturation ≤90%

Cardiothoracic Surgery Cases

A. Pleural effusion.
   a. Admit
   b. Vital sign monitoring.
   c. Ensure patient is breathing.
   d. Thorough chest examination involving respiratory rate, symmetry, wall movement, tracheal centrality, tactile fremitus and vocal resonance
   e. Prophylactic antibiotic/analgesic
   f. Airway care: SPo2 ≤95% give INO2 @ 5L/min
   g. Underlying disease and severity of effusion
      i. Pneumonia: causes: fever, chills, pleuritic chest pain
      ii. Malignant effusion: may result in dyspnea and cough

For small to moderate pleural effusion:

   a. Dyspnoea may be absent in minimal
   b. pleuritic chest pain
   c. Dullness or flatness to percussion
   d. Decrease or absent breath sound

Chest X-ray (CXR) for confirmation

Insert wide bore cannular into the 4th intercoastal space mid axillary line to relieve pressure

Invite the Cardiothoracic unit

B. Tension pneumothorax: diagnosed clinically before CXR

1. Admit – this is a serious emergency
2. Airway management.
3. Vital sign monitoring- NIBP, ECG, SpO_2, PR, RR, Temperature
4. Thorough chest examination involving respiratory rate, symmetry, wall movement, tracheal centrality, tactile fremitus and vocal resonance
5. CXR for confirmation
6. If SPO2 ≤95% in room air, give Intranasal (IN) O_2 at 5 litres per minute
7. Check for
   a. Distended neck veins
   b. Hypotension or evidence of hypoperfusion
   c. Diminished or absent breath sound in the affected side
   d. Tracheal deviation to the contra lateral side
8. One or more of the above may be absent in the presence of hypovolemia
9. Perform **immediate** needle decompression, insert wide bore needle in the 2nd ICS midclavicular line
10. Invite the Cardiothoracic unit

C. Dysphagia- difficulty to swallowing; solid and liquid meals

i. Sensation of food being stock in the throat or chest
ii. Cough or gagging while swallowing
iii. Nasal regurgitation
iv. Dysarthria
v. Nasal speech because of associated muscle weakness
vi. Frequent burning sensation in the chest
vii. Unexpected weight loss

Grading of Dysphagia

1. Complain of Dysphagia but still eating normally
2. Requires liquid with meals
3. Able to take semi solid but unable to take any solid
4. Able to swallow liquid only
5. Unable to swallow liquid but able to swallow saliva
6. Unable to swallow saliva also

Oropharyngeal or Oesophageal

i. Admit
ii. Plain X-Ray; Neck and Chest for foreign body
iii. Barium swallow
iv. Admit for Cardiothoracic unit

D. Blunt or penetrating chest trauma

1. Admit
2. Airway management
3. Breathing - SPO2 ≤95% in room air gives INO2 at 5litres per minute
4. Monitor Vitals; Pulse rate volume, Bp

5. Respiratory system exam: respiratory rate, symmetry, wall movement, tracheal centrality, tactile fremitus and vocal resonance
6. Bleeding haemostasis
7. Monitor vital signs closely
8. IV access
9. Test: PCV (urgent), E, U, CR
10. Shock= hypovolemic, cardiogenic
11. Transfuse with blood as appropriate
12. Prophylactic antibiotics, analgesics
13. Invite Cardiothoracic Unit

Things to note

1) Blunt or penetrating
2) Mechanism of injury
3) High velocity
4) Gun velocity shot – dirty wound
5) Missile fragments
6) Low velocity (stab injury)

Treat life threatening injuries that must be immediately identified

a. Tension pneumothorax
b. Massive haemothorax
c. Open pneumothorax
d. Cardiac disruption/Tamponade
e. Tracheal disruption

Plastic Surgery Cases

A. Burns

1) Admit
2) Take vital signs: RR, SPO2, pulse rate, BP
3) Estimate percentage burns
4) Secure IV access with wide bore cannular
5) Investigations : RBS, urgent PCV, FBC, EUCR
6) SPO2 ≤95% in room air give INO2 at 5litres per minute
7) IV fluid base on estimated weight of patient
   a) Give half at 8hrs then second half over 16hrs
   b) Give analgesics, antibiotics, tetanus prophylactics
8) Proper wound dressing with antiseptic; (providone iodide, Savlon, Sufratulle, Dermazine cream, crepe bandage) under aseptic condition
9) Monitor vital signs
10) Pass urethral catheter monitor urine output
11) Invite Plastic Unit

ENT Cases

A. Foreign body in the nose

i. Admit

ii. Take vital signs; RR, SPO2, pulse rate, BP
iii. Ensure airway patency
iv. Get good illumination
v. Attempt to remove the foreign body with appropriate instrument
vi. Suction out any secretion
vii. If foreign body is beyond the nasopharynx; cricothyrotomy
viii. Invite ENT surgeons for review

B. Foreign body in the Ear
i. Calm patient/reassure patient,
ii. Otoscopic examination
iii. Attempt removal with crocodile forceps or Jobson Horns probe or suction
iv. Invite ENT surgeons for review

C. Foreign body in the throat
i. Take vital signs; RR, SPO2, pulse rate, BP
ii. Reassure patient
iii. Ensure airway patency
iv. NPO
v. IV access
vi. Investigation RBS, FBC, E, U, Cr
vii. SPO2 ≤95% in room air give INO2 at 5litres per minute
viii. XRay soft tissue neck
ix. Invite ENT surgeons for review

D. Laryngeal tumor
i. Take vital signs; RR, SPO2, pulse rate, BP
ii. IV access; IV fluid NS ↔ 5% DS
iii. Analgesic
iv. Antibiotics
v. Invite ENT surgeons for review

General Surgery Cases

A. Obstructed Hernia
i. Admit
ii. Secure IV access and take blood sample FBC, E, U, Cr
iii. Give analgesic
iv. Abdomino pelvic scan
v. Invite the General Surgery unit

B. Breast cancer (complicated) e.g.
i. Bleeding breast CA
a. Admit
b. Take vital sign
c. Secure IV access
d. Pressure packing/dressing with formalin
e. Request for urgent PCV, FBC, E, U, Cr
f. Blood transfusion if anaemic
g. Analgesics
h. Invite the General Surgery unit

ii. Dyspnoea
i. Admit
ii. Take vital signs

iii. SPO2 ≤95% in room air give INO2 at 5litres per minute
iv. Secure IV access and take blood samples
v. CXR
vi. Antibiotics
vii. If there is pleural effusion – chest tube insertion
viii. Manage other symptoms appropriately
ix. Invite the General Surgery and cardiothoracic surgery units

C. Acute abdomen

i. Admit
ii. If unstable; resuscitate, that is manage as shock
iii. Secure IV access and take blood samples FBC, EUCR, PCV, GXM
iv. Abdomino pelvic scan
v. If viscus perforation is suspected, CXR – erect and supine
vi. Intestinal obstruction; plain abdominal Xray (erect and supine)

1. For intestinal obstruction
    a. Pass NG tube
    b. Pass urethral catheter
    c. NPO
    d. Give antibiotics and analgesics
    e. Invite the General Surgery unit
2. Shock
    a. Admit
    b. Take vital signs
    c. Secure IV access with 2 wide bore cannulas and take blood samples FBC, EUCR, PCV, GXM
    d. SPO2 ≤95% in room air give INO2 at 5litres per minute
    e. IV Normal saline 1L fast
    f. Monitor vitals closely

Manage the cause of the shock e.g. if caused by haemorrhage secure haemostasis with pressure dressing first before irrigation and suturing.

Invite the appropriate team based on your assessment

Orthopaedic Surgery Cases

A. Septic arthritis

i. Admit
ii. Secure IV access and take blood samples FBC, EUCR
iii. Synovial fluid aspiration for culture and sensitivity
iv. Xray of affected joint
v. Antibiotics and analgesic
vi. Invite orthopaedic unit

B. Fracture

1. Open

i. Secure Haemostasis
ii. Secure IV access and take blood samples FBC, EUCR, PCV, GXM
iii. Irrigate, suture and dress wound
iv. Give TT
v. Splint fracture and immobilize fracture
vi. Give antibiotics and analgesics

vii. X-ray
viii. Invite orthopaedic unit

2. Close

i. Splint fracture
ii. Analgesics
iii. Xray
iv. Invite orthopaedic unit

C. Trauma Patient

Can be brought in as conscious or unconscious

i. Admit
ii. Ensure airway is patent
iii. Make sure patient is breathing well
iv. Urgent RBS
v. SPO2 ≤95% in room air give INO2 at 5litres per minute
vi. Secure IV access and take blood samples FBC, EUCR, PCV, GXM
vii. Ensure patient is fully exposed, assess the level of injury
viii. If TBI is suspected, nurse patient in 30^0 head up position
ix. If C-Spine injury is suspected, nurse flat, apply Neck collar
x. Give analgesic – avoid narcotics
xi. Pass urethra catheter to monitor urine output
xii. Manage other injuries
xiii. Invite appropriate unit

Urology Cases

A. Haematuria

i. Admit
ii. Pass wide bore cannular to secure IV line (to correct cardiovascular derangement appropriately)
iii. Pass appropriate size urethral catheter (3way catheter), not less than size 16Ch
iv. Request for the following urgent tests:
   a. Urinalysis,
   b. FBC,
   c. EUCR,
   d. Grouping and crossmatching,
   e. KUB,
   f. Abdominopelvic scan
v. Give tranexamic acid
vi. Invite the urology team

B. Acute scrotum

i. Admit
ii. Secure IV line using a wide bore cannular
iii. Use the TWIST scoring criteria to grade patients
   a. testicular swelling (two points)
   b. hard testis (two points)
   c. absent cremasteric reflex (one point)
   d. nausea or vomiting (one point)
   e. high riding testis (one point)
      i. score 0-2: low risk

ii. score 3-4: intermediate risk
iii. score 5 or above: high risk

Quick physical findings:
a. cremasteric reflex,
b. Phren's signs,
c. blue dots sign

Investigations- urgent doppler scan, urinalysis, urine culture
Proper analgesics administration
NOTE: prompt diagnoses and referral should be done within the hour of presentation

C. Acute urinary retention
i. Admit
ii. Brief history and physical examination to determine the possible cause of obstruction
iii. Pass appropriate size urethral catheter
iv. Analgesic
v. If urethral catheter is difficult to pass, do not force it, invite urology team for suprapubic catheterisation
vi. Refer to urology clinic if you are able to pass catheter

THE TRAUMA TEAM
The trauma team consists of
1. A general surgeon (team leader, senior registrar)
2. Orthopaedic surgeon (registrar),
3. Anaesthesiologist (senior registrar),
4. Nurse anaesthetist,
5. Radiologist (registrar),
6. Radiographer
7. Biochemist
8. Nurse
9. Porter
10. ± NEUROSURGEON

Criteria for activation of TT
1. Physiologic status
   a. Airway obstruction, stridor
   b. Tachypnoea (adults, respiratory rate>30)
   c. Respiratory rate <10
   d. Heart rate>130 (adults)
   e. Systolic BP <90 mmHg
   f. Lowered level of consciousness (GCS <13) > 5 min
   g. Convulsions
   h. Dilated or not responding pupils
2. ISS score of >15
   a. Flail chest
   b. Unstable fracture of the pelvis
   c. Fracture in two or more long bones
   d. Traumatic amputation or crush injury above wrist/ankle
   e. Injury in two or more body regions (head/neck/chest/abdomen/ pelvis/femur/back)

f. Penetrating injury of the head/ neck/chest/abdomen/pelvis/groin/ back)
g. 2. or 3. degree burn injury>15% body surface (children>10%)
h. Burn injury with inhalation injury
i. Hypothermia (core temperature <32°C)

3. Need for emergency procedures
   a. Endotracheal intubation
   b. Chest tube insertion
   c. Haemostatic surgery in the abdomen
   d. Haemostatic surgery in the pelvis with packing
   e. Thoracotomy
   f. Primary stabilization of fractures with external fixation
4. Mechanism of injury
   a. Ejected from vehicle
   b. Co passenger dead
   c. Trapped in wreck
   d. Pedestrian or cyclist hit by motor vehicle
   e. Motorcycle accident
   f. Considerable deformation of vehicle passenger compartment
   g. Traffic accident with speed>60 km/h
   h. Fall from >5 m
   i. Flood/ Avalanche accident
5. Timing of activation of trauma team
   a. Immediately on arrival of the patient(s)
   b. When there is mass casualty
6. Criteria for recruitment in the trauma team
   a. Training in ATLS
   b. Recertification in BLS every year
   c. Team members on call as per schedule

DEPARTMENT OF ACCIDENT AND EMERGENCY (MEDICAL)

For all patient admitted in Emergency Medical, there must be further Review by the Firm on Call before the patients are transferred to the respective wards.

***Management of Acute Coronary Syndrome* (ACS)**

- All patients presenting with a suspected ACS should have ECG done within 10 minutes of first clinical contact.

S/O	Interventions	Timelines/Dosages of drugs
1a	Tab Vasoprin	300mg stat
1b	Resting ECG	Within 10 minutes
2	Diagnosis confirmed- Admit to Cardiac Care Unit or Wards with cardiac monitors and defibrillators	
3	IV access, blood samples for E, U, Cr, troponins, FBS	
4	Oxygen therapy if saturation is < 93%	Avoid routine use
5	Analgesia with morphine. Give IV diamorphine or morphine 2.5mg to 5mg then repeat every 5 to 10minutes with further increment to achieve effective pain control.	·Note: Morphine slows absorption of oral drugs like ticagrelor, IV fentanyl is an option
6	**Antiemetic** – Give IV Metoclopramide 10mg as required	

Management of Elevated BP

Patient presenting with High Blood pressure is classified to either Hypertensive Urgency or Emergency.
For Hypertensive urgency: elevated blood pressure with no on-going end organ target damage. Precipitant usually poor compliance with medications.

S/O	Interventions	Timelines/Dosages of drugs
1	Present to emergency with usually no symptoms	
2	Blood pressure check and possible fundoscopy	
3	Bedside urinalysis	
4	Bedside ECG	
5	Commence oral antihypertensive or recommence routine antihypertensive	Observe BP
6	Discharge to see as outpatient	For domiciliary BP check, and counselling

Hypertensive Emergency:

Severe elevation of blood pressure with evidence of ongoing target organ damage eg
Acute pulmonary oedema, acute dissecting aneurism of aorta, hypertensive encephalopathy, pre-eclampsia, stroke and ongoing renal failure

S/O	Interventions	Timelines/Dosages of drugs
1	Present to emergency with headaches, restlessness and altered sensorium.	
2	Blood pressure check and possible fundoscopy	
3	Bedside urinalysis	
4	IV access, blood samples for E, U, Cr, FBS	
5	Oxygen therapy if saturation is < 93%	
6	Iv 250mls of 20% mannitol over 15mins 8 hourly, if there is evidence of raised intra-cranial pressure.	
7	Injection frusemide (IV) 20mg start.	
8	Parenteral Anti hypertensives like labetalol, sodium Nitro prusside and Hydralazine with close monitoring of BP.	
9	Note: Be careful with hydralazine which can cause crashing of BP that may be unpredictable	

Patient presenting with features of Heart Failure

S/O	Interventions	Timelines/Dosages of drugs
1	Present to emergency with easy fatiguability, orthopnoea, PND and or leg swelling.	
2	Examinations	For signs of decompensation
3	Bedside ECG, Urinalysis	
4	IV access, blood samples for E, U, Cr, RBS	
5	Oxygen therapy if saturation is < 93%	
7	Injection frusemide (IV).	
8	Anti-hypertensives	If needed
9	Antibiotics, anticoagulants	In co-infection, arrythmias

Neurology Cases

Patient presenting with stroke (differential limb weakness, loss of consciousness of sudden onset)

1. Admit in the emergency for evaluation for possible type of stroke
2. Diagnosis should be confirmed with a non-contrast brain CT scan as soon as possible.

Acute Ischemic stroke

1. Patients who arrive in the hospital and have CT within 4.5 hour should be thrombolysed if eligible.
2. All patients must have a standard swallowing test before feeding by mouth is commenced.
3. Patients unable to swallow or unconscious should have initial 50% Dextrose.
4. Use 0.9% saline as the fluid of choice
5. Start on secondary prevention therapies as soon as possible.
6. Use 20% mannitol only if there is clinical or radiological evidence of cerebral oedema in addition to nursing the patient at 20-30 degrees head-up.
7. Avoid antihypertensives except in cases of persistently high BP (SBP=220, DBP=120) or evidence of target organ damage.

Acute Intracerebral Haemorrhage.

1. All patients must have a standard swallowing test before feeding by mouth is commenced.
2. Patients unable to swallow or unconscious should have initial 50% Dextrose, then feeding through size 14 or 16 nasogastric tube up to a maximum of 4 weeks after with gastrostomy tube is inserted.
3. Use 0.9% saline as the fluid of choice
4. Use 20% mannitol only if there is clinical or radiological evidence of cerebral oedema in addition to nursing the patient at 20-30 degrees head-up.
5. Administer intravenous Labetalol at 10-20mg every 5 minutes to achieve a systolic BP of 140mmHg. Maintain the SBP at 140mmHg with boluses of IV labetalol at progressive intervals of 15mins, 30mins and hourly over the first 24 hours. Maximum dose in 24 hours is 300mg. if target not achieved, use IV hydralazine.
6. All fevers should be treated with paracetamol in addition to therapy for underlying cause.

Tetanus in Adults.

1. Evaluate in the emergency before transfer to the appropriate ward in a dark and quiet corner.
2. All patients should have severity grading and check for autonomic features.
3. For cases that are very severe with or without autonomic features, anaesthetists should be notified immediately for ICU care.
4. All patients should intravenous infusion of diazepam with the minimum effective dose and titrated up to a maximum of 400mg per day.
5. Additional boluses of IV diazepam can be administered for breakthrough spasms.
6. All patients should have 10,000 IU of Anti-tetanus serum in one arm
7. IV metronidazole at 1000mg 12 hourly should be given
8. IVF should 5% Dextrose saline at 1000mls 6 hourly
9. Fever should be treated with IV Paracetamol
10. If autonomic features are present, give IV Magnesium sulphate infusion starting at a dose of 500mg per hour.
11. Wound care should be by open dressing after debridement if required.

Meningitis

1. All cases of suspected bacterial meningitis must be admitted and evaluated urgently.
2. Lumbar puncture* (once contraindications has been excluded) for Cerebrospinal fluid (CSF) analysis for CSF gram stain, culture and biochemistry after review by the firm on call.
3. Brain imaging should be done if there are contraindications to lumbar puncture.
4. Other investigations include; blood culture, full blood count and renal function test
   - Intravenous antibiotics should be initiated as soon as possible;
5. Dexamethasone should be given concurrently with antibiotics and to be continued for 4 days.

Status Epilepticus (SE)

1. All patients with status epilepticus must be admitted in the medical emergency unit.
2. Nurse in left lateral position.
3. Commence patient on intranasal oxygen and suction secretions in the mouth.
4. Intravenous (IV)/intramuscular benzodiazepines should be given in early status epilepticus*.

a. Intravenous Lorazepam 4mg stats are preferred, but if not available give IV Diazepam slowly at a rate of 2-5mg per minute.

5. Blood for electrolytes, glucose, calcium, magnesium and full blood count should be collected immediately and any abnormality corrected.
6. Another class of intravenous anticonvulsants should be administered if status epilepticus becomes established*.
    a. Phenytoin infusion 15mg/kg at 50mg/min OR Phenobarbitone infusion at 100mg/min.

Gastroenterology Cases

Upper GI Bleeding

1. Patients presenting to the emergency with history of any of the following:

- Vomiting of frank blood (Hematemesis)
- Vomiting of coffee-ground materials (coffee-ground emesis)
- Passage of Melena (black tarry stool)
- Haematochezia (passage of frank blood per rectum) in massive and brisk upper GI bleeding.

2. Quickly assess the patient's airways, breathing and circulation, and resuscitate accordingly.
3. Take a brief targeted history with the aim to identify the possible cause of the bleeding and assess severity of the bleeding:

- Ask for ingestion of NSAIDs, herbal concoctions or any other upper GI irritants
- Ask for the common risk factors for chronic Liver Disease
- Ask for co-morbidities that may worsen prognosis - Renal diseases, Heart diseases, Lung diseases.

4. Quickly check the vital signs:

- Massive upper GI bleeding will have features of hemodynamic instability - Tachycardia, postural Hypotension or even shock.

5. Perform a quick and targeted physical examination

- Check for stigmata of chronic liver disease –
- Perform quick abdominal examination checking for tenderness, organ enlargements or other masses
- Perform digital rectal examination.

6. Secure a large bore IV cannula on the peripheral veins.

- Draw blood for urgent PCV, E/U/Cr, Clotting profile
- Group and cross match (GXM) up to 3- 4units of blood

7. Commence volume resuscitation immediately with crystalloid to keep the pulse rate below 100 beats/minute and Blood pressure above 100mmHg.

- IV 0.9% saline as fast to keep pulse above 100 beats/min and BP above 100mmHg while you wait for blood to arrive.
- Commence blood transfusion as soon as blood is available in patients with features of massive upper GI Bleeding (Hemodynamic instability on presentation).
- Target post-transfusion PCV of 27 %.

8. Commence high dose proton-pump inhibitors (PPls) when you have clinical suspicion of non-variceal upper GI bleeding particularly bleeding peptic ulcer.

- IV Raberazole/ Omeprazole 40mg 12hly or iv Rabeprazole/ Omeprazole 80mg bolus stat, then 8mg/hr as a continuous infusion for 72hrs.

9. Commence vasoactive agent and empirical antibiotics when you have clinical suspicion of variceal bleeding (patients who have stigmata of CLD and features of portal hypertension)
- IV Terlipressin 2mg bolus stat, then 2mg 4-hrly x 72hrs or IV Octreotide 50ug bolus stat, then 50 ug/hr as an infusion x 72hrs.
- Iv ceftriazone 1g daily x 5/7

10. Review by the unit on call and Consult the Gastroenterologist early for urgent/emergent upper Gl endoscopy (and possible endoscopic hemostatic therapy).
11. Also notify the General surgeons early in patients with massive upper GI bleeding (incase medical and endoscopic modalities of management fail to arrest the bleeding).
12. Monitor patients' vital signs closely including the urinary output during the resuscitation.

