THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

Uganda Clinical Guidelines 2023

National Guidelines for Management of Common Health Conditions

Foreword

The overall goal of Uganda's health system is to provide accessible, equitable and quality services to the population, in order to promote a healthy and productive life, which is a necessary factor for achieving socio-economic growth and national development.

Currently, the health system is faced with multiple challenges that include a high burden of infectious diseases that remain major causes of morbidity and mortality, such as HIV, malaria, tuberculosis, lower respiratory tract infections, malnutrition and meningitis. In addition, new threats keep emerging, for example, epidemics of hepatitis B, yellow fever, haemorrhagic fevers, COVID-19 and nodding disease. The increase of non-communicable conditions including diabetes, hypertension, heart diseases, cancer and mental disorders complicates the scenario.

The push towards universal health coverage, including universal access to AntiRetroviral Therapy (ART) and particular attention to neonatal, child, adolescent and maternal health, is also placing more demands on a system with limited resources.

To respond appropriately, the health system has to ensure high standards of quality and efficiency in service delivery. The Uganda Clinical Guidelines manual helps to achieve these standards by presenting updated, practical, and useful information on the diagnosis and management of common health conditions in Uganda. It also provides a rational basis for an efficient procurement and supply system that ensures the availability of safe, efficacious, quality medicines and health supplies.

The guidelines are based on principles of scientific evidence, cost effectiveness and prioritization of conditions to maximize the health benefit with limited resources.

The regular update of clinical guidelines and essential medicines lists is one of the key interventions in the Health Sector Development Plan 2015-2020, to promote the appropriate use of health products and technologies.

I wish to thank all the members of the Ministry of Health Update Task Force, government parastatals, medical consultants, district health workers, the private sector, the Uganda Reproductive Maternal Child and Adolescent Health Improvement Project (URMCHIP) and development partners for their immense input in developing the 2023 UCG edition.

Finally, I thank the consultancy firm, Zenith Solutions Limited, that coordinated the overall inputs that led to the successful development of this book.

Dr. Aceng Jane Ruth Ocero
Hon. Minister of Health

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Preface

The Uganda Clinical Guidelines (UCG) evolved from the National Standard Treatment Guidelines 1993, which were the first of the type published in Uganda. Before then, individual guidelines existed to manage a limited number of specific conditions.

The purpose of national standard treatment guidelines is to provide evidence-based, practical and implementable guidance to prescribers to provide the most cost-effective and affordable treatment of priority health conditions in a country.

Together with the Practical Guidelines for Dispensing at Lower/ Higher Health Facility Level, which provide information about medicine characteristics, administration, and side effects, the UCG is designed as a practical tool to support daily clinical practice by providing a reliable reference for health workers on appropriate management of Uganda's common health conditions. It also gives health managers a reference tool to assess and measure service quality.

The guidelines are also the basis for the formulation of the essential medicines and health supplies list of Uganda (EMHSLU), which is used to guide supply and procurement. This allows for more efficient use of limited resources to improve rational prescribing.

The treatments described in the UCG are the nationally recognised standard treatments, and in many cases, they are derived from those recommended in the Ministry of Health Vertical Programmes, World Health Organisation, and other international guidelines.

The guidelines have been reviewed and updated through a three-month process involving extensive consultations with public health programs staff, medical experts and health workers of all cadres and various health development partners.

As medicine is an ever-evolving field, this manual is to be used for guidance, but cannot replace clinical judgement in individual cases.

The Ministry of Health and all those involved in updating the UCG sincerely hope that the manual will make a significant contribution to ongoing improvements in national therapeutic services and medicines utilisation.

Dr. Henry G. Mwebesa

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Acknowledgements

The UCG 2023 was produced by the Ministry of Health with financial assistance from the World Bank-funded Uganda Reproductive Maternal and Child Health Services Improvement Project (URMCHIP).

We extend sincere gratitude to all health workers from the health facilities, academia, Ministry of Health Programmes and Departments, the Uganda National Health Laboratory Services, Regional and District Health Offices, World Health Organisation Country Office, Private-not-for- profit, private for profit organisations and development partners, who have cooperated extensively to make sure the UCG 2023 update is produced in line with national and international guidelines and policies.

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Finally, we thank the MoH taskforce secretariat and USAID/SSCS Activity for editing and formatting this edition.