Endocrine and Metabolism Cases

Protocols for Management of Diabetic Emergencies

Diabetic Emergencies

A. Diabetic Ketoacidosis state (DKA)
B. Hyperosmolar non-ketonic state (HONK)
C. Hypoglycaemia

A. Diabetic Ketoacidosis (DKA)

Management:

Principles:

1. Restore perfusion/rehydration
2. Stop ketogenesis by insulin replacement
3. Correct electrolytes imbalance
4. Avoid Complication
5. Treat the underlying cause/precipitants

General Measures:

a. Draw blood for investigations

1. Urea, Electrolytes & creatinine-URGENT
2. Check plasma glucose hourly and electrolytes 8hrly at least in the **1st24 Hours. Then daily E, U, Cr until stable- MUST**
3. Do bedside urinalysis for sugar,ketones and proteins- URGENT
4. Arterial blood gases- Urgent if possible.
5. Collect urine for microscopy culture and sensitivity
6. Full blood count
7. Arrange for ECG (to rule out MI or electrolyte abnormality)
8. Arrange for chest X-ray

b. **Pass urethral catheter for unconscious patients or when there is no spontaneous urine in 3** hours.

c. Give 60-100% oxygen 4-5L/min if the PaO2 is <11KPA (80mmHg)

d. Pass Nasogastric tube for continuous stomach aspiration if unconscious or semi unconscious (GCS<6/15)

e. Pass central venous line in elderly (>65yrs) or in cardiac patients.

f. Give blood or plasma 1-2unis if Systolic Blood pressure remains persistently below 80mmHg.

g. Give prophylactic heparin 5,000 u 12 hourly if the patient is elderly, unconscious for >7hrs or the plasma osmolality is >350mmosm/L

h. Consider the use of diazepam in small i/v doses as a sedative if the patient is very restless or convulsing.
i. Use colloids if SBP remain <100mmHg after 3hrs or 3litres of normal saline.

a. **Fluid Replacement:** (To correct dehydration and shock)
- Estimated fluid loss is approx. 6-8litres.

b. Insulin Replacement (to stop ketogenesis and combat hyperglycaemia)

Avoid subcutaneous route in dehydrated patients because of erratic absorption.

Intravenous Route preferably. Use only soluble insulin initially.

1. stat 10 IU IV and 10 IU IM as loading dose.
2. Then 6u hourly until plasma glucose falls below 14mmol/L. If RBS fall is <3mmol/L/Hr,double the dose of insulin
3. Then continue as 6u 2hourly or 12u 4hourly intravenous until the patient can take food orally and is fully conscious. NB: If the RBS is dropping too rapidly with the 4 Hourly insulin, reduce the insulin dose by half.
4. Then change to 'TDS soluble insulin subcutaneous if hydration is adequate, otherwise continue as IV 6hrly soluble insulin 30minutes before meals at a dose based on previous 24 hrs total dose, then

B. Hyperosmolar Hyperglycaemic State (HHS)

Management:

Principles;

a. Rehydration
b. Correction of hyperglycaemia using insulin
c. Correction of electrolyte imbalance especially potassium.
d. Treatment of underlying cause/precipitant
e. Prevention of complication

General measures;

- Same as for DKA
- Calculate serum osmolality based on the formular:

Serum osmolality = $[2(Na^+ + K^+)$ + plasma glucose + Urea] mosm/L.

Fluid replacement;

- Normal saline is the fluid of choice
- Fluid replacement regimen as in DKA.

Insulin replacement;

- similar to DKA with the following exceptions:

1. Use ½ the dose of soluble insulin as in DKA
2. Double the dose of insulin if no appreciable fall in plasma glucose at a rate of 3mmol/l/hr after 3 hours of starting treatment.
3. commence insulin therapy only after rehydration has started.

Treatment of precipitating cause;

a. broad spectrum antibiotics if infection is suspected

b. treat for MI, CVD, if indicated.

Prevention of complications;

a. prophylactic anticoagulant is compelling because of the high tendency of thrombo-embolic events.
b. give subcut Heparin 5000 U 12Hourly (if no absolute contraindications). OR
c. subcut Enoxaparin 40mg 12Hourly. Do baseline clotting profile and INR monitoring especially if using Heparin.

C. Hypoglycaemia

Management:

Urgent random blood sugar estimation is mandatory. Availability of a glucometer is extremely useful in getting an urgent blood sugar result. If a glucose meter is not available, send samples in a fluoride-oxalate bottle to the laboratory. Alert the laboratory at once.

1. Secure an intravenous assess with a cannula (preferably)
2. Give 50% glucose 50-100ml bolus IV in double dilution using a large peripheral vein.
3. Maintain on 10% dextrose water IV 1Liter 6hourly until patient can take orally.
4. Monitor hourly blood sugar until stable
5. Withhold all anti-diabetic medications including insulin until patient is stable.
6. If glucose infusion is not immediately available, give a bottle of soft drink (Coca-cola, Fanta) or place a cube of sugar in patient's mouth if he/she can take orally.
7. In the absence of a glucometer, in any person with diabetes if found to have sudden onset of sweating, tremors, confusion and altered consciousness, draw blood and send to the laboratory for urgent RBS. Then GIVE IV 50% dextrose 50ml bolus and maintain on 10% dextrose until result of RBS is available.
8. Counsel the patient on warning signs of hypoglycaemia, the relevance of meals taken during or after medications, and importance of regular follow-up visits.

Pulmonary Cases

Respiratory disease or symptoms

- Patient presenting to ER with cough, difficulty in breathing, and/or chest pain

1. Full history taking with duration to determine likely diagnosis
2. Examination and vital signs
3. Low SPO2- commence oxygen as patient depends except in case of COPD
4. Investigations- Chest Xray, Sputum Culture, GeneXpert, Complete blood count, Electrolyte urea, and creatinine and/or covid 19 samples as needed

For Community acquired pneumonia- Determining severity of community acquired pneumonia

1. Use the CRB 65 score or CURB 65 score (if serum urea is available) to determine severity and site of care.
2. CURB65 – confusion, urea more than 7mmol/l, respiratory rate ≥30/m, systolic blood pressure less than 90mmHg or diastolic blood pressure less than 60mmHg and age 65years or older. Give score of 1 for each point.
3. Admitinto the open ward if CRB65 or CURB65 score is 2. Admit into HDU if CRB65 or CURB65 is 3. Admit into ICU if CRB65 or CURB65 score is 4 or 5.
4. Admit if CRB65 or CURB65 score is 1 due to confusion

5. Note: presence of **septic shock and or respiratory failure** should warrant immediate ICU care.

Treatment

1. Give advice to all patients. Talk to them about their diagnosis, severity and treatment options.
2. Commence antibiotics as soon as possible within 4 hours in all hospitalized patients.
3. In hospitalized but not in ICU patient, give combination of IV Amoxicillin/Clavulanic acid 1.2g three times daily plus oral Azithromycin 500mg once daily or oral (or IV if available) Clarithromycin 500mg twice daily (Preferred first line)
4. Substitution of Ceftriaxone 1g twice daily or cefotaxime 1g 8hourly for Augmentin may be used.
5. Depending on investigation results and further review by the unit firm on call, further treatment will be considered.

Asthma Exacerbation

Treatment

1. Administer oxygen to achieve saturation above 92%
2. Administer nebulize short acting beta agonist e.g. salbutamol 5mg. Administer the SABA nebules frequently within the first hour until symptoms resolve.
3. If nebulizer is not available administer the SABA using a spacer device f5rom the meter dose inhaler.
4. Administer oral prednisolone 40 – 50mg once daily for 3 to 5 days (preferred) or intravenous hydrocortisone 100mg every 6hours.
5. Assess response to treatment (ask patient about how they feel now, respiratory rate and chest examination) frequently, every 20 - 30minutes. Assess the PEF after 1 hour of treatment.
6. If PEF is less than 60% of predicted following above treatment after 1hour, continue with above treatment and add Ipratropium 0.5mg via nebulization to the treatment.
7. Reassess patient frequent as above and check PEF in next hour.
8. If patient is deteriorating, call the ICU immediately but continue above treatment pending the transfer to the ICU.
9. Call the ICU from the onset if patient has life threatening asthma features from the onset but in addition commence above treatment pending transfer to the ICU.

NOTE: only consider IV magnesium 2g infusion over 20minutes in the patient in the ICU

Patient further review by the Firm on call

MEDICAL DEPARTMENTS, DIVISIONS AND UNITS

1. *Behavioural Sciences*
2. *Internal Medicine*
3. *Family Medicine*
4. *Paediatrics and Child Health*
5. *Pain and Palliative Care*

SUMMARY TABLE FOR THE DEPARTMENT OF BEHAVIOURAL SCIENCES

COMMON TASKS OR ACTIVITIES	COMMON CASES	TURN AROUND TIME	AUDIT PARAMETERS	COMMENTS AND REMARKS
EVALUATION AT EMERGENCY POINT	1. Violent Patients		Time to Evaluation is 30 minutes Time to Evaluation 30 Minutes	**INVESTIGATIONS** E/U+Cr, RBS **TREATMENT** Empathy Take away harmful objects Verbal de-escalation Chemical restraint using I.M Chlorpromazine 100mg+ I.M Paraldehyde10mls or I.M Haloperidol 5mg+ I.M Biperidine lactate 5mg or I.V Benzodiazepine e.g. Diazepam Physical restraint **TREATMENT** Close Monitoring Suicide caution Chart (nursing staff documentation of patient wellbeing at least every 15 minutes) Co-Manage with the

	2. Patients with attempted suicide/ deliberate self - harm 3. Side effects of antipsychotics Extrapyramidal side effects		Time to Evaluate is 30min – 1hr	Medical/Surgical team if indicated. Diagnose underlying mental disorder and treat appropriately. (i) Acute dystonic reaction If mild, Tabs Benzhexol If Moderate to Severe, Give I.M Bipyridine lactate or I.M/I.V Benztropine (Cogentin) (ii) Neuroleptic Malignant Syndrome Admit Patient Treat symptomatically Rehydrate intravenously Antipyretic etc. Vital signs documentation by nursing staff at least every 30 minutes **INVESTIGATIONS** Urine Drug Toxicology, E/ U+Cr. LFT, random blood sugar T**REATMENT** Treat Symptomatically Rehydrate with IVF Sedate if Agitated

	4. Psychoactive Substance Intoxication/ Withdrawal 5. Other physical emergencies		Time to evaluate is 30mins to 1hour	If Alcohol withdrawal, use reducing Regimen of long acting Benzodiazepine e.g. Chlordiazepoxide or diazepam Monitor and document vital signs Monitor level of consciousness Other physical emergencies in a known psychiatric patients or patients exhibiting psychiatric symptoms should be managed by the medical emergency unit.
CLINIC	REGISTRATION CONSULTATION (New case) FOLLOW UP	10 minutes 2 Hours 10 – 20 Minutes	Total time: 3 Hours	
WARD	1. Daily Reviews by Residents Review by Consultant within 24– 48 hours of admission Subsequent Review by Consultant at least once a week 2. Mental status examination and physical examination 3. Laboratory investigation 4. Vital signs check/		Treatment sheet Vital signs (chart) Suicide caution chart if necessary)	

	documentation (by nurses &Residents) 5. Drug chat with PRN medications dosage listing			
OTHER PECULIAR ACTIVITIES	1. Electroconvulsive therapy (ECT) 2. Psychological evaluation 3. Psychotherapy (Group & Individual) 4. Occupational therapy			

DEPARTMENT OF MEDICINE

Standard of Operation for Management of Medical Diseases

1. CARDIOLOGY UNIT

Management of Acute Coronary Syndrome (ACS)

Table 1: Management of STEMI

S/N	**Acute ST Elevation Myocardial Infarction**	**Turn Around Time**	**Audit parameters**	**Comments**
1	Initial Clinical Assessment, IV Line access and initial Resting ECG	Urgently/20 minutes	Chest pain, dyspnoea, low blood pressure, diaphoresis, low SPO2	Aspirin 300mg, GTN Spray/Nitrates Heparin/Clexane Thrombolytic therapy AVOID Viagra or Tadalafil
2	Diagnosis confirmed-Admit to Cardiac Care Unit or Wards with cardiac monitors and defibrillators	Within one hour	Troponin I or TFBS	Early use of defibrillator in case of VT or VF
3	Oxygen therapy if saturation is < 93%			Avoid routine use
4	Analgesia with morphine. Give IV diamorphine or morphine 2.5mg to 5mg then repeat every 5 to 10minutes with further increment to achieve effective pain control.			·Note: Morphine slows absorption of oral drugs like ticagrelor, IV fentanyl is an option
5	**Antiemetic** – Give IV Metoclopramide 10mg as required			To prevent/treat vomiting
6	**Nitrate**- Glyceryltrinitrate (GTN) should be given as IV infusion rather than sublingually or topically.			
7	**Medical thrombolysis: streptokinase, Tenecteplase etc**			
8	**Percutaneous Coronary Intervention (PCI)**			
9	**Coronary Artery Bypass Graft Surgery (CABG)**			
10	**Cardiac rehabilitation and follow up**	Within one week		Exclude complications like heart failure, aneurism etc

Table 2: Management of NSTEMI

S/O	Interventions	Timelines/Dosages of drugs
1a	Tab Vasoprin	300mg start
1b	Resting ECG	Within 10 minutes
2	Diagnosis confirmed-Admit to Cardiac Care Unit or Wards with cardiac monitors and defibrillators	
3	IV access, blood samples for E, U, Cr, troponins, FBS	
4	Oxygen therapy if saturation is < 93%	Avoid routine use
5	Analgesia with morphine. Give IV diamorphine or morphine 2.5mg to 5mg then repeat every 5 to 10minutes with further increment to achieve effective pain control.	·Note: Morphine slows absorption of oral drugs like ticagrelor, IV fentanyl is an option
6	**Antiemetic** – Give IV Metoclopramide 10mg as required	
7	**Nitrate**- Glyceryl trinitrate (GTN) should be given as IV infusion rather than sublingually or topically.	Avoid Viagra or Tadalafil
8	**Medical thrombolysis: Contraindicated**	**This is contraindicated**
9	**Percutaneous Coronary Intervention (PCI)**	
10	**Coronary Artery Bypass Graft Surgery (CABG)**	

Table 3: Management of hypertensive emergencies

Severe elevation of blood pressure with evidence of ongoing target organ damage e.g. Acute pulmonary oedema, acute dissecting aneurism of aorta, hypertensive encephalopathy, pre-eclampsia, stroke and ongoing renal failure

S/O	Interventions	Turn Around Time	Audit parameters	Timelines/Dosages of drugs
1	Present to emergency with headaches, restlessness and altered sensorium.		Blood pressure control Level of consciousness Urine output	
2	Review immediately by a physician within 30 minutes of arrival	30 minutes		Within 30 minutes
3	Blood pressure check and possible fundoscopy			
4	Bedside urinalysis			
5	IV access, blood samples for E, U, Cr, FBS			
6	Oxygen therapy if saturation is < 93%			
7	Iv 250mls of 20% mannitol over 15mins 8 hourly, if there is evidence of raised intra-cranial pressure.			

8	Injection frusemide (IV) 20mg start.	
9	Parenteral Anti hypertensives like labetalol, sodium Nitroprusside and Hydralazine with close monitoring of BP.	Avoid precipitous reduction of blood pressure
10	Note: Be careful with hydralazine which can cause crashing of BP that may be unpredictable	

Neurology Unit

Acute ischaemic stroke

1. Admit in the emergency for evaluation before transfer to the stroke unit or other appropriate ward.
2. Diagnosis should be confirmed with a non-contrast brain CT scan as soon as possible.
3. Patients who arrive in the hospital and have CT within 4.5 hours should be thrombolysed if eligible.
4. All patients must have a standard swallowing test before feeding by mouth is commenced.
5. Patients unable to swallow or unconscious should have initial 50% Dextrose, then feeding through size 14 or 16 nasogastric tube up to a maximum of 4 weeks after with gastrostomy tube is inserted.
6. Use 0.9% saline as the fluid of choice
7. Start on secondary prevention therapies as soon as possible.
8. Use 20% mannitol only if there is clinical or radiological evidence of cerebral oedema in addition to nursing the patient at 20-30 degrees head-up.
9. Avoid antihypertensives before 11 to 14 days post-op except in cases of persistently high BP (SBP=220, DBP=120) or evidence of target organ damage.
10. Administer chemical (or with Intermittent pneumatic compression if there is contraindication) deep vein thrombosis prophylaxis if power in the lower limb is 3 and below, patient is non-ambulant or DVT risk is significant using Well's score.
11. All fevers should be treated with paracetamol in addition to therapy for underlying cause.
12. Physiotherapy should commence by 24 hours after admission.
13. Multidisciplinary approach to care is the standard involving Physiotherapist, dietician/nutritionist, neurosurgeon, anaesthetist, speech therapist, psychiatrist and social worker.
14. All patients should complete their investigations before discharge.
15. Counselling on diet, lifestyle modifications, treatment adherence, rehabilitation and follow up visit plan should be undertaken before discharge.

SNO	Ischaemic stroke/Interventions	Timelines/remarks
1	Admit Emergency before transfer	Nurse in 20-30 degrees head up position
2	Brain CT scan	Within 4 hours
3	Transfer to Stroke Unit	Within 24 hours
4	20% Mannitol	Avoid antihypertensives except BP too high ≥220/120mmHg
5	Physiotherapy	As soon as possible
6	TED Stocking	

Acute Intracerebral Haemorrhage.

1. Admit in the emergency for evaluation before transfer to the stroke unit or other appropriate ward.
2. Diagnosis should be confirmed with a non-contrast brain CT scan as soon as possible.
3. All patients with ICH should have Neurosurgery review after CT scan confirmation.
4. All patients must have a standard swallowing test before feeding by mouth is commenced.
5. Patients unable to swallow or unconscious should have initial 50% Dextrose, then feeding through size 14 or 16 nasogastric tube up to a maximum of 4 weeks after with gastrostomy tube is inserted.
6. Use 0.9% saline as the fluid of choice
7. Use 20% mannitol only if there is clinical or radiological evidence of cerebral oedema in addition to nursing the patient at 20-30 degrees head-up.
8. Administer intravenous Labetalol at 10-20mg every 5 minutes to achieve a systolic BP of 140mmHg. Maintain the SBP at 140mmHg with boluses of IV labetalol at progressive intervals of 15mins, 30mins and hourly over the first 24 hours. Maximum dose in 24 hours is 300mg. if target not achieved, use IV hydralazine.
9. On the second day, commence oral antihypertensives to maintain the SBP at 140mmHg and below.
10. If patient is unable to swallow, pass a size 14 or 16 NG tube for drug administration.
11. Consider seizure prophylaxis for lesions in or close to the cerebral cortex.
12. Place patient on continuous monitoring of vital signs.
13. All fevers should be treated with paracetamol in addition to therapy for underlying cause.
14. Administer intermittent pneumatic compression for DVT if power in the lower limb is 3 and below, patient is non-ambulant or DVT risk is significant using Well's score.
15. Physiotherapy should commence by 24 hours after admission.
16. Multidisciplinary approach to care is the standard involving Physiotherapist, dietician/nutritionist, neurosurgeon, anaesthetist, speech therapist, psychiatrist and social worker.
17. All patients should complete their investigations before discharge.
18. Counseling on diet, lifestyle modifications, treatment adherence, rehabilitation and follow up visit plan should be undertaken before discharge.
19. For subarachnoid hemorrhage, request for CT or MRI with angiography after initial non-contrast CT.
20. If brain CT scan is negative, carry out a lumbar puncture 12 hours post-ictus to look for xanthochromia.
21. For subarachnoid hemorrhage, SBP target should 160mmHg and below.
22. Administer Tabs Nimodipine 60mg 4 hourly for 21 days and this should be commenced within 96 hours of ictus.

23. Administer opioids or opioid-like analgesics for pain relief together with a stool softener.

SNO	Haemorrhagic stroke/Interventions	Timelines/remarks
1	Admit Emergency before transfer	Nurse in 20-30 degrees head up position
2	Brain CT scan	Within 4 hours
3	Transfer to Stroke Unit	Within 24 hours
4	20% Mannitol	Bolus of IV Labetalol until systolic BP <140mmHg
5	Physiotherapy	As soon as possible
6	TED Stocking	

Tetanus in Adults.

1. Evaluate in the emergency before transfer to the appropriate ward in a dark and quiet corner.
2. All patients should have severity grading and check for autonomic features.
3. For cases that are very severe with or without autonomic features, anaesthetists should be notified immediately for ICU care.
4. All patients should intravenous infusion of diazepam with the minimum effective dose and titrated up to a maximum of 400mg per day.
5. Additional boluses of IV diazepam can be administered for breakthrough spasms.
6. All patients should have 10,000 IU of Anti-tetanus serum in one arm
7. IV metronidazole at 1000mg 12 hourly should be given
8. IV Fluid should 5% Dextrose saline at 1000mls 6 hourly
9. Fever should be treated with IV Paracetamol
10. If autonomic features are present, give IV Magnesium sulphate infusion starting at a dose of 500mg per hour. Check the deep tendon reflexes routinely to monitor for toxicity. Other options include Clonidine, beta blockers.
11. Place patient on NPO until patient is spasm free for at least 5 days and this is usually around 2 weeks post admission.
12. Wound care should be by open dressing after debridement if required.
13. Initiate active immunization before discharge.

Meningitis

1. All cases of suspected bacterial meningitis must be admitted and evaluated urgently.
2. Lumbar puncture* (once contraindications has been excluded) for Cerebrospinal fluid (CSF) analysis for CSF gram stain, culture and biochemistry.
3. Brain imaging should be done if there are contraindications to lumbar puncture.
4. Other investigations include blood culture, full blood count and renal function test
5. Intravenous antibiotics should be initiated as soon as possible; this could be continued for 5-21 days depending on the aetiology.
    - Intravenous ceftriaxone 2g 12-hrly given for 7 days if meningococcal meningitis is suspected, 14 days for *Streptococcus pneumonia* *or* *Hemophilus influenza* and this should be extended to 3-4 weeks if gram negative infection is suspected.
    - Intravenous Amoxicillin 2g 4-hrly for 3 weeks + Intravenous Gentamicin for 7 days in elderly with suspicion of *Listeria monocytogenes.*
    - Intravenous Aciclovir (10mg/kg 8-hrly) should be considered if viral cause from Herpes simplex virus is considered.

6. Dexamethasone should be given concurrently with antibiotics and to be continued for 4 days.
7. The patient would be monitored closely to detect any complications early and treat appropriately.

   *Lumbar puncture should be avoided in the following conditions:
   - Impaired consciousness
   - Evidence of raised intracranial pressure
   - Papilloedema
   - Known immunocompromised state
   - Evidence of hydrocephalus or cerebral oedema.

Status Epilepticus (SE)

1. All patients with status epilepticus must be admitted in the medical emergency unit.
2. Nurse in left lateral position.
3. Commence patient on intranasal oxygen and suction secretions in the mouth.
4. Intravenous (IV)/intramuscular benzodiazepines should be given in early status epilepticus*.

- Intravenous Lorazepam 4mg stats are preferred, but if not available give IV Diazepam slowly at a rate of 2-5mg per minute.

5. Blood for electrolytes, glucose, calcium, magnesium and full blood count should be collected immediately, and any abnormality corrected.
6. Another class of intravenous anticonvulsants should be administered if status epilepticus becomes established*.

- Phenytoin infusion 15mg/kg at 50mg/min OR Phenobarbitone infusion at 100mg/min.
- Intravenous Sodium valproate or Levetiracetam could also be used.

7. If seizures continues despite these agents (refractory status epilepticus*), patient should be transferred to intensive care unit for intravenous anaesthetic agents (Propofol, Thiopentone or Midazolam).
8. Continuous review of the patients should be done to know if to step up or step down treatment.

   *Early status epilepticus- first 30 minutes of seizure activity.
   *Established status epilepticus- if treatment for early SE fails.
   *Refractory status epilepticus- if seizures continue for more than 1-2 hours despite treatment for early or established SE.

Subarachnoid haemorrhage (SAH)

1. All patients with suspected SAH should be admitted to the hospital.
2. Brain Computed Tomography scan should be done urgently and if negative a lumbar puncture could be done if there is still a strong suspicion of SAH.
3. Blood should be sent for full blood count, electrolytes, urea and creatinine.
4. Intravenous line should be established, and intravenous fluid given to maintain normovolaemia.
5. Administer analgesics for headaches and give stool softeners if opioid analgesics are used.
6. Give oral nimodipine to prevent vasospasms.
7. Give cerebral desiccants if there is evidence of cerebral oedema.
8. Apply compression stockings to both lower limbs to prevent deep vein thrombosis (DVT).
9. Complete bed rest and patients in Head-up position.
10. Continuous review of patients to detect any complications and treat appropriately.

Nephrology Unit

Table 4: Management of Dialysis Disequilibrium syndrome (DDS)

S/O	Interventions	Timelines/Dosages of drugs
1	Anticipate in patients who are commencing dialysis for the first time or who those have discontinued dialysis for a long time and now re-presenting to the hospital	
2	• Clinical features ranges from minor symptoms like headache, nausea, restlessness etc. to severe symptoms like confusion, seizures, stupor, coma and death.	Within 10 minutes
3	For mild symptoms. Sodium modelling can be deployed to reduce osmotic shift while dialysis continues. Symptomatic care with anti-emetics, analgesics etc. Stop dialysis if symptoms persist beyond 30 minutes	
4	Stop dialysis Symptomatic care e.g. use of anticonvulsants, nursing head up at 30 degrees, airway suctioning if there are secretions etc. Give 20% mannitol to rapidly increase serum osmolality.	
5	Slow efficiency haemodialysis on consecutive days subsequently. Increase dialysis time as tolerated with increasing number of dialysis sessions.	
6	Preventive measures are as follows: Initiate haemodialysis with a blood flow rate of 200ml/min and a dialysate flow rate of 400ml/min.	

Table 5: Management of acute pulmonary oedema

S/O	Interventions	Timelines/Dosages of drugs
1	Rapid airway assessment for patency, suctioning for secretions and maintenance of airway with devices if needed.	
2	Give supplemental oxygen via a non-rebreathing facemask to deliver high flow 100% oxygen when hypoxemia is present (SpO2 <94% for acutely sick otherwise well patients; <88% in COPD patients with	

	type 2 respiratory failure).	
3	Give loop diuretic such as furosemide. Start with low dose (40mg IV furosemide, 1 mg bumetanide, 10-20mg torsemide) in diuretic naive patients	
4	If there is inadequate diuretic response double the dose of IV loop diuretics; reassess for urine output and urine spot sodium within 6 hours. If still inadequate, repeat diuretics until maximal doses of diuretic is reached (600mg for furosemide).	
5	On the second day evaluate 24-hour urine output; if >3-4 litres continue current dose until decongestion. Consider reducing the dose of diuretics if daily urine output is >5litres.	

Management of Snake bite

a. Rapid clinical assessment and resuscitation**.**
b. Quick examination
c. Investigations.

Treatment

- Definitive Management Give antivenom. Any patient requiring antivenom treatment should be admitted to an intensive care setting.

<u>Types of Antivenom</u>

1. Monovalent: Used for specific snake venom. [Is more effective and less likely to cause reactions].
2. Polyvalent: Active against a range of venoms. More likely to cause reactions.

Indications for Administering Antivenom

Systemic Envenomation

a. Spontaneous systemic bleeding
b. Non clotting blood (which is defined using the simple 20-min whole blood clotting test [WBCT20])
c. Hypotension, shock, or other signs of cardiotoxicity
d. Rhabdomyolysis
e. Impaired consciousness
f. Neurotoxicity (like ptosis, muscle weakness, depression of respiration)
g. Leucocytosis with WBC $\geq$ 20,000/uL and or elevated liver enzymes
h. Local envenoming
i. Known necrotic venom, e.g., *Bitisarietans* (puff adder)
j. Swelling involving more than half of the bitten limb
k. Rapid progression of swelling
l. Bites on digits and into other tight fascial compartments

Dose of Antivenom

a. About 3-5 vials of antivenom should be given if signs are mild – primarily local manifestation.
b. 10 vials if signs are moderate – bleeding from the gums, extensive swelling, ptosis.
c. 15 vials if signs are severe – vascular collapse, progressive paralysis.

i. Given intravenously in isotonic solution about 500mls over 1hr
ii. Repeat dose every 6hrs till symptoms disappears or after 1hr if paralytic or CVS signs deteriorate.
iii. Same dose is given to both adults and children.

No envenomation	Absence of local or systemic reactions; fang marks (+/-)
Mild envenomation	Fang marks (+), moderate pain, minimal local edema (0–15 cm), erythema (+), ecchymosis (+/-), no systemic reactions
Moderate envenomation	Fang marks (+), severe pain, moderate local edema (15–30 cm), erythema and ecchymosis (+), systemic weakness, sweating, syncope, nausea, vomiting, anemia, or thrombocytopenia
Severe envenomation	Fang marks (+), severe pain, severe local edema (>30 cm), erythema and ecchymosis (+), hypotension, paresthesia, coma, pulmonary edema, respiratory failure

Adverse effects of anti-snake venom

1. Early anaphylactic reactions.
   a. Occurs within 10mins-3hrs of commencement of antivenom.
   b. Incidence: 5-10%.
   c. Characterized by itching, urticaria, coughing, fever, nausea, vomiting, abdominal colic, diarrhoea, and tachycardia.
   d. Life threatening reactions include hypotension, bronchospasm and angioedema.

Management of Anaphylactic Reaction.

a. Interrupt administration of antivenom
b. Give IM Adrenaline 0.01ml/kg stat.
c. IV Hydrocortisone 2mg/kg stat.
d. IV Chlorpheniramine 0.2mg/kg stat.
e. Manage for shock if patient is hypotensive and in shock.

f. Tepid sponge if febrile.
g. Prophylactic administration of SC Adrenaline 0.01ml/kg and IV Hydrocortisone is known to reduce the incidence of early reactions.

2. Delayed Hypersensitivity reaction

a. Occurs 5-21days (average 7days) after antivenom treatment.
b. May last for weeks.
c. Manifests as malaise, fever, itching, urticaria, arthralgia, myalgia, lymphadenopathy and peri-articular swelling.

Rarely, Immune Glomerulonephritis, Neuritis, or Myocarditis.

i. Usually managed with Oral anti-Histamine (Chlorpheniramine)and Prednisolone given 4mg 8hrly for 5-7days.

Note: Prophylactic management has not proved effective in preventing its occurrence.

Other supportive care

a. Intravenous fluids should be given to patients especially those with hypotension or shock. Infusion of dopamine may be considered in refractory shock.
b. Fresh whole blood/FFP may be required with low PCV and or active bleeding.
c. Patients with neurotoxic envenoming should:

i. Be given a tensilon (edrophonium) test; if test negative, observe and monitor; otherwise (if positive).
ii. Be considered for anticholinesterase agents (neostigmine) as it may improve neuromuscular transmission abnormality.
iii. Be immediately intubated and mechanically ventilated with onset of respiratory paralysis.

3. Snake bite wound care:

1. Wound dressing, 1 – 2 per day.
2. Administer tetanus prophylaxis (IM TT).
3. Administer ATS or human tetanus immunoglobulin in severe dirty wounds.
4. Administer antibiotics –in severe dirty wounds.
5. Surgical debridement (± skin grafting) may be required for severe local wounds.
6. Fasciotomy may be required in compartment syndrome when intra-compartment pressure rises above 45mmHg (commonly in the anterior tibial compartment). It should be considered only when blood coagulability has been restored.

4. Evaluate for and manage complications:

1. Renal impairment should be monitored with (E/U/C).
2. Renal failure may require dialysis
3. Rhabdomyolysis should be monitored with serum creatine kinase and aldolase
4. Cardiotoxicity should be evaluated with electrocardiograph (ECG)
5. Acute snake venom ophthalmia (from cobra spits) should be managed with;

a. eyes irrigation with bland fluid or flowing water
b. atropine drops
c. treat with local antibiotics such as tetracycline or chloramphenicol
d. consider ophthalmologic referral

After discharge victims should be followed up 7 – 14 days post antivenom for features of late adverse reactions (e.g. serum sickness- type pruritic rashes.)

Manage and rehabilitate disabilities like amputations, blindness (from venom ophthalmia), limb contractures, etc.

Acute transfusion reaction

It can present in the following ways viz;

1. Volume overload
2. Transfusion related acute lung injury
3. Acute haemolysis
4. Anaphylaxis
5. Sepsis
6. Urticaria
7. Febrile nonhemolytic reactions

Treatment of Post obstructive diuresis

1. Complete relief of urinary tract obstruction
2. Replacement of electrolytes
3. Correction of intravascular volume loss
4. Appropriate patient monitoring (Blood pressure, heart rate etc)

Gastroenterology Unit

Upper GI Bleeding

1. Patients presenting to the emergency with history of any of the following:
   a. Vomiting of frank blood (Hematemesis)
   b. Vomiting of coffee-ground materials (coffee-ground emesis)
   c. Passage of Melena (black tarry stool)
   d. Haematochezia (passage of frank blood per rectum) in massive and brisk upper GI bleeding.
2. Quickly assess the patient's airways, breathing and circulation, and resuscitate accordingly.
3. Take a brief targeted history with the aim to identify the possible cause of the bleeding and assess severity of the bleeding:
   a. Ask for ingestion of N SAIDs, herbal concoctions or any other upper GI irritants
   b. Ask for the common risk factors for chronic Liver Disease
   c. Ask for co-morbidities that may worsen prognosis - Renal diseases, Heart diseases, Lung diseases.
4. Quickly check the vital signs:
   a. Massive upper GI bleeding will have features of hemodynamic instability - Tachycardia, postural Hypotension or even shock.
5. Perform a quick and targeted physical examination
   a. Check for stigmata of chronic liver disease –
   b. Perform quick abdominal examination checking for tenderness, organ enlargements or other masses
   c. Perform digital rectal examination.
6. Secure a large bore IV cannula on the peripheral veins.
   a. Draw blood for urgent PCV, E/U/Cr, Clotting profile
   b. GXM up to 3- 4units of blood

7. Commence volume resuscitation immediately with crystalloid to keep the pulse rate below 100 beats/minute and Blood pressure above 100mmHg.
   a. IV 0.9% saline as fast to keep pulse above 100 beats/min and BP above 100mmHg while you wait for blood to arrive.
   b. Commence blood transfusion as soon as blood is available in patients with features of massive upper GI Bleeding (Hemodynamic instability on presentation).
   c. Target post-transfusion PCV of 27 %.
8. Commence high dose proton-pump inhibitors (PPls) when you have clinical suspicion of non-variceal upper GI bleeding particularly bleeding peptic ulcer.
   a. IV Rabeprazole/ Omeprazole 40mg 12hly or IV Rabeprazole/ Omeprazole 80mg bolus stat, then 8mg/hr as a continuous infusion for 72hrs.
9. Commence vasoactive agent and empirical antibiotics when you have clinical suspicion of variceal bleeding (patients who have stigmata of CLD and features of portal hypertension)
   a. IV Terlipressin 2mg bolus stat, then 2mg 4-hrly x 72hrs or IV Octreotide 50ug bolus stat, then 50 ug/hr as an infusion x 72hrs.
   b. Iv ceftriaxone 1g daily x 5/7
10. Consult the Gastroenterologist early for urgent/emergent upper gastrointestinal endoscopy (and possible endoscopic haemostatic therapy).
11. Also notify the General surgeons early in patients with massive upper GI bleeding (in case medical and endoscopic modalities of management fail to arrest the bleeding).
12. Monitor patient's vital signs closely including the urinary output during the resuscitation.

ENDOCRINE AND METABOLISM UNIT

Protocols for Management of Diabetic Emergencies

Diabetic Emergencies

A. Diabetic Ketoacidosis state (DKA)
B. Hyperosmolar non-ketonic state (HONK)
C. Hypoglycaemia

A. Diabetic Ketoacidosis (DKA)

SNO	DKA/Interventions	Timelines/remarks
1	Admit Emergency	Check PR, BP, RR & Temp
2	Urinalysis, Blood sample for E, U, Cr, RBS,	Check for dehydration & Kussmaul breathing
3	Rehydration with normal saline	1Liter for 30mins, second Litre for one hour, 3rd Litre for two hours and 4th Litre for 4 hours depending on dehydration
4	Correction of hyperglycaemia	IV soluble insulin 10 IU and 10 IU intramuscular start then 6 IU hourly until FBS ≤14mmol/L. If RBS fall is <3mmol/L double the dose of soluble insulin until patient is conscious or can take orally.
5	Correction of electrolyte imbalance	Give IV potassium into fluid if K+ is <5mmol/l after first L of IVF and patient making urine. Don't give K+ if serum level is >5.5mmol/L or ECG suggests ↑K+
6	Precipitating factors	Treat infections with antibiotics

B. Hyperosmolar Hyperglycaemic State (HHS)

SNO	HHS/Interventions	Timelines/remarks
1	Admit Emergency	Check PR, BP, RR & Temp
2	Urinalysis, Blood sample for E, U, Cr, RBS,	Check for dehydration &Kussmaul breathing
3	Rehydration with normal saline	1Liter for 30mins, second Liter for one hour, 3rd Liter for two hours and 4th Liter for 4 hours depending on dehydration
4	Correction of hyperglycaemia	IV soluble insulin 10 IU and 10 IU intramuscular start then 6 IU hourly until FBS ≤14mmol/L. If RBS fall is <3mmol/L double the dose of soluble insulin until patient is conscious or can take orally.
5	Correction of electrolyte imbalance	Give IV potassium into fluid if K+ is <5mmol/l after first L of IVF and patient making urine. Don't give K+ if serum level is >5.5mmol/L or ECG suggests ↑K+
6	Precipitating factors/Heparin	Treat infections with antibiotics/ Heparin

C. Hypoglycaemia

Management:

Urgent random blood sugar estimation is mandatory.

(1) Availability of a glucometer is extremely useful in getting an urgent blood sugar result. If a glucose meter is not available, send samples in a fluoride-oxalate bottle to the laboratory. Alert the laboratory at once.
(2) Secure an intravenous assess with a cannula (preferably)
(3) Give 50% glucose 50-100ml bolus IV in double dilution using a large peripheral vein.
(4) Maintain on 10% dextrose water IV 1Liter 6hourly until patient can take orally.

Monitor hourly blood sugar until stable.

(5) Withhold all anti-diabetic medications including insulin until patient is stable.
(6) If glucose infusion is not immediately available, give a bottle of soft drink (Coca-cola, Fanta) or place a cube of sugar in patient's mouth if he/she can take orally.
(7) In the absence of a glucometer, in any person with diabetes if found to have sudden onset of sweating, tremors, confusion and altered consciousness, draw blood and send to the laboratory for urgent RBS. Then GIVE IV 50% dextrose 50ml bolus and maintain on 10% dextrose until result of RBS is available.
(8) Counsel the patient on warning signs of hypoglycaemia, the relevance of meals taken during or after medications, and importance of regular follow-up visits.

Protocols for Management of Thyroid Storm

Introduction

Also known as thyrotoxic or thyroid crisis is a rare endocrine emergency characterized by a rapid deterioration of hyperthyroidism with hyperpyrexia, severe tachycardia and extreme restlessness. It is a life-threatening exacerbation of hyperthyroidism of any cause.

Management

Goals of management:

1. Beta-adrenergic blockade of the catechol-mimetic symptoms and signs of thyrotoxicosis
2. Supportive measures
3. Inhibition of thyroid hormone synthesis
4. Blockade of thyroid hormone release from the thyroid gland
5. Inhibition of the conversion of T4 to T3
6. Vigorous management of the precipitating illness

Treatment:

Nurse in ICU if possible.

1. Secure an intravenous (IV) access and draw blood for T3, T4, TSH, blood cultures if infection is suspected and urgent U/E/Cr.
2. IVF 0.9% saline 500ml 4hrly if dehydrated. Caution in heart failure
3. Propranolol 40mg 8hrly orally if no contraindications OR IV Propranolol 1mg every 10-15 minutes (no more than 15-20mg should be given IV) if nausea and vomiting is present.
4. Give antiemetics if vomiting is present. Pass naso-gastric tube if unconscious.
5. Sedate if severe restlessness/agitation (e.g. chlorpromazine 50mgpo/IM).
6. Digoxin in high doses may be required to reduce the heart rate especially in patients with heart failure and atrial fibrillation where B blockers are contraindicated E.g. 0.5mg IV over 30 mins, then 0.25mg IV over 30 mins every 2 hrs to maximum of 1mg.
7. Give anti-thyroid drugs; Tabs Carbimazole 15-25mg 6hrl po OR if available, Propylthiouracil (PTU) 1000mg po or crushed via NGT, then PTU 300mg 46hrly.
8. 1-2 hrs after commencing (7) above, give sodium iodide 1g infusion over 12 hrs, 12hrly to block preformed thyroid hormone release from the thyroid gland. OR Lugol's iodine solutions as oral drops (10) 8hrly OR saturated solution of potassium iodide (SSKI) 5 drops 8hrly. NB: Do not give iodine before PTU as this may fuel synthesis of more T4 Give IV hydrocortisone 100mg 6hrly for 24 hrs. This blocks the peripheral conversion of T4 to T3 and lowers body temperature.
9. Give antipyretics (acetaminophen 1g 8hrly po OR corticosteroids as above) but NOT aspirin. Aspirin displaces thyroids hormones from their binding proteins. Tepid sponge PRN OR use of cooling blanket if available.
10. Broad spectrum antibiotics 9e.g. Ceftriaxone 1g 12hrly) if infection is suspected.
11. Treat any underlying cause/precipitant(s) as appropriate.
12. Give 5% dextrose infusion to prevent hypoglycaemic in patients not taking orally.
13. When stable, continue treatment with carbimazole 10-15mg 8hrly po. After 10 days, stop propranolol and iodine and adjust carbimazole.

Markers of response to treatment

1. Temperature, tachycardia, tremors and mental status-improve in first 24 hrs.
2. CCF may take days to resolve
3. Atrial fibrillation may take up to 2 weeks to revert to sinus rhythm.
4. Muscle weakness may improve during the first few hrs after treatment but strength returns to normal weeks later.

Prognosis

Mortality is up to 10% even in the best of hands

Poor prognostic indicators include;

1. Persistence of tachycardia and hyperpyrexia despite adequate treatment after the first 24 hrs.

2. Presence of acute myocardial infarction and or sever congestive cardiac failure
3. Deteriorating mental status.

PULMONARY UNIT

Protocol for Management of Community Acquired Pneumonia

Note: because of the ongoing COVID-19 pandemic, all suspected case of community acquired pneumonia, should be approached with suspicion of COVID-19 pneumonia, with necessary precaution and safety measures. See COVID-19 case management protocol. Community acquired pneumonia is acute lung infection acquired in the community. Patients may present with short onset of fever, cough usually with purulent sputum in bacterial causes, chest pain and breathlessness.

Determining severity of community acquired pneumonia

(1) Use the CRB 65 score or CURB 65 score (if serum urea is available) to determine severity and site of care.
(2) CURB65 – confusion, urea more than 7mmol/l, respiratory rate ≥30/m, systolic blood pressure less than 90mmHg or diastolic blood pressure less than 60mmHg and age 65years or older. Give score of 1 for each point.
(3) Admit into the open ward if CRB65 or CURB65 score is 2. Admit into HDU if CRB65 or CURB65 is 3. Admit into ICU if CRB65 or CURB65 score is 4 or 5.
(4) Admit if CRB65 or CURB65 score is 1 due to confusion

Note: presence of **septic shock and or respiratory failure** should warrant immediate ICU care.

Treatment

Give advice to all patients.

(5) Talk to them about their diagnosis, severity and treatment options.
(6) Commence antibiotics as soon as possible within 4 hours in all hospitalized patients.
(7) In hospitalized but not in ICU patient, give combination of IV Amoxicillin/Clavulanic acid 1.2g three times daily plus oral Azithromycin 500mg once daily or oral (or IV if available) Clarithromycin 500mg twice daily (Preferred first line)
(8) Substitution of Ceftriaxone 1g twice daily or cefotaxime 1g 8hourly for Augmentin may be used.

Alternatives, if there is penicillin allergy:

(9) IV Levofloxacin 500mg twice daily (preferred) or 750mg daily or oral Moxifloxacin 400mg once daily (as monotherapy)
(10) DO NOT give empirical antipseudomonal antibiotics unless risk factor for pseudomonas infection exist.
(11) Risk factor for pseudomonas infection include structural lung diseases such as bronchiectasis, cystic fibrosis, COPD or in suspected hospital acquired infection.
(12) Antipseudomonal antibiotics include Ceftazidime, Cefepime, Meropenem, imipenem, Tazobactam/piperacillin
(13) DO NOT give empirical treatment for MRSA unless risk factors for MRSA infection exist. Risk factors for MRSA in community acquired pneumonia include haemoptysis, cavity on chest X-ray, care home patient, patient who had medical procedure or medical device.