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Abbreviations

3TC	Lamivudine
ABC	Abacavir
Ab	Antibody
ACE	Angiotensin Converting Enzyme
ACP	Aids Control Program
ACT	Artemisinin-Based Combination Therapy
ACTH	Adrenocorticotropic Hormone
ADHD	Attention Deficit Hyperactivity Disorder
ADR	Adverse Drug Reaction
AFASS	Acceptable, Feasible, Affordable, Sustainable And Safe
(A)AFB	(Alcohol) Acid-Fast Bacillus
AIDS	Acquired Immunodeficiency Syndrome
ALP	Alkaline Phosphatase
ALT	Alanine Aminotransferase
AMI	Acute Myocardial Infarction
ANC	Antenatal Care
APH	Antepartum Haemorrhage
APPE	Appropriate Personal Protective Equipment
APRI	Aspartate Aminotransferase (Ast) To Platelets Ratio Index
aPTT	Activated Partial Thromboplastin Time
AQ	Amodiaquine
ARB	Aldosterone Recepto Blocker
ART	Antiretroviral Therapy
ARV	Antiretroviral
AS	Artesunate
ASA	Acetylsalicylic Acid
ASOT	Anti-Streptolysin O Titre
AST	Aspartate Aminotransferase

ATV	Atazanavir
AZT	Zidovudine
BCG	Bacillus Calmette-Guérin
BMI	Body Mass Index
BNP	Brain Natriuretic Peptide
BP	Blood Pressure
BPH	Benign Prostatic Hyperplasia
bpm	Beats Per Minute
BSE	Breast Self-Examination
BUN	Blood Urea Nitrogen
C&S	Culture And Sensitivity
Ca2+	Calcium
CBC	Complete Blood Count
CCB	Calcium Channel Blocker
CD4	Cluster Of Differentiation 4
CIN	Cervical Intraepithelial Neoplasia
CK	Creatin Kinase
CKD	Chronic Kidney Disease
CLL	Chronic Lymphocytic Leukaemia
CM	Cryptococcal Meningitis
CML	Chronic Myeloid Leukaemia
CMM	Cervical Mucus Method
CMV	Cytomegalovirus
CNS	Central Nervous System
COC	Combined Oral Contraceptive
COPD	Chronic Obstructive Pulmonary Disease
CPD	Cephalopelvic Disproportion
CPK	Creatine Phosphokinase

CrAg	Cryptococcal Antigen
CRP	C-Reactive Protein
CSF	Cerebrospinal Fluid
CT	Computed Tomography
CuIUD	Copper Bearing Intra-Uterine Device
CVD	Cardiovascular Disease
CXR	Chest X-Ray
DBP	Diastolic Blood Pressure
DBS	Dried Blood Spots
DHA	Dihydroartemisinin
DIC	Disseminated Intravascular Coagulation
DKA	Diabetic Ketoacidosis
DMPA	Depot Medroxyprogesterone Acetate
DNA	Deoxyribonucleic Acid
DOT	Directly Observed Therapy
DOTS	Directly Observed Treatment, Short-Course
DPT	Diphtheria, Pertussis, And Tetanus
DRE	Digital Rectal Exam
DRV	Darunavir
DST	Drug Susceptibility Testing
DT	Dispersible Tablet
DTG	Dolutegravir
DVT	Deep Vein Thrombosis
EBV	Epstein-Barr Virus
EC	Enteric Coated
ECG	Electrocardiogram
ECP	Emergency Contraceptive Pill
EDD	Estimated Delivery Date
EFV	Efavirenz

ELISA	Enzyme-Linked Immunosorbent Assay
eMTCT	Elimination Of Mother-To-Child Transmission
ENT	Ear, Nose, And Throat
ESR	Erythrocyte Sedimentation Rate
ETV	Etravirine F-75/F-100 Therapeutic Milk Formula 75 Or 100 Kcals/100 Ml
FB	Foreign Body
FBC	Full Blood Count
FDC	Fixed Dose Combination
FEV	Forced Expiratory Volume
FNAC	Fine Needle Aspiration Cytology
FP	Family Planning
FSH	Follicle Stimulating Hormone
G6PD	Glucose 6 Phosphate Dehydrogenase
GBV	Gender-Based Violence
GDM	Gestational Diabetes Mellitus
GERD	Gastroesophageal Reflux Disease
GFR	Glomerular Filtration Rate
GGT	Gamma-Glutamyl Transferase
GIT	Gastrointestinal Tract
H	Hospital
HAART	Highly Active Antiretroviral Therapy
Hb	Haemoglobin
HB	Hepatitis B
HbA1c	Glycated Haemoglobin, Haemoglobin A1c
HBeAg	Hepatitis B Envelope Antigen
HbF	Foetal Haemoglobin F
HbS	Abnormal Haemoglobin
HBsAg	Hepatitis B Surface Antigen