Drugs active against MRSA include Linezolid or Vancomycin.

(14) In critically ill patient in the ICU, combine macrolide (Azithromycin or Clarithromycin) or respiratory fluroquinolones (Levofloxacin or Moxifloxacin) plus either ceftriaxone, cefotaxime, Augmentin, or Amoxicillin/Sulbactam. Consider treatment for MRSA or *pseudomonas*aeruginosa if risk factors are present.

DO NOT combine a macrolide and a fluroquinolone in treating community acquired pneumonia.

DO NOT give steroids unless refractory septic shock is present.

Asthma Exacerbation
Treatment

(1) Administer oxygen to achieve saturation above 92%
(2) Administer nebulize short acting beta agonist e.g., salbutamol 5mg. Administer the SABA nebules frequently within the first hour until symptoms resolve.
(3) If nebulizer is not available administer the SABA using a spacer device f5rom the meter dose inhaler.
(4) Administer oral prednisolone 40 – 50mg once daily for 3 to 5 days (preferred) or intravenous hydrocortisone 100mg every 6hours.
(5) Assess response to treatment (ask patient about how they feel now, respiratory rate and chest examination) frequently, every 20 - 30minutes. Assess the PEF after 1 hour of treatment.
(6) If PEF is less than 60% of predicted following above treatment after 1hour, continue with above treatment and add Ipratopium 0.5mg via nebulization to the treatment.
(7) Reassess patient frequent as above and check PEF in next hour.
(8) If patient is deteriorating, call the ICU immediately but continue above treatment pending the transfer to the ICU.
(9) Call the ICU from the onset if patient has life threatening asthma features from the onset but in addition commence above treatment pending transfer to the ICU.

NOTE: only consider IV magnesium 2g infusion over 20minutes in the patient in the ICU

Discharge

(10) Discharge if the PEF is above 75% and patient is symptoms free.
(11) Discharge on controller medication(s) and patient thought on how to use the controller medication(s)

Pneumothorax
Management: In the presence of pneumothorax, determine if patient is having tension pneumothorax or not. Tension pneumothorax is determined if present by the occurrence of hypotension. If having tension pneumothorax; immediately stick a wide bore cannula in the 2nd intercostal space at the midclavicular line anteriorly

(1) Then immediately organize for chest tube insertion and chest X-ray. If patient is not having tension pneumothorax, then subsequent management depend on the type of pneumothorax whether primary or secondary spontaneous pneumothorax.
(2) Perform an urgent Chest Xray erect (PA view and lateral). Quantify the amount of pneumothorax to determine if it is significant or not significant. Determine the size of

the pneumothorax by measuring from the inner border of the rib to the pleural line at the level of the hilum.

(3) Significant pneumothorax is more than 2cm.If it is primary spontaneous pneumothorax and the pneumothorax is significant, perform a needle aspiration under aseptic technique. Do aspiration to completion and repeat chest x-ray.

(4) If pneumothorax is still significant after needle aspiration, then organize for a chest tube. Small primary spontaneous pneumothorax: reassure and monitor closely. Secondary spontaneous pneumothorax: If significant (>2cm), organize for a chest tube. If less than 2cm and it is thought to contribute to patient symptoms, then perform needle aspiration and repeat chest X-ray.

Massive haemoptysis/life threatening haemoptysis:

(1) Coughing out of blood more than 100 ml/day or any amount severe enough to cause haemodynamic instability.

a. Different causes
b. Check saturation
c. Plan:
   i. Establish two wide bore intravenous access
   ii. Take urgent PCV
   iii. FBC
   iv. Chest X-ray (PA view and lateral)
   v. Group & cross match 3 pints of whole blood
   vi. Sputum GeneXpert
   vii. Sputum m/c/s
   viii. E/U/Cr
   ix. Blood glucose

(2) Lie on the affected side, if affected site is known, if affected site is not known or bilateral, then place in cardiac position

Cough suppressant

a. Tab DF 118- 30mg thrice daily
b. IV diazepam 5mg start.
c. Give intravenous antibiotics.
d. Evaluate for possible need of intubation to protect the airway
e. Consult to CTSU
f. Treat underlying cause

Acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD)

(1) Plan: Commence oxygen if oxygen saturation is less than 90% and aim for saturation within 88 – 92% (if ABG is not done and $PaCO_2$ value is not known) or $PaCO_2$ is elevated

Repeatedly check the sensorium to see if there is any worsening while on oxygen.

(2) If there is no hypercapnia but $SpaO_2$ is less than 90% or PaO_2 is less than 60mmHg give oxygen to aim at $SpaO_2$ above 92%.

(3) If on ABG there is respiratory acidosis and or severe hypercapnia, call the ICU immediately and be careful with oxygen administration. Targeting $Spa0_2$ of 88 – 92% while waiting for ICU transfer.

(4) Commence empirical antibiotics – INTRAVENOUS 2^{ND} OR 3^{RD} GENERATION CEPHALOSPORIN OR PENICILLIN + MACROLIDE.

(5) Commence, oral prednisolone 30 – 40 mg once daily or its equivalent.

Monitor patient's neurological status, saturation frequently.

Management of Pulmonary Embolism (PE)
Treatment of Pulmonary Embolism

1) The goal of treatment is to reduce the amount of vascular obstruction from PE and DVT, as well as to prevent embolization (or further embolization) of DVT.
2) A massive pulmonary artery obstruction causing haemodynamic compromise and right ventricular dysfunction is termed an unstable PE. Its management includes
3) **Cardiopulmonary support and immediate transfer to a critical care unit.**
    a) Fluid loading & systemic inotropic agents (norepinephrine generally preferred) will be required to raise blood pressure
4) **Thrombolytics** is the first line of treatment for patients with massive pulmonary embolism & persistent hypotension. It is most effective when administered soon after PE, but benefit may extend for up to 14 days from the onset of symptoms. While thrombolysis has short term haemodynamic benefits and may be life-saving in massive and submassive PE, the extent of long-term survival and reduction in mortality at 90 days remains unclear.

Thrombolytic agents include

1. **Streptokinase**- 250,000 IU as loading dose over 30minutes, then 100,000IU/hr over 12-24hrs. It is cheap. However, it can cause hypotension and it is antigenic, with risk of allergic/anaphylactoid reaction on re-exposure
2. **Urokinase** – 4,400IU/kg as loading dose over 10minutes, followed by 4,400IU/kg/hr over 12-24hrs. Unlike streptokinase, it has no risk of inactivation by antibodies
3. **Recombinant tissue plasminogen activator (rt-PA)** – 0.8mg/kg over 15minute (maximum dose 15mg), or 100mg over 2hrs. It has the advantage of having to allergic reaction or causing hypotension, but it is expensive.

Absolute contraindication to thrombolysis – haemorrhagic stroke or stroke of unknown origin at any time, ischaemic stroke in the preceding 6months, CNS damage or neoplasm, major trauma/surgery/head injury in the last 3weeks, GI bleeding within the last one month, or any known active bleeding

Relative contraindication to thrombolysis – TIA in the last 6months, oral anticoagulant use, pregnancy or within one-week postpartum, non-compressible punctures, traumatic resuscitation, refractory hypertension with SBP > 180mmHg, advanced liver disease, infective endocarditis and acid peptic disease.

a. If thrombolysis fails or is contraindicated, consider surgical options like **embolectomy or endarterectomy**
b. **Insertion of inferior vena cava filters** to prevent re-embolism maybe an additional intervention. It is indicated in patients with absolute contraindication to anticoagulation (active bleeding, major surgery, etc), and recurrent PE despite adequate anticoagulant therapy.
c. **Analgesia** – consider opiates
d. **High flow oxygen** via a face mask or non-rebreathing mask. Ventilation may be required. Target saturation more than 92%.

Chronic anticoagulation in PE

For all patients with confirmed VTE, follow up treatment beyond hospitalization will be required. Chronic anticoagulation is by use of warfarin, factor Xa inhibitors or direct thrombin inhibitors.

Duration for follow up anticoagulation for DVT/PE is at least 3months. Patient with transient risk factors should be treated until original risk factors has subsided and the patient fully ambulatory. However, patients with high risk of recurrence or unresolved risk factors for VTE may require prolonged (or lifelong) anticoagulation

Anticoagulants - halt growth of thrombus, thus allowing the action of fibrinolytic system to proceed unopposed. Consequently, they indirectly speed up the resolution of pre-existing DVT and PE, and reduce the size of potential emboli

1) **Unfractionated Heparin (UFH**) – is the preferred anticoagulant for patients with severe renal failure (e.g., Cr clearance <30 mL/minute), and for patients in whom there is a high likelihood that acute reversal of anticoagulation will be needed. It is also preferred in patients with haemodynamic instability especially, if thrombolysis is being considered.
    i) It can be administered intravenously (IV) or subcutaneously (SC). IV UFH regimen is usually continuous infusion at 18IU/kg/hr, while SC UFH regimen is 250IU/kg/day in twice daily divided dose
2) **Low molecular weight heparin (LMWH)** – Is the preferred anticoagulant for patients with active cancer or pregnancy, and for patients in whom it is anticipated that therapeutic anticoagulation cannot be assured via the oral route (eg, malabsorption, vomiting).
    a) Enoxaparin 1 mg/kg twice daily (or 1.5 mg/kg once daily)
    b) Dalteparin 200 units/kg once daily
    c) Tinzaparin 175 units/kg once daily

Advantages of LMWH over UFH include greater bioavailability when given by subcutaneous injection, duration of the anticoagulant effect is longer (permitting once or twice daily administration), fixed dosing is feasible because the anticoagulant response correlates well with body weight, laboratory monitoring is not necessary, lower risk of heparin-induced thrombocytopenia (HIT)

However, the disadvantages of LMWH include higher cost, and the fact that its use is not advocated in patients with severe renal failure

1. **Warfarin -** should be started on the same day as parenteral anticoagulant therapy in patients with acute PE, and both should be continued together for a minimum of at least five days and until the INR is between 2-3. Initially, INR measurements are performed on a daily basis; once the patient is stabilized on a specific dose of warfarin, the INR determinations may be performed every 1-2 weeks or at longer intervals.

The anticoagulant effect of warfarin is mediated by the inhibition of vitamin K–dependent factors (II, VII, IX, and X), and its peak effect does not occur until 36-72 hours after drug administration. Also, the dosage is difficult to titrate because of many drug-drug, and drug-food interactions.

2. **Factor Xa inhibitors** like Apixaban, Edoxaban, Rivaroxaban, and Betrixaban. Apixaban was approved for treatment of PE in August 2014, and, in comparison with the standard anticoagulant regimen, apixaban therapy resulted in a 16% reduction in the risk of a composite endpoint that included recurrent symptomatic VTE. Edoxaban was approved by the FDA in January 2015 for the treatment of DVT and PE in patients who have been initially treated with a parenteral anticoagulant for 5-10 days.

Rivaroxaban is as effective in preventing VTE recurrence as administration of enoxaparin followed by a vitamin-K antagonist. (Hughes et al, 2012; Muller et al, 2012).It is also associated with less bleeding, particularly in elderly patients and those with moderate renal impairment. Betrixaban was approved by the FDA in June 2017, for prophylaxis of VTE in adults hospitalized for acute medical illness who are at risk for thromboembolic complications.

3. **Direct thrombin inhibitor** – Dabigatran (Pradaxa) was approved by the FDA in 2014 for the treatment of DVT and PE and reducing venous thromboembolic recurrence. Dabigatran has been shown to be non-inferior to warfarin in reducing DVT and PE, and is associated with lower bleeding rates. (Schulman et al, 2014)

Apixaban, Edoxaban, Rivaroxaban, Betrixaban and Dabigatran are alternatives to warfarin for prophylaxis and treatment of PE.Typical initial dose of Rivaroxaban is 15 mg twice daily, Apixaban is 10 mg twice daily, Edoxaban is 60 mg once daily (and 30 mg once daily in patients with a creatinine 30 to 50 mL/minute or a body weight below 60 kg), and Dabigatran is 150mg twice daily.

Rivaroxaban and apixaban are the only direct oral anticoagulants that have been studied and approved by regulatory agencies as monotherapy (i.e, no pre-treatment with heparin is necessary) for the treatment of patients with VTE. They may be preferred in those who wish to avoid the burden of injections in whom convenience or oral medication is a personal preference.

Direct oral anticoagulant agents are NOT suitable for the treatment of haemodynamically unstable PE or massive ilio-femoral DVT- their efficacy has not been adequately studied in these circumstances, and their use may interfere with potential thrombolytic therapy or surgical embolectomy.

Special situations

1. **PE in pregnancy** – LMWH is used. When close to delivery however, UFH is preferred as it is easier to reverse its effects. It is unclear whether heparin should be stopped or reduced at the time of delivery
   Warfarin is teratogenic and contraindicated in pregnancy, although is relatively safe in breastfeeding mothers. Anticoagulation should be continued for 6 weeks after delivery or 3 months after initial episode, whichever is longer
2. **PE in patients with cancer** - A meta-analysis of 15 randomized controlled trials in cancer patients receiving anticoagulation for VTE showed that LMWH was associated with a small reduction in mortality at three months, without an increased risk of bleeding, when compared to UFH.The efficacy of LMWH in this population assumes normal renal function (creatinine clearance ≥30 mL/min), and does not apply to patients with renal impairment.

Anticoagulant therapy should be administered for at least three to six months in patients with cancer and acute VTE, provided the bleeding risk is low, and no clinically relevant complications from anticoagulation have occurred.

3. **Heparin induced thrombocytopenia -** For patients with PE and heparin-induced thrombocytopenia (HIT), all forms of heparin are contraindicated. Immediate anticoagulation with a fast-acting non heparin anticoagulant (e.g.argatroban) is indicated

Prevention of Pulmonary Embolism

Over 95% of significant PE arise from thrombi in the deep veins(DVT) of the lower extremities. Thus, the goal of prevention of PE is the prevention of DVT

1. **Mechanical prophylaxis against DVT**

a. Simple elastic stocking tailored to provide gradient of pressures
b. Intermittent compressive devices
c. Mechanical devices - good for patients in which antithrombotic drugs are contraindicated

2. Pharmacologic prophylaxis against DVT

a. Prophylactic SC Unfractionated Heparin -5000-7500 IU twice or thrice daily
b. Low Molecular Weight Heparin (LMWH) given SC at 1mg/kg twice a day, or 1.5mg/kg/day
c. Low dose Warfarin (1-2mg/day, titrate to achieve INR 2-3).
d. For patient that cannot be administered either of the above, e.g., multiple trauma patient, prophylactic placement of inferior vena caval filter is recommended

A. <u>Upper GI bleeding</u>

1. Patient who presented to the emergency with history of any of the following:
   a. Vomiting of frank blood (Hematemesis)
   b. Vomiting of cottee-ground materials (coffee-ground emesis
   c. Passage of melaena (black tarry stool)
   d. Occasional haematochezia (frank blood per rectum) in massive and brisk upper GI bleeding.

2 Take a brief targeted history with the aim to identify possible aetiology and access seventy of the bleeding:
   a. Ask for ingestion of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), herbal concoctions
   b. Ask for common risk factors for chronic Liver Disease
   c. Ask for co-morbidities that may worsen prognosis – renal disease, heart disease, lung disease.

3 Quickly check the vital signs:
   - Massive upper GI bleeding with have features of hemodynamic instability – Tachycardia, postural Hypotension or even shock

4 Perform a quick and target physical exam – stigmata of chronic liver disease – abdominal exam. - Digital rectal exam.

5. Secure a large bore IV canular.
6. Draw blood for urgent PCV GXM up to 3 units E/Ulcer, clotting profile
7. Commence volume resuscitation immediately with crystalloid to keep the pulse rate below 100 beats/minute and Blood pressure above 100mmHg

- IV 0.9% saline as fast to keep pulse above 100b/min and BP above 100mmHg while you wait for blood.

8. Commence blood transfusion as soon as blood is available in patients with massive upper GI Bleeding.

    - Target PCV is 27 – 29%.

9. Commence high dose proton pump inhibitors (PPIs) when you suspect non-variceal bleeding Particular bleeding peptic ulcer.

- Iv Rabeprazole/ omeprazole 40mg 12hly or iv Rabeprazole/omeprazole 80mg stat, then 7mg/hr + 72hrs in continuous infusion.

10. Commence antibiotics and vasoactive agents when U suspect variceal bleeding.
    - Iv ceftriaxone 1g daily for 5/7
    - Iv Terlipressin 2mg bolus start, then 2mg 4 hrly x 72hrs or
    - Octreotide 50ug bolus stat, then 50 ug/hr as an infusion x 5/7.
11. Consult the Gastroenterologist early for upper GI endoscopy (and possible endoscopic Therapy) as soon as patient is hemodynamically stable.
12. Monitor patient's urinary output and other vital signs closely.
13. Supplement 0_2if saturation is sub-optimal (<94%) with intranasal oxygen.

Pneumothorax

Management:

In the presence of pneumothorax, determine if patient is having tension pneumothorax or not. Tension pneumothorax is determined if present by the occurrence of hypotension. If having tension pneumothorax; immediately stick a wide bore cannula in the 2nd intercostal space at the midclavicular line anteriorly

1. Then immediately organize for chest tube insertion and chest X-ray.
2. If patient is not having tension pneumothorax, then subsequent management depend on the type of pneumothorax whether primary or secondary spontaneous pneumothorax.
3. Perform an urgent Chest Xray erect (PA view and lateral).
4. Quantify the amount of pneumothorax to determine if it is significant or not significant. Determine the size of the pneumothorax by measuring from the inner border of the rib to the pleural line at the level of the hilum.
5. Significant pneumothorax is more than 2cm.
6. If it is primary spontaneous pneumothorax and the pneumothorax is significant, perform a needle aspiration under aseptic technique. Do aspiration to completion and repeat chest x-ray.
7. If pneumothorax is still significant after needle aspiration, then organize for a chest tube.
8. Small primary spontaneous pneumothorax: reassure and monitor closely.
9. Secondary spontaneous pneumothorax: If significant (>2cm), organize for a chest tube.
10. If less than 2cm and it is thought to contribute to patient symptoms, then perform needle aspiration and repeat chest X-ray.

DEPARTMENT OF EPIDEMIOLOGY AND COMMUNITY HEALTH

SUMMARY TABLE FOR MEDICAL AUDIT

S/N	Common task/ Activities	Common/Peculiar cases	Average Turnaround time (minutes)	Audit parameters	Remarks
1	NHIS clinic consultation	Registration Consultation Drug collection	15 30 15	Total time is 1 hour	Clinic runs every day
2	Immunization services	Registration Health education Vaccination	10 15 10	Total time is 35 minutes	Clinic runs on weekdays
3	Epidemic response	Response to consult Sample collection and submission to lab	60 120	Response conducted and completed within 4 hours	This depends on availability of required items like PPE, sample collection materials and lab readiness to receive samples
4	Health education and promotion	Group Health talk	15	Number of sessions done daily	Average of 3 sessions per day
5	Medical test	Registration Consultation Lab test	30 20 2 days	Duration 2 days	This depends on availability of relevant lab results
6	Wound dressing	Wound dressing	60	Total time =1 hour	Service rendered on weekdays
7	Growth monitoring and food demonstration	Registration Anthropometric measurements and charting Health education / counselling Food demonstration	15 15 10 1 hour	Total time = 1.5 hours	Service rendered on weekdays

8	Reproductive and family planning clinic (old maternity)	Registration Consultation &counselling Dispense FP method	10 15 20	Total time = 45 minutes	Service rendered on weekdays
9	Environmental sanitation round	Inspection of clinics, wards and hospital surroundings	3 hours	Uninterrupted water supply Functional hand washing stations Appropriate use of waste bin Adequate waste segregation	Checklist use for the assessment
10	Home visit and defaulter tracing	Follow up of malnourished child, motherless infants, very high risk pregnant women and clinic defaulters	4 hours	Proportion of planned visits conducted	Service rendered on monthly basis
11	IDSR data collection and analysis for action	Weekly IDSR data collection from wards & clinics Monthly submission of data to SMOH/ FMOH	N/A	Proportion of expected weekly data submitted Proportion of monthly data submitted Timeliness and completeness of reporting	

DEPARTMENT OF PAEDIATRICS

Standard of Care for Common Paediatric Conditions

A) **Sickle Cell Disease in Crises**

Crises may be - Vaso-occlusive, hyperhaemolytic, sequestration or aplastic (uncommon).

The type of crisis should be determined within 30 minutes of admission, except for aplastic crisis which should be determined within 24 hours of admission.

Vaso-occlusive Crisis:

a. All patients with severe pain should be admitted within 30 minutes of arrival into the Emergency Paediatric Unit (EPU)
b. A potent analgesic should be given to abolish the pain within 30 minutes of admission.
c. Intravenous fluid should be commenced within 30 minutes of admission.
d. Blood should be taken for FBC and RDT for malaria. Blood culture should be taken if there are signs of systemic inflammatory response.
e. Patient with respiratory distress and hypoxaemia should be commenced on oxygen within 30 minutes of admission.
f. If there are any signs of neurologic deficit, consider EBT (within 4-6hrs) and give anticonvulsant as indicated.
g. Precipitating factors should be identified and treated accordingly.
h. Patient should have appropriate clinical and radiologic assessment within 4 hours of admission to determine further treatment.

Hyperhaemolytic / Sequestration Crisis

a. Admit patient in to the ward or EPU within 30 minutes of arrival
b. FBC, Grouping and cross matching must be done within 1 hour of admission.
c. Patient should be transfused within 4 hours of admission as indicated.
d. Precipitating factors should be identified and treated within 12 hours of admission.
e. Patient should be reviewed twice daily for the first 24 hours.
f. A post transfusion PCV should be done after 12 hours of transfusion.
g. Keep urine rack, monitor PCV and urine output daily.
i. In sequestration crisis, transfusion should be in aliquots. Splenic and liver size should be monitored daily.

B) Acute Lower Respiratory Infections

1. The patient should be assessed by a doctor within 30 minutes of presentation.
2. The patient's haemoglobin oxygen saturation should be assessed with a pulse oximeter and commenced on oxygen if needed within 30 minutes of presentation.
3. A pleural diagnostic tap should be done within 30 minutes of detection in cases of suspected moderate to large pleural fluid collection.
4. Antibiotics and supportive care (intravenous fluids, dexamethasone in croup, etc) should be commenced within one hour of presentation
5. Required type of radiological x-ray (Chest x-ray for pneumonia, bronchiolitis and pleural disorders, neck x-ray for croup) should be requested for within two hours of presentation.
6. The x-ray film should be made available for viewing within one hour of doing the investigation.

7. The cardiothoracic surgeons should be invited to review within one hour of radiological confirmation of moderate to large pleural effusion or other pleural disorders like pneumothorax.
8. A review by the surgeons and subsequent closed thoracostomy tube drainage (CTTD) of the pleural effusion should be done within six hours post invitation receipt.

C) **Pyogenic Meningitis**

1. Child should be evaluated within 30 minutes of arrival in the emergency room and admitted within 1hour
2. Intravenous access and blood samples should be done within 30 minutes of arrival Cerebrospinal fluid (CSF) must be obtained and sent to the main lab within 30 minutes of admission
    a. once child is stable cardiovascular wise and no evidence of contraindications to lumbar puncture and a portion of the CSF should be analysed in the side lab.
3. The results of the CSF biochemistry and Microscopy should be available within 4 hours of sending specimen
4. The results of blood and CSF culture should be available within 48 hours of sending the specimen
5. Intravenous fluid and intravenous broad-spectrum antibiotics with good penetration through the blood brain barrier should be commenced within 30 minutes of diagnosis.
6. Abort seizures with IM paraldehyde. Keep a seizure chart and control with IV phenobarbitone or IV phenytoin.
7. The patient must be reviewed 8 hourly in the first 24 hours, twice daily for the next 48 hours. To be reviewed are level of consciousness, fluid therapy – not more than 2/3 of maintenance, fever and seizures. For infants, monitor head circumference daily and for focal paralysis.
8. Repeat the CSF analysis 72 hours after commencement of antibiotics if there is lack of clinical evidence of improvement or slower than expected response and after completion before discharge.
9. Hospital stay should be a minimum of 7 days to 10 days.

D) Neonatal Jaundice

1. All babies with clinical evidence of jaundice presenting to the neonatal ward should have samples for Serum Bilirubin taken within 30 minutes of admission.
2. Serum bilirubin results should be available within 4 hours of admission.
3. In moderate to severe jaundice, the following investigations should be requested for: Baby and mother's blood group, Cross matching, Packed Cell Volume (PCV), Red Cell morphology and Coombs test. These samples should be taken along with Serum Bilirubin at admission.
4. Phototherapy should be commenced for all patients with jaundice. For babies awaiting Exchange Blood Transfusion (EBT), Phototherapy should also be commenced.
5. EBT, when indicated, must be completed within 4 to 6 hours of admission.
6. Immediate post EBT SB should be taken.
7. Daily SB sampling should be taken daily while the baby is on phototherapy.

E) Febrile Convulsion

1. Patient brought in with febrile convulsion should have a rapid assessment of the airway, breathing and circulation. Should receive IM paraldehyde or IV/ rectal diazepam within 5 minutes of arrival

2. Child should be simultaneously clerked / assessed to determine the cause within the next 15 minutes
3. Lumbar puncture should be done on all those convulsing for the first time and those with the suspicion and findings suggestive of intracranial infection within one hour of admission (once contraindications has been ruled out)
4. The cerebro-spinal fluid should be sent to the laboratory within 30 minutes of the procedure and the results available within 4 hours of sending the sample
5. 6.Precipitating factor should be identified, and treatment commenced within 4 hours of admission.
6. Child should be assessed 6 hourly in the first 24 hours, 12 hourly in the next 24 hours and daily thereafter
7. Caregivers are adequately counselled on home management of fever to prevent recurrence and also avoidance of harmful home practices before presentation.

F) <u>Severe Perinatal Asphyxia</u>

1. All babies with severe perinatal asphyxia with HIE staging should be admitted into the neonatal unit.
2. Resuscitation should be commenced and oxygen via nasal prongs or CPAP administered if required.
3. Intravenous fluid therapy should be commenced between thirty minutes and one hour of admission. .
4. Baby should be on NPO for the first 24 hours or more as the clinical state of the baby dictates.
5. Blood sugar of the baby should be done within the first half hour and 4 hourly thereafter, as required.
6. Packed cell volume should be checked at presentation.
7. Antibiotics should be commenced within 6 hours of admission.
8. Anticonvulsant if required should be commenced within one hour of admission and a seizure chart kept.
9. Baby should be reassessed every 4 hours initially or as required till stable clinically and until discharge.
10. Baby should be followed up till age of 18 months in the growth and development clinic and referred to paediatric neurology clinic if need be.

G) <u>Acute Abdomen</u>

1. The patient should be assessed by a doctor within 30 minutes of presentation. Such cases include typhoid fever/ perforation, acute appendicitis, acute peritonitis, Intussusception, Peptic ulcer disease and strangulated inguinal hernia.
2. For patients with a surgical abdomen, a consult to the paediatric surgeon must be sent within 1 hour of presentation.
3. The patient should be reviewed by the paediatric surgeon within 2 hours of decision to send a consult for paediatric surgical review.
4. X-rays (erect and supine) for suspected perforated viscus should be done within 2 hours of admission subject to patient being clinically stable.
5. Packed cell volume (or haemoglobin), electrolytes/ urea and creatinine, blood grouping and crossmatching should be done within 2 hours of admission.
6. Intravenous fluids and an orogastric tube should be passed within 1 hour of admission.
7. Post-op the patient should have 6 hourly monitoring of urine output and vital signs.

H) Severe Anaemia

1) All cases of severe anaemia must be admitted into the EPU
2) The house officer or Resident must have Hb/PCV done within 30minutes of admission using the side lab.
3) Blood must be taken for grouping and cross matching within 30mins of getting the result if the PCV is less than 20%.
4) Blood transfusion should be commenced within 2 hours of receipt of PCV results.
5) Written Informed consent must be obtained, and transfusion order must be documented before transfusion.
6) Patient should be monitored during the transfusion for possible transfusion reactions.
7) Identify and treat underlying cause of the anaemia within 24hours of admission.
8) Check post transfusion PCV within 12-24hours after completing transfusion.

I) Neonatal Tetanus

2) All cases of neonatal tetanus must first receive emergency care and investigations done in the EPU within 30 minutes of presentation.
3) Intravenous fluid therapy should be commenced within 30mins of admission.
4) **Drugs**: sedative/anticonvulsants should be commenced within 30mins of admission while antibiotics and ATS are commenced within 1hrs of admission.
5) All cases of NNT must be admitted into PMW within 1hour of arrival in the EPU.
6) **Child** should be on NPO and reviewed frequently to determine further management.
7) The portal of entry should be detected and treated appropriately within 1-3 hrs of admission.
8) Tetanus toxoid should be given at discharge and repeated as required.
9) Parent should be health educated concerning NNT before discharge and such should be documented in the case note.

J. Diarrhoeal Disease

1. Moderate to severe cases should be admitted and child should be reviewed by a doctor within 30mins of arrival.
2. Cases of mild or moderate dehydration should commence ORT within ½ hr of admission.
3. Severe cases of dehydration should be commenced on IV fliuds within 30 minutes of assessment.
4. Cases on IV fluids should be reassessed 4hrly and findings recorded for re-evaluation and further management.
5. Blood and stool (mcs) samples must be sent for laboratory test within 24hrs of admission.
6. FBC and Stool results should be available within 48 hrs of its being sent.
7. Serum electrolytes and urea must be sent within 1hr of admission of moderate and severe cases and the results should be available within 12 hrs of being sent.
8. Unless there's blood and or mucus, or laboratory evidence of sepsis, antibiotic should not be prescribed.
9. Oral zinc must be given to all cases of diarrheal disease.
10. Parents of the child should receive health education relevant to diarrhoea before being discharged and same must be recorded in the case note.

SUMMARY TABLE FOR THE DEPARTMENT OF PAEDIATRICS

STANDARD OPERATING PROCEDURES FOR MEDICAL AUDIT

Common tasks or activities	**Common cases**	**Turnaround Time**	**Audit parameters**	**Comments and remarks**
EVALUATION AT EMERGENCY POINT	C) SCD in crisis	30 minutes	should be assessed and management instituted within 60 minutes (pain relief, PCV, IVF, grouping and cross-match if indicated)	VOC should have FBC & RDT done Hyper-haemolytic and sequestration to have blood transfusion within 4 hours
	D) Acute lower resp infections	30 minutes	Should be assessed and management instituted Within 30 minutes (oxygen saturation, commenced on oxygen if required, pleural tap if effusion is suspected) CXRAY/ Neck XRAY within 4 hours Invitation to CTSU within 1hr of confirmation of moderate to large effusion	Antibiotics and IVF to be commenced within 1 hr of admission
	E) SEVERE ANAEMIA	30 minutes	PCV check and grouping and crossmatch within 30 - 60 minutes Blood transfusion within 2 hours	Identify cause of anaemia (FBC, RDT, Genotype, blood culture within 24 hours
NEONATAL UNIT	F) SEVERE Perinatal asphyxia	30 - 60 Minutes	Cardio-pulmonary resuscitation at presentation and oxygen administration if required. PCV, RBS and IVF within 30 minutes Anti-convulsant within 1 hour if required	NPO for 24 hours or more Keep seizure chart Monitor urine output E & U

	G) NEONATAL JAUNDICE	30 -60 minutes	Sample for serum bilirubin (SB) should be taken within 30 minutes and phototherapy commenced. SB results should be available within 4 hours EBT, when indicated should be completed within 6 hours. Post EBT, phototherapy should be continued. SB should be monitored daily while on phototherapy	In moderate to severe jaundice; PCV, mother and baby's blood group, FBC, Coombs test and grouping and crossmatch should be done
CLINIC	REGISTRATION CONSULTATION FOLLOW- UP	30-60 minutes 2 hours 1 hour	Total time= 3.5 hours	
WARD	DAILY REVIEW REVIEW BY CONSULTANTS	Every day Twice /weekly	TREATMENT SHEET VITAL SIGNS CHARTS DRUG CHARTS INPUT/OUTPUT CHARTS	
SURGICAL CASES	F) ACUTE ABDOMEN -Typhoid perforation -Acute appendicitis -Intussusception -Acute peritonitis - Strangulated hernia	30 minutes	Should be assessed within 30 minutes and consult sent to PSU within 1 hour. IVF, and orogastric tube insertion within 1 hour. Abd X-rays should be done within 2hrs, subject to patient being stable PCV, E & U, blood group and cross-matching should be done within 2 hours of admission	NPO Antibiotics should be commenced within 2 hours Strict input & output monitoring

DEPARTMENT OF FAMILY MEDICINE

Standard Operation Procedure in Family Medicine Department

The Department of Family Medicine has various units /Clinics namely:

Children, adolescents skin clinic, Ambulatory surgery clinic Dot/ Heart clinic, Accident and Emergency unit.

The SOPs observed in those units above include:

Routine Consultation

- History: - relevant history of undifferentiated symptoms will to be taken to guide diagnosis
- Physical Examination:
  Detailed physical examination will be carried out to further guide diagnosis
- Investigation:
  Relevant Investigation shall be taken to confirm diagnosis

Review cases and investigation results with Senior Registrar /PMO: provided it's not an Emergency

In some cases, there might be need to further review with consultants before final decisions are taken on treatment modalities.

In cases of Emergencies, diagnosis is based mainly on clinical assessments and managed accordingly after review by consultants.

However, cases that cannot be managed at GOPD are referred to units and other Departments by the consultant in charge

Referral could be internal; GOPD to DOT, HAART, skin clinic etc or external; to other departments including Accident and Emergency.

For surgical cases: after routine history taken and physical examination, patient will be reviewed by consultant in charge to determine fitness for surgery.

Patients are thereafter booked for surgery.

Medical Report and Medical certificate of fitness: Request for medical report by patients usually come through the office of Chief Medical Director who authorizes it after endorsement by consultants in-charge and HOD.

Family Medicine Medical Audit Task

COMMON TASK FOR ACTIVITIES	COMMON CASES	TURN AROUND TIME	AUDIT PARAMETERS/ TOTAL TIME	COMMENTS AND REMARKS/INVESTIGATIONS AND REMARKS
Adult Cases	Systemic Hypertension	Registration 15mins Consultation 15mins	30mins	For hypertensive emergency refer A/E: For stable patient do FBS, FLP, ECG, Urinalysis EUCR, Commence on antihypertensive as required. Follow-up: new cases -2weeks old cases -1to 3 months
	Diabetes Mellitus	Registration -15mins Consultation – 15mins	30mins	For DM Emergency: Refer to A/E For stable DM- BMI, BP check, Do FBS, Urinalysis, Fasting Lipids, EUCR, Commence on glucose lowering agent as required. Follow-up – new cases in 2weeks, Old cases in 1-3months, do glycated haemoglobin twice a year, FBS at each visit.
	Infertility	Registration -15mins Consultation -15 mins	30mins	General Examination, BP Check, BMI, other systemic examination. Investigations: Pelvic Ultrasound, Hormonal Assay, HSG, Seminal fluid analysis, Follow – up in 2weeks, Refer to Gynaecologist.
Skin clinic	Allergic skin disease	Registration – 10mins Consultation – 15mins	25mins	General /systemic examination Investigation: FBC, LVS, FBS, Treat as required. Follow-up in 2-4weeks, if no significant improvement, consider referral to dermatology clinic.
	Infection / infestations (Scabies, tinea	Registration – 10mins Consultation 15mins	25mins	General/systemic examination Investigation: FBC, LVS, FBS, Treat appropriately.

	infections)			Follow – up in 2-6 weeks, depending on the case, if no improvement, refer to the Dermatologist.
Surgical Procedure: Breast Lump, Hernias/Hydrocele, Circumcision, other Excisional biopsies	Breast Lump	Registration -10mins Consultation – 15mins	25mins	General/systemic examination Investigation: Breasts, USS, FNAC, HSs AG, HCV, FBS, LVS, Procedure in less than 2weeks, follow-up 2/7 after surgery, stitches removal 1 week after surgery, Review with histology report in 3weeks.
	Hernias	Registration – 10mins Consultation – 10mins	20mins	General/Systemic examination Investigation: PCV, HSs AG, HEV, FBS, LVS, Surgery within 2weeks, 1st follow-up 2days after surgery, stitches removal in 7-10days post op
Adolescent Clinic	Sexually Transmitted infection (STI)	Registration – 10mins Consultation – 15mins	25mins	General/systemic examination Investigation: LVS, HbsAG, HCV, VDRL, HVS M/C/S, Urine MCS. STl without complication, manage appropriately. Follow-up 2weeks STI with complication- Refer to Specialist
	Prostatic Enlargement	Registration -15mins Consultation 20mins	35mins	General/Examination Including DRE, Investigations: PSA, Abdominal Pelvic, USS, BPH, with normal PSA, consider medical treatment. For others, refer to urologist.
Peadiatrics	Fever	Registration -10mins Consultation -15mins	25mins	General Examination including ENT Examination For fever without complication- do RDT, FBC, urinalysis- treat based on results, clinical judgment, Fever with complications, convulsion, Hyperpyrexia, prostration, SCD-Refer to EPU.
	Diarrheal Disease	Registration – 10mins Consultation -15mins	25mins	General/ systemic Examination level of dehydration, No/some Dehydration, treat with ORS, and identify underlying cause. For severe

				dehydration- refer to EPU

S/N	INTERVENTIONS	TIMELINES	Further Actions	
1a	Confirm HIV status after pre-test counselling			
b	Post-test counselling			
c	Send for CD4 Count in the lab (semi-quantitative using VISITECH)	25 mins		
d	Counsel patient on possibility of AHD			
2a	Take history and thorough physical examination	10 mins		
b	Classify patient into WHO clinical stages			
3	CD4 Count<200copies/mm3: Screen for TB . Ask for current cough, fever, weight loss and night sweat		1.LF-LAM 2.CrAg test	
a	. **TB symptoms present**: do LF-LAM XPert MTB/RIF	25 Mins.	Investigation -ve for TB: . Consider other diagnosis if TB is unlikely, start PT . Consider presumptive TB treatment if px is seriously ill	INH 300mg dly for 6/12
			Investigation +ve for TB: Start TB treatment	Anti-Koch for 2 weeks, then start ART to prevent IRIS
b	.**TB symptoms absent**: LF-LAM		LF-LAM **Positive:** do Xpert	If +ve of TB, start TB treatment

			MTB/RIF LF-LAM **negative:** start IPT	
4	Review serum CrAg result and assess for symptoms of meningitis e,g headache, confusion		Negative serum CrAg: commence on ART Positive serum CrAg: perform LP and do CSF CrAg, Xpert MTB/RIF and microscopy	Negative CSF CrAg/ LP not done: start pre-emptive treatment for Cryptococcus. CSF CrAg positive: start treatment for cryptococcal meningitis for 4-6 weeks then start ART to prevent IRIS (life threatening)
5	Screen for Pneumocystis jirovecii pneumonia		Mild; Oral cotrimoxazole Moderate to severe; I.V cotrimoxazole	TMP 15-20mg/kg/day and SMX 75-100mg/kg/day po in 3divide doses for 21days AS ABOVE
	Symptoms, signs, CXR- diffuse bilatéral infiltrâtes. CT – patchy areas of ground-glass attenuation		Prophylaxis and immediate commencement of ART	Cotrimozaxole, 960mg daily orally. Till CD4 count is >200 for at least 3 months
6	Screen for Toxoplasmosis			
	Presentation: headache, stroke like, convulsion/seizure, CN disturbance esp. VI, neuropsychiatric manifestations Lab tests; serology, histology of biopsy, CT/MRI- multiple ring enhancing lesions		Initiate ART Treat toxoplasmosis	Pyrimethamine 100mg loading dose then 50mg daily (with folinic acid 10-25mg daily)+clindamycin 300mg 6hourly . Prophylaxis with Cotrim. 960mg dly
FOLLOW-UP PATIENTS				
1	ROUTINE		Refill ART medications	
a	Clinically screen for TB			

b	Clinically screen for chronic care			
c	Adherence counselling		Other treatments for OI as clinically indicated	
d	Physical examination: wt, ht,Bp etc.			
2	PERIODIC			
a	Viral Load	6 months		
b	CD4 Count	First visit		
c	Others: AST, ALP, FBS, FBC, Etc	As clinically indicated	Review viral load result	

SUMMARY TABLE FOR THE DEPARTMENT OF BEHAVIOURAL SCIENCES

Standard Operating Procedures for Medical Audit

TABLE 1: EMERGENCY PSYCHIATRY UNIT

	Turnaround Time	**Audit parameters**	**Comments and remarks**
EMERGENCY PSYCHIATRYAS IT OBTAINS IN MEDICAL EMERGENCY (AS IT IS THE PRACTICE IN THE TEACHING HOSPITALS)			

TABLE 2: PSYCHAITRY WARDS

	Turnaround time	**Audit parameters**	**Comments and remarks**
PSYCHIATRY WARDS (MALE, FEMALE, CHILD & ADOLESCENT AND DRUG REHABILITATION UNIT)			
		Oxygen cylinders	1 cylinder to 15 patients
		Pulse oximeters	1 to 15 beds
		EEG Machine	1 to 15 patients
		ECT Machine	1 to 15 patients
		Multiparameter monitors	1 to 15 beds
		Electric Suction machines	1 to 15 patients
		Manual Suction machines	1 to 15 patients
		Nebulizers	1 to 15 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Stretchers	1 to 15 patients
		Sphygmomanometers	1 to 10 patients
		Stethoscopes/ diagnostic set	1 to 10 patients
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
PERSONNEL		Consultant psychiatrists	To do their statutory ward rounds (at least once per week) and review patients as needed.

		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Nurses	13 nurses per wing per day to run a shift of 5-4-4 (morning-afternoon-evening)
		Clinical Psychologists	2 to 3 such that at least 2 are on ground per time
		Occupational therapies	2 to 3 per time (morning & afternoon)
		Social Workers	Minimum 2
		Porters	6 per day to run a shift of 2-2-2 (morning-afternoon-evening)
		Cleaners	6 per day to run a shift of 2-2-2 (morning-afternoon-evening)
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 2 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, parenteral: chlorpromazine, Haloperidol, Biperidine Lactate, Benztropine (Cogentin), Salbutamol, Frusemide), Reagents for drug screening.	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 3: PSYCHIATRY OUTPATIENT CLINICS

	Turnaround time	Audit parameters	Comments and remarks
PSYCHIATRY OUTPATIENT CLINICS			
EQUIPMENT			
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Stretchers	2 Nos
		Sphygmomanometers	5 Nos
		Stethoscopes/ Diagnostic set	5 Nos
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the clinic 24/7.
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Psychiatrists	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their Consultants to run clinics as specified above.
		Junior Residents	To join their Consultants to run clinics as specified

			above.
		Nurses	4 per shift
		Clinical Psychologists	To be available when the need arises.
		Occupational therapies	To be available when the need arises.
		Social Workers	To be available when the need arises.
		Porters	3 per shift
		Cleaners	2 per shift
CONSUMABLES		Emergency tray (must contain Adrenaline, Atropine, Hydrocortine,parenteral: chlorpromazine, Haloperidol, Biperidine Lactate, Benztropine (Cogentin), Salbutamol, Frusemide), Reagents for drug screening.	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counseled on patient diagnosis, available treatment options and prognosis	

SUMMARY TABLE FOR THE DEPARTMENT OF MEDICINE

Standard Operating Procedures for Medical Audit

TABLE 1: MEDICAL EMERGENCY UNIT

	Turnaround Time	**Audit parameters**	**Comments and remarks (items per patient or bed)**
MEDICAL EMERGENCY UNIT			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the emergency room
		Oxygen cylinders	1 to 3 patients
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to each bed
		Infusion pump	1 to 4 beds
		Syringe pump	1 to 4 beds
		Electric Suction machines	1 to 6 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the emergency room 24/7.
		Side laboratory	To be equipped with autoanalyzer (1 No), centrifuge (1 No) and

			haematocrit reader (1 N0), light microscope (1 No)
PERSONNEL		Consultant Physicians	2 per day
		Senior Residents	4 per day
		Junior Residents	8 per day
		Intern Doctors	8 per day
		Nurses	17 per day to run a shift of 7-5-5
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas Sample bottles, capillary tubes, urinalysis strips	All these must be available in the emergency pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 2: MEDICAL WARDS

This is a 30 bedded ward	Turnaround time	Audit parameters	Comments and remarks
MEDICAL WARDS (MALE (2 wings) AND FEMALE (2 wings))			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the wards
		Oxygen cylinders	1 to 4 patients
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Infusion pump	1 to 4 patients
		Syringe pump	1 to 4 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
		Pneumatic compression device for DVT prophylaxis	1 to 10 patients
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered. Note: Medical Ward requires another ward for infectious cases especially for chronic infections like tuberculosis.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.

PERSONNEL		Consultant Physicians	To do their statutory ward rounds (at least once per week) and review patients as needed.
		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Nurses	13 per wing per day to run a shift of 5-4-4
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 3: STROKE UNIT

	Turnaround time	Audit parameters	Comments and remarks
STROKE CARE UNIT			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the stroke unit
		Oxygen cylinders	1 to 4 patients
		Pulse oximeters	1 to 6 beds
		Air mattresses to prevent bed sores	1 per bed
		Commodes	1 to 3 patients
		Infusion pump	1 to 4 beds
		Syringe pump	1 to 4 beds
		Multiparameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
		Pneumatic compression device for DVT prophylaxis	1 to 3 patients
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
		Consultant Physicians	To do their statutory ward rounds (at least once per

PERSONNEL			week) and review patients as needed.
		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Nurses	13 per wing per day to run a shift of 5-4-4
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 4: CARDIAC CENTRE

	Turnaround time	Audit parameters	Comments and remarks
CARDIAC CENTRE			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the wards
		Oxygen cylinders	1 to 4 patients
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Infusion pump	1 to 4 beds
		Syringe pump	1 to 4 beds
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
PERSONNEL		Consultant Physicians	To do their statutory ward rounds (at least once per week) and review patients as needed.
		Senior Residents	To do at least 2 statutory ward rounds per week and

			review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Nurses	13 per wing per day to run a shift of 5-4-4
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 5: RENAL WARD

	Turnaround time	Audit parameters	Comments and remarks
RENAL WARD			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the wards
		Oxygen cylinders	1 to 4 patients
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Infusion pump	1 to 4 beds
		Syringe pump	1 to 4 beds
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
PERSONNEL		Consultant Physicians	To do their statutory ward rounds (at least once per week) and review patients as needed.
		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.

		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Nurses	13 per wing per day to run a shift of 5-4-4
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 6: MEDICAL OUTPATIENT CLINICS

	Turnaround time	Audit parameters	Comments and remarks
MEDICAL OUTPATIENT CLINICS			
EQUIPMENT			
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchairs	4 Nos
		Stretchers	2 Nos
		Sphygmomanometers	15 Nos
		Stethoscopes	10 Nos
		Ophthalmoscope	2 Nos
		Tendon hammers (128 Hz and 256 Hz)	2 each.
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the clinic 24/7.
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Physicians	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their Consultants to run clinics as specified above.
		Junior Residents	To join their Consultants to run clinics as specified above.
		Intern Doctors	To join their Consultants to run clinics as specified

			above.
		Nurses	4 per shift
		Porters	4 per shift
		Cleaners	4 per shift
CONSUMABLES		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

SUMMARY TABLE FOR THE DEPARTMENT OF PAEDIATRICS

Standard Operating Procedures for Medical Audit

Input	Turnaround time	Audit parameters	Comments and remarks
EMERGENCY PAEDIATRIC UNIT			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the emergency room
		Oxygen cylinders	1 to 3 patients
		Pulse oximeters	1 to 6 beds
		Multi-parameter monitors	1 to each bed
		Radiant warmers	1 to 10 cots
		Infusion pump	1 to 4 patients
		Syringe pump	1 to 4 patients
		Electric Suction machines	1 to 6 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Paediatric Laryngoscope set	1
		Ambu bags	1 to 5 patients
		Automatic External Defibrillators with Paediatric paddles	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 10 patients
		Stretchers	1 to 10 patients
		Sphygmomanometers (Paediatric Cuffs)	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Diagnostic Sets	2 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
		Weighing Scale (Bassinet)	1
		Weighing Scale	1
		Standiometer	1
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire	1 per 10 bedded ward

		extinguisher, sand bucket, water hydrants	
		Water supply	Free flowing water must be available in the emergency room 24/7.
		Side laboratory	To be equipped with Haemocue (1 No) or centrifuge (1 No) and haematocrit reader (1 N0), light microscope (1 No)
PERSONNEL		Consultant Paediatricians	2 per day
		Senior Residents	4 per day
		Junior Residents	8 per day
		Intern Doctors	8 per day
		Nurses	17 per day to run a shift of 7-5-5
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, Paediatric Saline, 50% dextrose, Half strength Darrow's), mannitol, fluid giving sets, NG Tubes, cannulas	All these must be available in the emergency pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, Endotracheal tubes)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Parents/Caregivers should be counselled on patient diagnosis, available treatment options and prognosis	

	Turnaround time	Audit parameters	Comments and remarks
PAEDIATRICWARD			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the wards
		Oxygen cylinders	1 to 4 patients
		Pulse oximeters	1 to 6 beds
		Multi-parameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Infusion pump	1 to 4 patients
		Syringe pump	1 to 4 patients
		Manual Suction machines	1 to 10 patients
		Radiant warmers	1 to 10 patients
		Nebulizers	1 to 10 patients
		Ambu bags	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers (paediatric cuffs)	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Diagnostic Sets	2 in the ward
		Tendon hammers (128 Hz and 256 Hz)	1
		Weighing Scale (Bassinet)	1
		Weighing Scale	1
		Standiometer	1
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply is mandatory. A combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
		Consultant Physicians	To do their statutory ward rounds (at least once per

			week) and review patients as needed.
PERSONNEL		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Nurses	13 per wing per day to run a shift of 5-4-4
		Porters	7 per day to run a shift of 3-2-2
		Cleaners	7 per day to run a shift of 3-2-2
CONSUMABLES		IV Fluid (Normal saline, Paediatric saline, 10% dextrose, 50% dextrose, Half strength Darrow's), mannitol, fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Parents/Caregivers should be counselled on patient diagnosis, available treatment options and prognosis	
	Turnaround time	**Audit parameters**	**Comments and remarks**

PAEDIATRIC OUTPATIENT CLINICS			
		Oxygen cylinders	2 No
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Ambu bags	1 to 10 patients
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchairs	4 Nos
		Stretchers	2 Nos
EQUIPMENT		Sphygmomanometers with range of paediatric cuffs)	5 Nos (infants, toddlers, early childhood, adolescent)
		Stethoscopes	10 Nos
		Diagnostic Sets	2 Nos
		Tendon hammers (128 Hz and 256 Hz)	2 each.
		Weighing Scale (Bassinet)	1
		Weighing Scale	1
		Standiometer	1
OTHER INFRASTRUCTURE		Electricity	Regular power supply from a combination of municipal electricity supply and adequate backup through use of solar-powered inverters and generators can be considered.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the clinic 24/7.
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Paediatrician	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their Consultants to run clinics as specified above.
		Junior Residents	To join their Consultants

			to run clinics as specified above.
		Intern Doctors	To join their Consultants to run clinics as specified above.
		Nurses	4 per shift
		Porters	4 per shift
		Cleaners	4 per shift
CONSUMABLES		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, Endotracheal tubes)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Parents/Caregivers should be counselled on patient diagnosis, available treatment options and prognosis	

	Turnaround time	**Audit parameters**	**Comments and remarks**
NEONATAL UNITS (INBORN AND OUTBORN)			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the critical care unit
		Oxygen cylinders	1 to 3 patients
		Pulse oximeters	1 to 6 beds
		Neonatal monitors	1 to each bed
		Apnoea Monitors	1 to each bed
		Phototherapy machines	1 to 2 patients
		Infusion pump	1 to 4 patients
		Syringe pump	1 to 4 patients
		Electric Suction machines	1 to 6 patients
		Manual Suction machines	1 to 10 patients
		Ambu bags	1 to 5 patients
		Glucometer	1 to 15 patients
		Transport Incubator	1 per Unit
		Incubators	1 to 3 cots
		Radiant warmers	1 to 5 cots
		Resuscitaires	1 to 5 cots
		Stethoscopes	1 to 6 patients
		Diagnostic Sets	2
		Laryngoscopes	2
		Weighing Scale (Bassinet)	2 in each Unit

		Infantometer	2 in each Unit
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the emergency room 24/7.
		Side laboratory	To be equipped with Haemocue (1 No) or centrifuge (1 No) and haematocrit reader (1 N0),
PERSONNEL		Consultant Paediatricians	2 per day
		Senior Residents	4 per day
		Junior Residents	8 per day
		Intern Doctors	8 per day
		Nurses	17 per day to run a shift of 7-5-5
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		IV Fluid (Normal saline, Paediatric Saline, 50% dextrose, half strength Darrow's), mannitol, fluid giving sets, NG Tubes, cannulas	All these must be available in the emergency pharmacy. Emergency Backup (at least 10 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Parents/Caregivers should be counselled on patient diagnosis, available treatment options and prognosis	

SUMMARY TABLE FOR THE DEPARTMENT OF EPIDEMIOLOGY AND COMMUNITY HEALTH

Standard Operating Procedures for Medical Audit

TABLE 1: EPIDEMIOLOGY AND COMMUNITY HEALTH (NHIS AND STAFF) CLINICS

	Turnaround time	Audit parameters	Comments and remarks
EPIDEMIOLOGY AND COMMUNITY HEALTH (NHIS AND STAFF) CLINICS			
EQUIPMENT			
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchair	2 No
		Stretchers	2 Nos
		Sphygmomanometers	5 Nos
		Stethoscopes	5 Nos
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters.
		Water supply	Free flowing water must be available in the clinic 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Physicians	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their Consultants to run clinics as specified above.
		Junior Residents	To join their Consultants to run clinics as specified above.
		Nurses	10 to run 2 shifts
		Porters	6 to run 2 shifts
		Cleaners	6 to run 2 shifts
CONSUMABLES		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 2 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

List of Equipment/Instrument

S/no	Equipment/ Instruments	Specification	Quantity	Status	
				Functional	Non-functional
1	Autoclave	Digital			
		Non-digital			
2	Automatic disc dispenser	BD-SENSI-DISC			
3	Anaerobic Chamber	Bactron			
4	Automated blood Culture system	BacT/AlerT 3D 60			
5	Bact-cinerator				
6	Biosafety cabinet	BSC class 2			
7	Centrifuge (bench top)				
8	Conductivity Meter	DDS-307 LABSCIENCE,ENGLAND			
9	Computer system	HP4			
10	First aid box				
11	Freezer	-80^0C			
		-70^0C			
		-40^0C			
		-30^0C			
		-20^0C			
12	Emergency eye shower/wash				
13	ELISA reader	Thermoscientific			
14	Gene-Xpert System	Cepheid			
15	Fan extractor				
16	Incubator	CO_2 incubator Mark 1			
		Stabili thermo1118 EB1			
		Standing incubator; Thermoscientific			
		Table top incubator: Thermoscientific			
17	Refrigerator	Heir Thermocool			
18	Rocker				
19	Turbidometer	WGZ-1A			
20	pH meter	ONAUS (ST2-100)			
21	Vortex machine	Axion medical			
22	Vitek 2 system	Vitek 2 compact			

23	Microscope (binocular)	Zeiss (Axionstar plus)			
		Am Scope			
		Olympus CX23LEDEI			
		Fluorescent (primoster)			
24	Magnetic stirrer	78-1 MS			
25	Water bath	HH-6 CD			
26	Water distiller	LWDB-400m CD			
27	Weighing balance	CTG 602			
28	Biobase pH meter	Bench top pH/mV Meter 210			
29	Biobase water bath	SY 2L4H			
30	Biobase Electronic precision balance	BP12002			
31	HP printer	1.MFP M130a			
		2. MFP M479FNW			
32	Electronic Analytical Balance	BA1204C			
33	Air cleanser	NV800			
34	Thermal cycler	BK-GR300			
35	Biobase Gel documentation system	BK04S-3C			
36	Metal cupboard				
37	Electrophoretic power pack				
38	Laboratory hot plate	ms-H280-pro			
39	Weak acid and chemical alkali storage	BKSC-12B			
40	Fluorescent Quantitative PCR Detection System	1.Line-Gene9600 Plus			
		2 Eco PCR max			
41	Laminar Flow Cabinet	Biobase BBS-DDC			
42	PCR Cabinet	1.Biobase PCR1000			
		2.Air clean600			
43	Biosafety Cabinet class 2A	11231BBC86			
44	Biosafety cabinet class III	BSC -1500IIB2-X			
45	Refrigerators	1.BPR-5V310			
		2.BSC-V130M			
		3.LG (GL-H432HLHN)			

46	Freezer	1.-20^{0}C (BDF-25V268)			
		2. -80°c (86V408)			
		3. -80°c (86V588)			
47	HP Computers	1.HP laptop COREi7			
		2. HP laptop COREi5			
		3. HP desktop COREi5			
48.	UPS	1.APC			
		2.Blue gate			
		3.VIL power star			
49.	Air Purifier	BK-Y-600			
50.	Vortex	MXS			
51.	Centrifuge	1.Biobase			
		2.DLAB			
		3.LABOID LBI-120			
52.	Automated Nucleic acid Extraction Machine	Biobase BN32			
53.	Biobase Shaker	SK-O180-Pro			
54.	Biobase laboratory water purification system	SCSJ-II 30L/H			
55.	Digital heat block	VWR			
56.	Biobase vertical autoclave	BKQ-B75II			

Turn Around Time (TNT)

TEST TYPE	TNT	COMMENTS
SWAB MCS	24– 48 hours	Preliminary result: Direct gram result will be ready 2 hours of receipt of specimen Culture and antibiotic susceptibility result will be ready within 24 - 48 hours
URINE MCS	24 – 48 hours	Preliminary result: Microscopy result will be ready 2 hours of receipt of specimen Culture and antibiotic susceptibility result will be ready with 24-48 hours
BLOOD CULTURE MCS	5 days	Preliminary result: Direct gram on flagged positive sample will be ready within 24 hours of receipt of specimen Culture and antibiotic susceptibility result of a flagged positive blood culture specimen will come out within 48-72 hours NB: Using BacT/AlerT for organism detection
CSF MCS	24 – 48 hours	Preliminary result: Direct gram and cell count (Microscopy) results will be ready with 45 minutes of receipt of specimen Culture and antibiotic susceptibility result will be ready within 24-48 hours
SPUTUM MCS	24 – 48 hours	Preliminary result: Direct gram result will be ready 2 hours of receipt of specimen Culture and antibiotic susceptibility result will be ready within 24-48 hours
Sexually Transmitted Infections samples (Urethra, Endocervical, and High Vaginal swabs) MCS	24 – 48 hours	Preliminary result: Direct gram result will be ready within 2 hours of specimen receipt Culture and antibiotic susceptibility result will be ready within 24-48 hours after the submission of specimen
STOOL MCS	24 – 48 hours	Preliminary result: Microscopy result will be available within 2 hours of sample receipt Culture and antibiotic susceptibility will be ready with 24-48 hours of receipt of specimen
URINE MICROSCOPY	1 hour	
STOOL MICROSCOPY	1 hour	
MALARIA TEST	1 hour	
BLOOD FILM FOR MICROFILARIAL	1 hour	
H-PYLORY(antigen detection test)	45 minutes	

TYPHOID TEST (IgG, IgM)	45 minutes	
VIRAL MARKER (HBsAg, HBC, HIV)	1 hour	
Hepatitis C RNA quantification	1 week	
Hepatitis B RNA quantification	1 week	
COMBO TEST	1 hour	
VDRL TEST	1 hour	
SKIN SNIPPING FOR MICROFILARIAL	1 hour	
FUNGAL STUDIES	1 week	
SKIN SCRAPPINGS FOR KOH	24 hours	
Corneal scrapping for fungal studies	1 week	
SEMEN ANALYSIS	1 hour	
SEMEN MCS	ours	Preliminary result: Microscopy result will be ready after 1 hour of receipt of specimen Culture and antibiotic susceptibility will be ready with 24-48 hours after submission of specimen
CSF FOR INDIAN INK	45 minutes	
GENE-XPERT FOR DIAGNOSIS OF MTB	2 hours	
ZEIL-NELSON STAIN FOR AFB FOR FOLLOW UP	1 hour	

SUMMARY TABLE FOR THE MEDICAL AUDIT PARAMETERS FOR SURGICAL SPECIALTIES

TABLE 1: SURGICAL EMERGENCY INCLUDING OBGYN

	Turnaround Time	Audit parameters	Comments and remarks
SURGICAL EMERGENCY INCLUDING OBGYN A STANDALONE PAEDIATRIC SURGICAL EMERGENCY IS DESIRABLE			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the emergency room
		Oxygen cylinders 6feet	1 to 3 patients
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to each bed
		Infusion pump	1 to 4 beds
		Syringe pump	1 to 4 beds
		Electric Suction machines	1 to 6 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
		Laryngoscope	2 adult sets, 2 paediatric set
		ABG machine	1
		Spine boards	5
		Manual vacuum aspiration set	2 on standby
		Mobile ECG machine	1
		Mobile USS	1
		FAST	1
		Mobile x-ray machine	1
		Ambu bag	1 per 4 beds (adult and paediatric sets in ratio 2:1
		Endotracheal tube set	2 sets of different sizes

		Oropharyngeal airway	4 sets of different sizes
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		Water supply	Free flowing water must be available in the emergency room 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants	1 per 10 bedded ward
		Side laboratory	To be equipped with autoanalyzer (1 No), centrifuge (1 No) and haematocrit reader (1 N0), light microscope (1 No)
PERSONNEL		Consultant Physicians	2 per day
		Senior Residents	4 per day
		Junior Residents	6 per day
		Intern Doctors	4 per day
		Medical officer	8 per day to run shift 4:2:2
		Nurses	17 per day to run a shift of 7-5-5
		Plaster technicians	8 per day to run shift 4-2-2
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
CONSUMABLES		Emergency revolving funds should provide packs containing IV Fluids (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas, plaster Sample bottles, capillary tubes, urinalysis strips	All these must be available in the emergency pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.

		Emergency crash cart (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, MgSO4, Oxytocics, Diazepam, paraldehyde, nitroglycérine, Antiseizure agents, Analgesics etc)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis. There should be charts for resuscitation protocols and triage etc. displayed at designated points.	

TABLE 2: SURGICAL WARDS

This is a 30 bedded ward	Turnaround time	Audit parameters	Comments and remarks
SURGICAL WARDS (MSW I & 2, FSW I & 2, PSW, ANTENATAL WARD, POSTNATAL WARDS [MEDICAL & SURGICAL]), LABOUR WARD			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in the wards
		Oxygen cylinders	1 to 4 patients (Mobile oxygen cylinders for patient in transit)
		Pulse oximeters	1 to 6 beds
		Multiparameter monitors	1 to 6 beds
		Electric Suction machines	1 to 6 patients
		Infusion pump	1 to 4 patients
		Syringe pump	1 to 4 patients
		Manual Suction machines	1 to 10 patients
		Nebulizers	1 to 10 patients
		Automatic External Defibrillators	1 to 15 patients
		Glucometer	1 to 15 patients
		Wheelchairs	1 to 6 patients
		Stretchers	1 to 6 patients
		Sphygmomanometers	1 to 6 patients
		Stethoscopes	1 to 6 patients
		Ophthalmoscope	1 in the emergency room
		Tendon hammers (128 Hz and 256 Hz)	2 each in each wing.
		Pneumatic compression device for DVT prophylaxis	1 to 10 patients
		Diagnostic set	1
		Laryngoscope	1 set each for adult and children
		Ambu bags	1 set each for adult and children
		Mobile ECG machine	1
		Oropharyngeal airway	2 sets of all sizes
		Infusion pumps	1 per 2 beds
		Breast pumps	2 in post-natal ward
		Foetal sonicaid	2
		Pinnard stethoscope	2
		Ultrasound machine	For bed side fetomaternal assessment, or bed side procedures

		Play station/area for children	
		Baby cots in post-natal wards	1 per bed
		Resuscitaire	2 in each PSW, postnatal ward
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Sand buckets	
		Water supply	Free flowing water must be available in the lab 24/7.
PERSONNEL		Consultant Physicians	To do their statutory ward rounds (at least once per week) and review patients as needed.
		Senior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between.
		Junior Residents	To do at least 2 statutory ward rounds per week and review patients as needed in between. They should escalate to the Senior Registrars and the Consultants as needed.
		Intern Doctors	Daily patient review and report to their immediate superiors who will in turn escalate as needed.
		Specialty trained Nurses/Midwives as appropriate	14 per ward per day to run a shift of 6-4-4
		Porters	10 per day to run a shift of 4-3-3
		Cleaners	10 per day to run a shift of 4-3-3
		EDRF/MMRF/OPRF packs containing IV Fluid (Normal saline,	All these must be available in the ward satellite pharmacy.

CONSUMABLES		5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Dressing tray,	1 per 3 beds
		Catheterization tray	1 per 3 beds
		Cut down set	2 per ward
		Vaginal examination trays,	3 per ward
		Catheterization trays Emergency CRASH CART (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, MgSO4, Oxytocics, Diazepam, paraldehyde, nitroglycérine, Antiseizure agents, Analgesics etc)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 3: WARDS AND EMERGENCY SIDE LABORATORY

This is a 30 bedded ward	Turnaround time	Audit parameters	Comments and remarks
SURGICAL EMERGENCY SIDE LABORATORY			
EQUIPMENT		Centrifuge and Microhematocrit reader, capillary tube, Hemoglobinometer, RDT strips Point of care E and U, Cr machine Urinalysis strips Glucometers Mobile x-ray and USS units (PCV, FBC, FBS, RBS, Urinalysis serum Electrolytes and Urea) Piped Oxygen (Preferred)	
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the wards 24/7.
CONSUMABLES		Capillary tubes, plasticine, plasters, cotton wool, methylated spirit, chlorhexidine, cannulas, sample bottles, slide plates and staining agents, rapid screening kits, HIV I and II, Hepatitis, RDT	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency tray (must contain Adrenaline, Atropine, Hydrocortine, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on intent of lab checks	

		Audit parameters	Comments and remarks
INTENSIVE CARE UNIT, HDU, AND TRAUMA CENTRE. A PAEDIATRIC INTENSIVE CARE UNIT IS ALSO DESIRABLE			
EQUIPMENT		Piped Oxygen (Preferred)	The ideal is to have piped oxygen in these units
		Oxygen cylinders	1 to each ventilator and bed
		Pulse oximeters	1 to 2 beds
		Air mattresses to prevent bed sores	1 per bed
		Commodes	1 to each bed
		Infusion pump	4 per bed
		Syringe pump	4 per bed
		Multiparameter monitors	1 to each bed and 2 back up
		Electric Suction machines	1 to 2 beds
		Manual Suction machines	1 to 2 beds
		Nebulizers	1 to 2 beds
		Automatic External Defibrillators	1 to 3 beds and a standby
		Glucometer	1 to 4 beds
		Wheelchairs	1 to 2 beds
		Stretchers	1 to 3 beds
		Sphygmomanometers	1 to 3 beds
		Stethoscopes	1 per bed
		Ophthalmoscope	1 in the unit
		Tendon hammers (128 Hz and 256 Hz)	2 each in each unit
		Pneumatic compression device for DVT prophylaxis	1 per patient
		Mobile x-ray and USS units	1 EACH
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		Water supply	Free flowing water must be available in the wards 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Consultant Physicians	2 per day and call period
		Senior Residents	2 per day and call period

PERSONNEL		Junior Residents	2 per day and call period
		Nurses	1 per bed to run a shift
		Porters	5 per day to run a shift of 2-2-1
		Cleaners	6 per day to run a shift of 2-2-2
CONSUMABLES		IV Fluid (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas	All these must be available in the ward satellite pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.
		Emergency crash cart (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, Suxamethonium Pancuronium Neostigmine Fentanyl)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 4: SURGICAL OUTPATIENT CLINICS

		Audit parameters	Comments and remarks
SOPD AND OBGYN. OUTPATIENT CLINICS AND PROCEDURE ROOMS			
EQUIPMENT		Diagnostic set	
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchairs	4 Nos
		Stretchers	2 Nos
		Sphygmomanometers	15 Nos
		Stethoscopes	10 Nos
		Ophthalmoscope	2 Nos
EQUIPMENT		Tapes rules	5
		Infrared Thermometer	5
		Angle poise lamp	1 in each room
		Proctoscopes	2 sets of disinfected trays
		Vaginal speculum	2 sets of disinfected trays
		Tendon hammers (128 Hz and 256 Hz)	1 per room
		X-ray viewing box	1 per room
		52'' TV	1 per 20 seats
		Ultrasound machine	1 per clinic
		Play station/area for children	
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		Water supply	Free flowing water must be available in the clinic 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Physicians	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their consultants to run clinics as specified

			above.
		Junior Residents	To join their consultants to run clinics as specified above.
		Intern Doctors	To join their consultants to run clinics as specified above.
		Nurses	4 per shift
		Medical record staff	2 per clinic
		ICT staff	2 per clinic
		Servicom desk officer	
		Porters	4 per shift
		Cleaners	4 per shift
CONSUMABLES		EDRF/MMRF/OPRF packs containing IV Fluid, Cannulas, Fluid giving sets, Blood giving sets, NG Tubes, Dressing trays Vaginal examination trays, Catheterization trays Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 5: ENT CLINIC

		Audit parameters	Comments and remarks
ENT OUTPATIENT CLINICS AND PROCEDURE ROOMS			
EQUIPMENT		Diagnostic set	2 Nos
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchairs	4 Nos
		Stretchers	2 Nos
		Sphygmomanometers	15 Nos
		Stethoscopes	10 Nos
		Ophthalmoscope	2 Nos
		Tapes rules	5
		Infrared Thermometer	5
		Angle poise lamp	1 in each room
		Proctoscopes	2 sets of disinfected trays
		Vaginal speculum	2 sets of disinfected trays
		Tendon hammers (128 Hz and 256 Hz)	1 per room
		X-ray viewing box	1 per room
		52'' TV	1 per 20 seats
		Ultrasound machine	1 per clinic
		Play station/area for children	
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Water supply	Free flowing water must be available in the clinic 24/7.
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Physicians	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their consultants to run clinics as specified

			above.
		Junior Residents	To join their consultants to run clinics as specified above.
		Intern Doctors	To join their consultants to run clinics as specified above.
		Nurses	4 per shift
		Medical record staff	2 per clinic
		ICT staff	2 per clinic
		Servicom desk officer	
		Porters	4 per shift
		Cleaners	4 per shift
CONSUMABLES		Emergency crash cart (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 6: OPHTHALMOLOGY CLINIC

		Audit parameters	Comments and remarks
OPHTHALMOLOGY OUTPATIENT CLINICS AND PROCEDURE ROOMS			
EQUIPMENT		Diagnostic set	2 Nos
		Oxygen cylinders	2 Nos
		Pulse oximeters	2 Nos
		Electric Suction machines	1 No
		Manual Suction machines	1 No
		Nebulizers	1 No
		Automatic External Defibrillators	1 No
		Glucometer	1 No
		Wheelchairs	4 Nos
		Stretchers	2 Nos
		Sphygmomanometers	15 Nos
		Stethoscopes	10 Nos
		Ophthalmoscope	2 Nos
EQUIPMENT		Tapes rules	5
		Infrared Thermometer	5
		Angle poise lamp	1 in each room
		Proctoscopes	2 sets of disinfected trays
		Vaginal speculum	2 sets of disinfected trays
		Tendon hammers (128 Hz and 256 Hz)	1 per room
		X-ray viewing box	1 per room
		52'' TV	1 per 20 seats
		Ultrasound machine	1 per clinic
		Play station/area for children	
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		Water supply	Free flowing water must be available in the clinic 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Electronic Medical Record	Advocated to facilitate time-based appointment
PERSONNEL		Consultant Physicians	To run their statutory specialist clinics (at least once per week).
		Senior Residents	To join their consultants to run clinics as specified

			above.
		Junior Residents	To join their consultants to run clinics as specified above.
		Intern Doctors	To join their consultants to run clinics as specified above.
		Nurses	4 per shift
		Porters	4 per shift
		Medical record staff	2 per clinic
		ICT staff	2 per clinic
		Servicom desk officer	
		Cleaners	4 per shift
CONSUMABLES		Emergency tray (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, available treatment options and prognosis	

TABLE 7: OPERATING THEATRES

		Audit parameters	Comments and remarks
MAIN THEATRE (8 suites), OBSTETRIC THEATRE (2 suites), DAY CASE THEATRE (2 suites), EPU THEATRE (1 suite), EMERGENCY THEATRE (2 suites), OPHTHALMIC THEATRE (2 suites), IVF THEATRE (1 suite). Each suite should have these basic complements			
EQUIPMENT		Piped Oxygen, vacuum and medical air	The ideal is to have piped oxygen in all theatre suites
		Operating table	1
		Operating lamps	2 ceiling mounted
		Anaesthetic machine with vapourizers	1
		Laryngoscope set	1 each for children and adult
		Multiparameter monitors	1
		Patient warmer	1
		Oxygen cylinders	2 pin index to each machine
		Electric Suction machines	2 per suite
		Manual Suction machines	1 per 2 suites
		Automatic External Defibrillators	1 per 2 suites
		Glucometer	1 to 3 suites
		Wheelchairs	1 to 3 suites
		Stretchers	1 to 2 suites
		Sphygmomanometers	2 to a theatre location
		Stethoscopes	1 per suite
		ABG machine	1
		Mobile USS	1
		C-ARM x-ray machine	1
		Mobile x-ray machine	1
		Ambu bag	1 per suite (adult and paediatric sets)
		Endotracheal tube set	2 sets of different sizes
		X-ray viewing box	1
		Instrument trays	4
		Resuscitaire (baby suite)	1 for obstetric and paediatric theatre suite
		Angle poise lamps	1
		Mobile operating lamps Specialty and procedure specific	1

		instruments	
		Basic instrument tray	1
		Oropharyngeal airway	4 sets of different sizes
OTHER INFRASTRUCTURE		Electricity	Uninterrupted power supply from a combination of municipal electricity supply with adequate backup through use of solar-powered inverters and generators.
		Water supply	Free flowing water must be available in the emergency room 24/7.
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward
		Side laboratory	To be equipped with autoanalyzer (1 No), centrifuge (1 No) and haematocrit reader (1 N0), light microscope (1 No)
PERSONNEL (this is specialty dependent)	Porters Cleaners	Surgeon and assistant(s)	At least 2 persons
		Scrub nurse and circulating nurse	At least 2 persons
		Anaesthetist with assistant	At least 2 persons
		Neonatalogist (obstetric theatre)	At least 2 persons
		Plaster technician (orthopaedics, plastics etc)	At least 2 persons
		Porters	
		Cleaners	
CONSUMABLES		OPRF, EDRF, ECRF, MDRF, should provide packs containing IV Fluids (Normal saline, 5% D/saline, 10% dextrose, 50% dextrose, Full strength Darrow's), fluid giving sets, NG Tubes, cannulas,	All these must be available in the emergency pharmacy. Emergency Backup (at least 5 each) for all these consumables should be with the nurses.

		plaster, gloves, sutures and other materials as per procedure Anaesthesia packs as per procedure Sample bottles, capillary tubes, urinalysis strips	
		Emergency crash cart (must contain Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, MgSO4, Oxytocics, Diazepam, paraldehyde, nitroglycerine, Antiseizure agents, Analgesics etc)	At least 5 of each of these items must be in the emergency tray.
INFORMATION	60 minutes	Patients and their relatives should be counselled on patient diagnosis, procedure done and prognosis. There should be charts for resuscitation protocols and triage etc. displayed at designated points.	
RECOVERY ROOM			
EQUIPMENT		Patient beds	
		Piped oxygen	
		Multiparameter monitors	
		Suctioning machines	
		AED	
		Chairs and tables	
PERSONNEL		Recovery room nurses	1 per 2 beds
		Anaesthetic technician	1 per 4 beds

		Porter	1 per 4 beds
CONSUMABLES		Resuscitation cart should contain- Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, MgSO4, Oxytocics, Diazepam, paraldehyde	
INFORMATION		Recovery room personnel should liaise with patients, patient's relations and ward staff to convey information on the patient care as appropriate	

	RADIOLOGY				
	Equipment	Ultrasound machine Digital X-ray Mammography Fluoroscopy CT Scan MRI Multiparameter monitors, sphygmomanometer Air conditioners Suctioning machines AED, pulse oximeters Chairs and tables Instruments for specials Xray viewing boxes Lead aprons/shields Dorsimeter	At least 3 3 1 1 2 1 3 3 3 7 2 1 3		
		10kg Fire extinguisher, sand bucket, water hydrants, fire alarms	1 per 10 bedded ward		
	Personnel	Consultants Residents Nurses Radiographers Admin staff Record staff Technicians Porter	5/day 10/day 5/day 5/day 7/day 2/day 5/day 5/day		
	Consumables	Contrast agent Xray Films Resuscitation cart should contain- Adrenaline, Atropine, Hydrocortisone, Salbutamol, Frusemide, MgSO4, Oxytocics, Diazepam, paraldehyde			

OPERATIONAL GUIDELINE AND CHECKLISTS FOR ALL DEPARTMENTS AND UNITS

OPERATIONAL GUIDELINE FOR CHEMICAL PATHOLOGY DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Laboratory (size, How many, types should be determine by the HODs), offices, clinics				
Equipment	List of equipment for the labs should be supply				
Human resources	Doctors- (Consultant, Resident doctors, House Officers) Lab. Scientist, Technicians, Intern scientist. Secretary Clerical Staff, Messengers.				
Raw material	Reagents to be define by the HOD				
information	Daily information on test, the stores, Challenges and various incident.				
Maintenance	Dedicated officers for maintenance.				
PROCESSES		Efficiency	Conformance	Flexibility	Safety
Technique	The HOD to give details of techniques involves. (electronic analysis of specimen)				

Communication	How the result will be release (hard copy) Mode of releasing critical report (Electronics Report)				
Decision making	Interpretations of result. (Consultant /Senior Scientist)				
Information Management	Documentation should be in both soft & Hard copy. Incident report registers, Restocking of reagent. (50% of out of stocks must be reported and 25% must be refill.				
Documentation	Documentations should be in hard copy & electronics				
OUTPUT/OUTCOME	Turnaround time should be met by the departments which are within 1 hour, 24-48 hours, 5days, and 1 week depending on type of test. Consult register should be deliver by hand under one hour	Desire level Achieved	Targets Met		

OPERATIONAL GUIDELINE FOR MICROBIOLOGY & PARASITOLOGY DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Laboratory (size, How many, types should be determine by the HODs), offices, clinics				
Equipment	List of equipment for the labs should be supply				
Human resources	Doctors- (Consultant, Resident doctors, House Officers) Lab. Scientist, Technicians, Intern scientist. Secretary Clerical Staff, Messengers.				
Raw material	Reagents to be define by the HOD				
information	Daily information on test, the stores, Challenges and various incident.				
Maintenance	Dedicated officers for maintenance.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	The HOD to give details of techniques involves. (electronic analysis of specimen)				

Communication	How the result will be release (hard copy) Mode of releasing critical report(Electronics Report)				
Decision making	Interpretations of result. (Consultant /Senior Scientist)	Decision making			
Information Mgt	Documentation should be in both soft & Hard copy. Incident report registers, Restocking of reagent.(50% of out of stocks must be reported and 25% must be refill.	Information Mgt			
Documentation	Documentations should be in hard copy & electronics	Documentation			
OUTPUT/OUTCOME	Turnaround time should be met by the departments. Consult register should be deliver by hand under one hour	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR PATHOLOGY DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Laboratory (size, how many, types should be determine by the HODs), offices, clinics				
Equipment	List of equipment for the labs should be supply				
Human resources	Doctors- (Consultant, Resident doctors, House Officers) Lab. Scientist, Technicians, Intern scientist. Secretary Clerical Staff, Messengers.				
Raw material	Reagents to be define by the HOD				
information	Daily information on test, the stores, Challenges and various incident.				
Maintenance	Dedicated officers for maintenance.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	The HOD to give details of techniques involves. (electronic analysis of specimen)				
Communication	How the result will be release (hard copy) Mode of releasing critical report (Electronics Report)				
Decision making	Interpretations of result. (Consultant /Senior Scientist)				
Information Mgt	Documentation should be in both soft & Hard copy. Incident report registers, Restocking of reagent. (50% of out of stocks must be reported and 25% must be refill.				
Documentation	Documentations should be in hard copy & electronics				
OUTPUT/OUTCOME	Turnaround time should be met by the departments. Consult register should be deliver by hand under one hour	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR PATHOLOGY DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Laboratory (size, How many, types should be determine by the HODs), offices, clinics				
Equipment	Standard Blood bank should be equipped, regular power supply, donor bay must be confidential room and one person per unit				
Human resources	Doctors- (Consultant, Resident doctors, House Officers) Lab. Scientist, Technicians, Intern scientist. Secretary Clerical Staff, Messengers.				
Raw material	Reagents to be define by the HOD, Operational Vehicle				
information	Daily information on test, the stores, Challenges and various incident.				
Maintenance	Dedicated officers for maintenance.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	The HOD to give details of techniques involves. (electronic analysis of specimen)				
Communication	How the result will be release (hard copy) Mode of releasing critical report (Electronics Report)				
Decision making	Interpretations of result. (Consultant /Senior Scientist)				
Information Mgt	Documentation should be in both soft & Hard copy. Incident report registers, Restocking of reagent. (50% of out of stocks must be reported and 25% must be refill.				
Documentation	Documentations should be in hard copy & electronics				
OUTPUT/OUTCOME	Turnaround time should be met by the departments. Consult register should be deliver by hand under one hour	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR NURSING SERVICES DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Female surgical 1&2, Female Medical 1&2, Male Surgical 1&2, Male Medical 1&2, Operating theatre and others.				
Equipment	Dressing pack, trolleys, B/P apparatus, nurses table and chairs, drip stands, waste bins, sharp boxes, feeding table, weighing scale, bed-pan, urinal, wheel chairs, stretcher, fetoscope, Monitor, Oxygen cylinders with gauges, pulse oximeters, Ambu bags, defibrillators, nebulizers, glucometers, oropharyngeal airways, oxygen concentrators, diathermy, suction machine, diagnostic sets, laryngoscopes, cut-down sets, stethoscopes, sphygmomanometers, resuscitaire, crash cart, nasal prongs.				
Human resources	Director of Nursing services, Ward head nurse, deputy directors, Assistant directors, Chief nursing officers, Assistant Chief nursing officers, Principal nursing officers, Senior nursing officers, Nursing officers. Porters, in each ward, and clinics. Cleaners, in each ward Attendants				
Material	Operation sheets, continuation sheets, prescription sheet, record books, nursing process book, incident report book, etc.				
information	Regular updates on daily activities to				

	supervisors and to the HOD nursing				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Admission procedure: Triage, utilize nursing process framework, admission in to the ward, resuscitation, maintain fluid and electrolytes balance, Vital signs, Psychological care, Physical care, Bed bath, securing IV line, Assisted bed bath, wound dressing with aseptic technique, Medication, Oxygen administration PRN.				
Communication	Decision making, documentation, Open incident report Register, all report should channel to HOD Nursing through the supervisors. Every critical development should be communicated to the head managing physician through the unit nurse in the ward and such should be documented in the incident report				
Decision making	Decision making is the responsibility of the head or most senior nurseon every shift. Head of units should engage her subordinate in decision making.				
Information Management	All information should be documented in both soft copy and hard copy. And all information related to patients must be confidential. Incident report register should be followed.				
Documentation	All procedure carry out on each patient should be properly documented.				
OUTPUT/OUTCOME		**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		
	All patients received attention from the nurses immediately. Evaluate the quality of care through questionnaire and interviews				

OPERATIONAL GUIDELINE FOR PHARMACY DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Pharmacy 22 units (Main pharmacy, A&E pharmacy, NHIA pharmacy, GOPD pharmacy, Kishi, etc. *it is essential to maintain security of items with burglary, lockable cabinet.				
Equipment	Equipment needed for compounding(PH meter, Weighing scale, Hot plates, Funnel, Test tube, Test tube rack, Stainless bucket, Steering machine of various size, Shiver, Shelve and palate, thermometer, barometer for measuring.				
Human resources	Registered Pharmacist, NYSC Pharmacist, Intern Pharmacist, Pharmacy Technician, Pharmacy Attendant Secretariat staff, Messengers, Cleaners, Store attendant, Maintenance officers.				
Raw material	Galenicals (paracetamol powder, salicycililic acid, sulphur ointment, Morphine Powder, and various containers)				
Information	There should be proper records of all supplies (drugs & clinical consumables), Proper record of all drugs issued on the tally cards, Proper records of dispensed drugs, proper records of all sales, and daily stock taking noting expiry dates of drugs to ensure prompt re-order level of drugs. Record of commonly occurring adverse reactions. Archive old records and Incidence of dispensing errors				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Medicine procurement, storage and shelving, issuing, monitoring, entering into tally card, compounding and production of medications, prescription handling, dispensing of drugs, patient counselling, Pharmacy vigilance, re-constitution of drugs				

Communication	Direct communication to patients, counselling. Memo, letters, presentation to other health workers. Drug bulletin. Information should follow organogram.				
Decision making	Heads of Unit or pharmacist on duty are responsible for matters in their jurisdiction which must be communicated to the HOD.				
Information Management	Keeping record of procurement, daily record of drugs dispenses and supply in soft and hard copies etc. information pattern of drug used, monthly returns/ reports, consumption pattern, drugs on shelves, adverse drugs reactions, Patient information treated confidentially, take action on drug 3months to expiry date, withdraw any expired drug.				
Documentation	Daily records of sales, dispensed and supply drugs, documentation of all drugs issued, monthly submission of drug used. Tally cards, Register of Store Received Vouchers, Computer based inventory records, Requisition book, Monthly Returns, Quarterly Stock taking records, Adverse drugs reactions reports, Narcotics Drugs register at pharmacy and ward, Debit Notebook for Credit supply to the ward				
OUTPUT/OUTCOME		**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		
	Waiting time should not be more than 30 minutes (for costing and dispensing, excluding emergency drugs. For compounding 45 minutes) Monthly report of consumption pattern of drugs and education, Adverse drug report on quarterly basis. Out of stock should be reduced to bearest minimum.				

	Procurement process should commence when the stock level is at 50%. And the actual procurement should be when the stock level is at 25%. Dispensing of drugs should follow first in, first out or first to expired, first out.				

OPERATIONAL GUIDELINE FOR WORK &SERVICES DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Standard Workshops/ Offices for staff				
Equipment	Wrench, maintenance tool kits, multimeter, mega &micro meter, Hammer, Welding machine, utility vehicle etc.				
Human resources	All categories of qualified Engineers from various Engineering field (Civil Engineer, Electrical Engineer, Mechanical Engineer, Biomedical Engineer Architectural, Quantity Surveying,), Artisans, Secretary, Clerical staff, and messengers.				
Material	Consumables/spare part/accessories for the, maintenance of generator/equipment such that at 50%of out of stocks a new request should be supplied and at 25% new request would have been supplied. This is applicable to ever other equipment that uses consumable/ spare part/ accessories for it smooth operation.				
information	Regular updates on daily basis, especially on the maintenance of the hospital buildings and equipment.				
Maintenance	Major functions / duties, maintenance cards, log book, job card				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	in respect to area of specializations				
Communication	All report/complaint should be channel properly from end users to office of HOD and Head of various Units. Job cards and logbook, data card. Incident report book,				

Decision making	Decision taking by HOD, follow departmental organogram				
Information Management	Uses of departmental meetings, letters, memo discussion face to face.				
Documentation	Job cards and logbook, data card. Incident report book, electronics documentation				
OUTPUT/OUTCOME	Attention to problems/challenges within 30 minute.	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR HEALTH INFORMATION AND MANAGEMENT DEPARTMENT

INPUT		Available	Adequacy	Functioning status	
Facility	Befitting health information department with a standard library. 21 Units (Appointment, NHIS, Library, Family Medicine, ANC, A&E, Admission &Discharge, Eye Clinic, ENT, EPU, Behavioral science Unit) Offices with A/C, Offices for senior staff, etc.				
Equipment	Shelves, Ladders, furniture, Medical dictionary, English dictionary, Data bank, Computer System, Printers, Generator set, Tables and Chairs.				
Human resources	Trained staff required, clerical health record officers, Secretary, Clerical Officers, Messengers,				
Raw material	Stationeries				
Information	Collation of clarify data monthly, quarterly, and yearly				
PROCESSES		Efficiency	Conformance	Flexibility	Safety
Technique					
Communication	Direct Communication (staff carry folders to the consultation clinics)				
Decision making	The organogram channel of decision making				
Information Mgt	Collations of daily data, monthly, quarterly and yearly.				
Documentation	Manual documentation to electronic Medical record.				
OUTPUT/OUTCOME	Follow up patient should get folder within10 minutes after request. Opening of new folder should be within 10 to 15 minutes.	Desire level Achieved	Targets Met		
	All processes should be documented, Incident report should be filled, Records movement of folders, Booking of appointment, All folders should be retrieved at the end of each clinics day. Folders should only be moved from records to clinics, wards, operational areas and back to record.				

OPERATIONAL GUIDELINE FOR NHIA DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	A dedicated NHIA complex. Standby ambulance and utility vehicle.				
Equipment	Furniture, complete computer systems for office use, Generator set, Android phone for office use.				
Human resources	Desk officer, Enforcement Officers, Doctors , Nurses, Pharmacist, Manage care officer, Authorization officers, Monitoring officers, Billing Officers , Secretariat staff, ICT officers, Account officers, health information Officer, Messengers , maintenance Officer, Security Officers etc.				
Material	Stationeries, all clinical equipment				
Information	All daily activities of the unit should be reported to the desk officer. Organogram should be follow.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Proper screening of Enrolles both primary and secondary before accessing health care, Generating and confirmation of authorization codes form HMOs, proper monitoring of Enrollees on admission, preparation of claims on monthly basis, documentation of daily activities in terms of care given. Claims reconciliation with HMOs.				
Communication	Communication should be channel through the Desk officer. Enlightment and sensitization to the enrollees.				
Decision making	Supervision of all section activities at all				

	time by the Desk officer and his team.				
Information Mgt	Documentation should be in hard copies, electronics copies and additional backup. Incident report register should followed,				
Documentation	Daily documentation, monthly report, quarterly report, End of the year report				
OUTPUT/OUTCOME	Enrollees received attention within 15 minutes of arrival. Enrollees' satisfaction	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR CATERING DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Standard Kitchen (size)				
Equipment	Cooking gas, Burners, serving plates, deep freezer, food warmer, micro waves, grinding machine, Trolleys, Wheel biro, Weighing scale, gas cylinders, Blender, Wastebasket, cutleries, Computer System, utility vehicle, etc.				
Human resources	Categories of Staff in department. HODs, Dietician, Supervisors (External & Internal) Chef, Secretary, Messengers, Cleaners, maintenance officers etc.				
Raw material	Food stuffs materials and ingredient				
Information	Regular updates on daily basis, especially on the quality of food cooked and materials in the store through the supervisors.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Cooking with gas				
Communication	Decision making, documentation, Open incident report Register, All report should channel through organogram.				
Decision making	Should be the responsibility of the HODs				
Information Mgt	There should be incident register and every observation should be channeled to Head of Department. Structure of the department should be determined by the department. There should be openness in the documentation				
Documentation	Daily activities should be proper documented at all levels. Monthly, quarterly and end of the year reports should be given.				

OPERATIONAL GUIDELINE FOR NUTRITION & DIETETICS DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Clinics, Ward, Kitchen (size), Offices for staff,				
Equipment	Cooking gas, Burners, serving plate, deep freezer, grinding machine, Trolley, Stationeries etc.				
Human resources	Categories of Staff in department. Dietician, Chef, Secretary, Cleaners, Messengers, Supervisors, maintenance Officer				
Material	Food stuffs materials and ingredient,				
Information	Documentation, Regular updates,				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Department Clerking/counselling, Nutrition Assessment, Nutritional/Dietary Diagnosis, Nutrition/Dietary Health Education, Haart Clinic Wound Care				
Communication	Decision making, documentation, Open incident report Register, All report should channel through properly.				
Decision making	Should be the responsibility of the HODs				
Information Mgt	Documentation in both soft copy and hard copy. And all information related to patients must be confidential. Incident report register should be followed.				
Documentation	All procedure carry out on each patient should be properly documented.				
OUTPUT/OUTCOME		**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		
	Turnaround time 30mins – 1 hour, Clinical Improvement,				

OPERATIONAL GUIDELINE FOR MEDICAL & SOCIAL SERVICES DEPARTMENT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	A/E, Eye complex, EPU, Cardiac center, delivery suite, Trauma center, Stroke care Unit, Renal care center, Otorhinolaryngology (ENT), surgical A/E, Adult in-patient, Intensive care unit (ICU) etc				
Equipment	Utility vehicle, HOD Social works table &chair, Computer system, printer,				
Human resources	HOD social works, deputy director, Assistant director, Chief social work officer, clerk, messenger				
Material	Stationeries,				
Information	Documentation, information flow through the departmental head to the subordinates. Organogram should be strictly adhered to.				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Consultation, Advocate for the patients where necessary, follow up patients after discharge home,				
Communication	Having listening hear to the patients' aspirations, discussion and interaction between social works, the patients and the relatives, understanding between members in terms of information. Regular departmental meetings.				
Decision making	Departmental HOD. Subordinate should be allowed to partake in the departmental decision.				
Information Mgt	Whatever information taken from the patients must be confidential.				
Documentation	All work done should be documented in case of future reference. Record book must be kept. Incident report must be taken seriously.				
OUTPUT/OUTCOME	Patient satisfaction should be their watch word. Patient satisfaction is measured by questionnaire and patient's response	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR LAUNDRY SERVICE UNIT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
Facility	Laundry Services				
Equipment	Furniture, washing machines 4, Hydro extractor for squeezing linen 2, Dryer machine 2, Dry work trolley, Sewing Machines, Wheelbarrow, water Tanks, waste bin, Complete computer system for office use.				
Human Resources	Head of the Unit, SEO, H.E.O, E.O, Chief Laundry Assistants, Principal Laundry Assistant, Laundry Attendants, Principal Tailor, Senior Tailors.				
Materials	Detergents, Liquid wash, hypochlorite and Hand Gloves, Facemask, Stationeries for typing of laundry services documents.				
Information	All daily activities of the unit are reported through the HOD to Central Administration, Director of Nursing Services and Hospital Secretary.				
PROCESS		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Techniques	Collection of dirty linens from various wards and units in the hospital. Recording of the linens collected and supplied. Proper counting of the linens, sorting of the linens collected from various wards before washing. Sorting out the stained linens from unstained before washing. Washing of the stained linens separately. Washing, squeezing, and drying. Ironing and folding of the hospital linens.				
Communication	Communications are always channel through the HOD to Central Admin.				
Decision Making	Final decision-making rest with the Supervisor who relates with the HOD.				
Information Mgt.	The documents are kept in hard copies and electronics copies and additional backup incident report register is kept.				
Documentation	Monthly, Quarterly and Annual reports.				
Output/Outcome	This unit measured by record of prompt daily supplies of linens to various ward, clinics and departments Prompt attention to complaint from various quarters.	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

OPERATIONAL GUIDELINE FOR HAART/DOT CLINIC

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING STATUS**	
FACILITY	A Dedicated Haart/Dot Clinic Complex				
EQUIPMENT	Furniture, computers (laptops &Desktop) equipments for cervical screening, electronic weighing scale, server, laboratory equipments, generator				
Human Resources	Clinicians, Nurses, Pharmacists& Technicians, Lab Scientist& Phlebotomists, Record Officers, Social Workers Treatment support specialists &mentor mothers. Adhoc Staff: (Volunteers) Case Managers, Data Entry Clerks, & Community Testers				
Materials	Stationaries, HIV testing kits, personal protective equipment, resuscitative materials, sanitation materials				
Information	Information is basically confidential in the clinic: ➢ Official information, however, is passed through the clinic manager personally to – HIV project Coordinator or HIV care focal persons. ➢ Through daily health education ➢ WhatsApp group platform ➢ The use of notice board ➢ Monthly stakeholders' meetings ➢ Facility –based stepdown trainings N.B: Hierarchy of positions duly followed.				

Processes Communication	All communications are channelled through the clinic manager (ART Coordinator)	EFFICIENCY	CONFORMANCE	FLEXIBILITY	SAFETY
Decision making	Decisions are made by the HIV Project Coordinator or as delegated to the clinic manager OR Consensus' decision by the HIV Stakeholders' committee				
Information Management	Monitoring and Evaluation being done with the use of Hard copy registers, MSFs and LAMIS with backups on NDR				
Documentation	Daily and monthly reports to the hospital. Quarterly and the end of the year reports, to the Implementing Partners.				
Techniques	➢ HIV testing and counselling (entry point). ➢ Enrolment of new positives to care. ➢ General Health education. ➢ Documentation of baseline/follow-up, weight & vital signs. ➢ TB assessment for all HIV clients for possible GeneXpert and vice versa ➢ Assessment of female clients for cervical screening based on eligibility criteria. ➢ Triaging for consultation ➢ Refilling of ARVs by Clinicians or through task shifting (Nurses). ➢ Adherence counselling for all clients (individually). ➢ Distribution of basic care package (if available) ➢ Viral load drive/ logging based on eligibility. ➢ Baseline CD4 count for new enrollees only				

	➢ Prophylactic treatment for Pre &Post exposed clients (PrEp & PEP). ➢ Daily registration of all clients both manually and electronically (LAMIS). ➢ Daily contact tracking and tracing. ➢ Daily community testing and linkage.				
OUTPUT	To meet the international standard of 95-95-95 goal on: ➢ Case finding ➢ Clients' Retention and ➢ Viral load suppression To ensure that the clinic appointments do not impede on clients' daily activities.				
OUTCOME	In the last fiscal year (Oct 2020-Sept 2021) UITH Ilorin scored 96.26% in the 3 95s' indicators. Scoring done by USAID QIQA team.				

OPERATIONAL GUIDELINE FOR PAIN & PALLIATIVE CARE UNIT

INPUT		**AVAILABLE**	**ADEQUACY**	**FUNCTIONING**	
Facility	A dedicated Pain & Palliative Care Unit				
Human Resources	Plasma Tv, Wheelchairs, Sphygmomanometer, Weighing Scale, Generator, Computer, Projector				
Material	Doctors, Palliative Care Nursing A & E Nurse, Poster, HOD Secretary, Clerical, Security Officer, Cleaner.				
Material	Stationeries & Medical Equipment				
Information	Daily briefing of team member about palliative care patients all other information is passed through head of the unit				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Holistic assessment of all the palliative care patients and proper pain management.				
Communication	Therapeutic communication to all palliative care patients and all other communication will be channel appropriately through the communication skills.				
Decision making	Decision making is by the palliative care team members.				
Information	Documentation should be in both Hard & Sort Copies.				
Documentation	Proper daily documentation, monthly				

	report, quarterly report and yearly report.				
OUTPUT/OUTCOME	Total Holistic care rendered to all the palliative care patients referred to the unit with immediate intervention and they were all satisfied from the feedback received.	**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		

AMBULANCE SERVICES IN THE HOSPITAL

Ambulance

Introduction

Ambulance is a vehicle that is equipped with medical supplies for transporting patients to treatment facilities. Ambulance is usually kept at treatment facilities while it awaits calls for medical emergencies. It is also used to transport paramedics and the first responders to the scene of accident for initial resuscitation of patients.

Intrahospital services provided by UITH ambulance unit

- Fast delivery of patients from one unit to the other within the hospital.
- Provision of live support equipment and constant monitoring during transportation.
- Conveyance of supplies from units to units

Outside hospital services

- When medical staff need to be transported fast to the scene of accident that involves mass casualty.
- When medical staff and paramedics need to respond to an emergency call to care for a patient.
- When patients receiving care outside of the hospital require to be transported for referrals and follow-up care and laboratory testing in our hospital.

Vehicular types of ambulance

Available ambulances in the hospital include cars, vans and buses Golf/Soccer field cart**,**

Our ambulances are equipped with

- Two-way radio, Tail lift or Ramp – for easy lifting of the obese, Air-conditioner

Components of an ideal ambulance.

Ambulance is usually kept within the hospital where demand for its use can be made from any unit and outside the hospital through the nursing service department. It is usually driven by trained and experience drivers. Resuscitation and continuous monitoring of patient is done by medical staff as the ambulance conveys the patient to the hospital.

The following a complete complement in our emergency ambulance-

- Ambulance stretcher
- Oxygen cylinder.
- Ventilator.
- Defibrillator.
- Sunction unit.
- AMBU bag.
- Stethoscopes.
- Thermometer.
- Fluid given set and canular.
- Bandage.
- Flashlight.
- Medical tapes.
- Thermometers.
- Blood pressure gauge.
- Syringes and needles.

- Oropharyngeal airway.
- Laryngoscope and endotracheal tubes.
- Emergency Box or medication bag(s) containing Essential Drugs and Fluids e.g.
    - Anaesthetic drugs.
    - Intravenous fluid.
    - Salbutamol.
    - Nitroglycerin.
    - Antiseizure agents.
    - Analgesics.
    - Adrenaline.

Figure 3: Inside of ambulance

Conduct of Paramedic service

Once there is mass casualty, the paramedics are called, a group of paramedics will pick the ambulance and move to the scene of the incident, they will do the primary triage (field triage), and then alert the emergency department of the hospital about the number of patients involved. The patients are moved to the emergency department of the hospital according to their priority. At the hospital, the paramedic provides a brief on the events and intervention before arrival in the hospital and handover the patient to the emergency room staff. Secondary triage is done by a nurse or by paramedics at the emergency department, and then various specialists are called to review the patients. The specialist will do a tertiary triage and then offers specialized treatments to the patients.

OPERATION GUIDELINES FOR SURGICAL WARDS, CLINICS, ICU, TRAUMA CENTRE AND THEATRES

INPUT		AVAILABLE	ADEQUACY	FUNCTIONING STATUS	
Facility	Female surgical 1&2, Male Surgical 1&2, Paediatric Surgical ward, Antenatal ward, Postnatal wards (Medical and Surgical), Gynaecological ward, O & G emergency, SOPD, ANC and Gynae clinics, Family planning Clinic, Cardiac Centre, Surgical Accident and Emergency, Operating theatres, CSSD, IVF centre, Radiology, Ophthalmology, ORL and others.				
Equipment	Dressing pack, trolleys, B/P apparatus, nurses table and chairs, drip stands, waste bins, sharp boxes, feeding table, weighing scale, bed-pan, urinal, wheel chairs, stretcher, fetoscope, Monitor, Oxygen cylinders with gauges, pulse oximeters, Ambu bags, defibrillators, nebulizers, glucometers, oropharyngeal airways, oxygen concentrators, diathermy, suction machine, diagnostic sets, laryngoscopes, cut-down sets, stethoscopes, sphygmomanometers, crash cart, nasal prongs, patients' beds and lockers Operating theatre equipment per suite (Operating table Operating lamps Anaesthetic machine with vapourizers, Laryngoscope set,				

	Ambu bags, Piped Oxygen, vacuum and medical air, AED machine, multiparameter monitors, Diathermy machine, Suction machines, X-ray viewing box, Instrument trays, Resuscitaire (baby suite) Angle poise lamps, Mobile operating lamps, Specialty and procedure specific instruments				
Human resources	All surgical department Surgeons and Trainee surgeons, Anaesthesiologists and trainees, Directorate of Nursing services (All cadres of nurses, porters, cleaners) perioperative and ICU nurses. Biomedical engineers and works department staff (water, electrical, estate maintenance), Gas plant operators, Pharmacy and OPRF staff, HIM staff, Laboratory pathologists, Scientists and Technician, Administrative secretaries, and messengers				
Material	All records materials hard and electronic including but not limited to Surgical Operation sheets, continuation sheets, prescription sheet, record books, nursing process book, incident report book, consent forms, special consents forms and specialty charts e.g. cardiac ICU				

	charts, delivery notes etc.				
information	Regular updates on daily activities to supervisors i.e. Consultants, HOD nursing, HOD Works, HOD Pharmacy Theatre operation lists Availability of electricity and back up, water, gas, consumables from pharmacy & OPRF and CSSD Patients/ Parents/Caregivers should be counselled on patient diagnosis, treatment and prognosis				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Admission procedures for clinics, wards, emergency, theatre: Triage, utilize nursing process framework, admission into the ward, resuscitation, maintain fluid and electrolytes balance, Vital signs, psychological care, Physical care, Bed bath, securing IV line, Assisted bed bath, wound dressing with aseptic technique, Medication, Oxygen administration PRN. Transfer to theatre- Ward transfer checklist, Surgical safety checklist, Discharge from recovery checklist, Discharge from ward checklist Operation findings and procedure done				
Communication	Decision making, documentation,				

	Open incident report Register, all report should be channelled through laid out organogram for departments and the theatre users committee Chairman. Every critical development should be communicated to the head of managing team unit Senior registrar or ward nurse, clinic, ICU or theatre and such should be documented in the incident report				
Decision making	Decision making is the responsibility of the head of the team or most senior nurse on every shift. Head of units should engage her subordinate in decision making and inform the HOD who communicates with the CMAC.				
Information Mgt	All information should be documented in both soft copy and hard copy. All information related to patients must be confidential. Incident report register should be followed.				
Documentation	All procedures to be carried out on each patient should be consented and properly documented after the procedure.				
OUTPUT/OUTCOME		**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		
	All patients received attention from the concerned personnel				

	(Doctors, nurses, etc.) across cadre immediately. All equipment, estate/facility are duly maintained. All supplies are promptly provided including prosthesis Turnaround time between procedures should be less than 30 minutes Evaluate the quality of care through questionnaire and interviews				

OPERATION GUIDELINES FOR MEDICAL EMERGENCY, MEDICAL WARDS, RENAL WARD, STROKE WARD, PAEDIATRIC WARDS, EPU, NICU, PSYCHIATRY WARDS, CLINICS

INPUT		AVAILABLE	ADEQUACY	FUNCTIONING STATUS	
Facility	Female Medical 1&2, Male Medical 1&2, Renal ward, Cardiac ward, Stroke Unit, EPU, NICU (out and in bounds) Paediatric Ward, Behavioural Sciences Ward, Medical Emergency, Medical Outpatient Clinic, Family Medicine Clinic, Behavioural Sciences Clinic, NHIS and Staff Clinic, Endoscopy room, ECGs, Echo, EEG, Pulmonary function room, Dialysis room .				
Equipment	Blood pressure apparatus, stethoscope, trolleys, nurses table and chairs, drip stands, waste bins, sharp boxes, feeding table, weighing scale, bed-pan, urinal, wheel chairs, stretcher, Monitor, Oxygen cylinders with gauges, pulse oximeters, Ambu bags, defibrillators, nebulizers, glucometers, oropharyngeal airways, oxygen concentrators, suction machine, diagnostic sets, cut-down sets, stethoscopes, sphygmomanometers, crash cart, nasal prongs, patients' beds and lockers Laryngoscope set, Ambu bags, Piped Oxygen, vacuum and medical air, AED machine, Multi-parameters monitors, Suction machines, X-ray viewing box, Instrument trays, Resuscitaire (baby suite), Specialty and procedure specific				

	instruments				
Human resources	All Physicians and Trainees, Directorate of Nursing services (All cadres of nurses, porters, cleaners). Biomedical engineers and works department staff (water, electrical, estate maintenance), Gas plant operators, Pharmacy, Laboratory pathologists, Scientists and Technician, Administrative secretaries, and messengers				
Material	All records materials hard and electronic including, continuation sheets, prescription sheet, record books, nursing process book, incident report book, consent forms, special consents forms and specialty charts e.g. cardiac ICU charts, etc.				
information	Regular updates on daily activities to supervisors i.e. Consultants, HOD nursing, HOD Works, HOD Pharmacy Availability of electricity and back up, water, gas, consumables from pharmacy & OPRF and CSSD Patients/Parents/Caregivers should be counselled on patient diagnosis, treatment and prognosis				
PROCESSES		**EFFICIENCY**	**CONFORMANCE**	**FLEXIBILITY**	**SAFETY**
Technique	Admission procedures for clinics, wards, emergency: Triage, utilize nursing process framework, admission into the				

	ward, resuscitation, maintain fluid and electrolytes balance, Vital signs, psychological care, Physical care, Bed bath, securing IV line, Assisted bed bath, wound dressing with aseptic technique, Medication, Oxygen administration PRN. Ward transfer checklist, Discharge from recovery checklist, Discharge from ward checklist Operation findings and procedure done				
Communication	Decision making, documentation, Open incident report Register, all report should be channeled through laid out organogram for departments Every critical development should be communicated to the head of managing team unit Senior registrar or ward nurse, clinic, ICU and such should be documented in the incident report				
Decision making	Decision making is the responsibility of the head of the team or most senior nurse on every shift. Head of units should engage her subordinate in decision making and inform the HOD who communicates with the CMAC.				
Information Mgt	All information should be documented in both soft copy and hard copy. All information related to patients must be confidential. Incident report register should be followed.				
Documentation	All procedures to be carried out on each patient should be consented and properly				

	documented after the procedure.				
OUTPUT/OUTCOME		**DESIRE LEVEL ACHIEVED**	**TARGETS MET**		
	All patients received attention from the concerned personnel (Doctors, nurses, etc.) across cadre immediately. All equipment, estate/facility are duly maintained. All supplies are promptly provided including prosthesis Turnaround time between procedures should be less than 30 minutes Evaluate the quality of care through questionnaire and interviews				

SCORING SHEET FOR MEDICAL AUDIT

INPUT	AVAILABILITY (0-1)	ADEQUACY (1-10)	FUNCTIONAL (0-10)
FACILITY e.g., ward,			
EQUIPMENT			
HUMAN RESOURCES			N/A
CONSUMABLES			
INFORMATION			
TOTAL SCORE = …./95			

KEYS/LEGEND: AVAILABILITY SCORE 0 = ABSENT OR NO (OTHERS NOT APPLICABLE), 1 = PRESENT OR YES; ADEQUACY SCORE (FRACTION) (AVAILABLE/REQUIRED) X 10; FUNCTIONAL 0 – 10 FOR FUNCTIONALITY OF GROUPED ITEMS

PROCESSES	EFFICIENCY (0-1)	CONFORMANCE (PERFORMED CORRECTLY) (1-10)	FLEXIBILITY (RESPONSIVENESS) (1-10)	SAFETY (0-1)
TECHNIQUE				
COMMUNICATION				
DECISION MAKING				
INFORMATION MANAGEMENT				
DOCUMENTATION				
TOTAL = …/110				

KEYS/LEGEND = EFFICIENCY ALL OR NONE; CONFORMANCE SCORE (FRACTION), FLEXIBILTY (FRACTION); SAFETY ALL OR NONE

OUTPUT	DESIRED LEVEL ACHIEVED (1-10)	TARGET MET (0-1)
OUTCOME		
TOTAL= …. /11		

KEYS/LEGEND = DESIRED LEVEL ACHIEVED (FRACTION); TARGET MET ALL OR NONE

Grand total= 216

% = (score/grand total) x 100

Grade: 100% is desirable, scores less than 90% means system failure

Comments:……
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Recommendation:
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Debrief done (yes or no) ……

Unit Head: (Name and signature)
…….

Team Lead, Medical Audit Committee: (name and signature)
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Date

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