HBV	Hepatitis B Virus
HC	Health Centre
Hct/Ht	Haematocrit
HCW	Health Care Worker
HDU	High Dependency Unit
HE	Hepatic Encephalopathy
HepB	Hepatitis B
HHS	Hyperosmolar Hyperglycaemic State
Hib	Haemophilus Influenzae Type B
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HR	Heart Rate
HRP	High-Risk Pregnancy
HRS	Hepatorenal Syndrome
HSV	Herpes Simplex Virus
HVS	High Vaginal Swab
ICCM	Integrated Community Case Management
ICU	Intensive Care Unit
Ig	Immunoglobulin
IM	Intramuscular
IMNCI	Integrated Management Of Neonatal And Childhood Illness
IMPAC	Integrated Management Of Pregnancy And Childbirth
INH	Isoniazid
INR	International Normalised Ratio
IOP	Intraocular Pressure
IPT	Intermittent Preventive Treatment
IPT	Isoniazid Preventive Therapy
IPTp	Intermittent Preventive Treatment Of Malaria In Pregnancy

IPV	Injectable Polio Vaccine
IRIS	Immune Reconstitution Inflammatory Syndrome
ITN	Insecticide -Treated Nets
IU	International Units
IUD	Intrauterine Device
IUGR	Intrauterine Growth Restriction Iv
IYCF	Infant And Young Child Feeding
IVU	Intravenous Urogram
JMS	Joint Medical Store
JVP	Jugular Vein Pressure
KOH	Potassium Hydroxide
LAM	Lactational Amenorrhoea
LBW	Low Birth Weight
LDH	Lactate Dehydrogenase
LFT	Liver Function Test
LGV	Lymphogranuloma Venerium
LH	Luteinizing Hormone
LLINs	Long-Lasting Insecticide Treated Nets
LMP	Last Menstrual Period
LMWH	Low Molecular Weight Heparin
LNG	Levonorgestrel
LOC	Level Of Care
LP	Lumbar Puncture
LPV	Lopinavir
LTBI	Latent Tuberculosis Infection
Max	Maximum Dose
MB	Multibacillary
mcg	Microgram
MCH	Maternal And Child Health

MCH	Mean Corpuscular (Cell) Haemoglobin
MCV	Mean Corpuscular Volume
MDR-TB	Multi-Drug Resistant Tuberculosis
MDT	Multi-Drug Therapy
MDVP	Multi-Dose Vial Policy
mhGAP	Mental Health Gap Action Program
MOH	Ministry Of Health
MRI	Magnetic Resonance Imaging
MRSA	Multi-Resistant Staphylococcus Aureus
MTB	Mycobacterium Tuberculosis
MU	Mega Unit
MUAC	Mid-Upper Arm Circumference
NaCl	Sodium Chloride
NBTS	National Blood Transfusion Services
NCD	Noncommunicable Disease
NDA	National Drug Authority
NET-EN	Norethisterone Enanthate
NG	Nasogastric
NGT	Nasogastric Tube
NMS	National Medical Store
NMCP	National Malaria Control Program
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitors
NPH	Neutral Protamine Hagedorn (Isophane Insulin)
NPO	Nil Per Os (Nothing By Mouth)
NR	National Referral (Hospital)
NS	Normal Saline
NSAID	Nonsteroidal Anti-Inflammatory Drugs
NTLP	National Tuberculosis And Leprosy Programme
NTRL	National TB Reference Laboratory
NtRTI	Nucleoside Reverse Transcriptase Inhibitors

NVP	Nevirapine
OI	Opportunistic Infection
OPD	Outpatient Department
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Solution
OTC	Over The Counter
PAP	Papanicolaou Smear/Test
PB	Paucibacillary
PBC	Primary Biliary Cirrhosis
PCP	Pneumocystis Jirovecii Pneumonia
PCR	Polymerase Chain Reaction
PCV	Pneumococcal Conjugate Vaccine
PE	Pulmonary Embolism
PEFR	Peak Expiratory Flow Rate
PEM	Protein Energy Malnutrition
PEP	Post-Exposure Prophylaxis
PGD	Practical Guidelines For Dispensing At Lower/ Higher Level Health Facilities
PI	Protease Inhibitor
PID	Pelvic Inflammatory Disease
PIH	Pregnancy Induced Hypertension
PMTCT	Prevention of Maternal-To-Child Transmission
PNFP	Private Not-For-Profit
POC	Products Of Conception
POI	Progestogen Only Injection
POIM	Progestogen Only Implant
POP	Progestogen Only Pill
PPD	Purified Protein Derivative
PPE	Personal Protective Equipment
PPH	Postpartum Haemorrhage

PPQ	Piperaquine
PrEP	Pre-Exposure Prophylaxis Prn As Needed
PROM	Premature Rupture Of Membrane
PSA	Prostate Specific Antigen
PT	Prothrombin Time
PTT	Partial Thromboplastin Time
PUD	Peptic Ulcer Disease
PV	Per Vagina
QA	Quality Assurance
RAL	Raltegravir
RBC	Red Blood Cell
RDT	Rapid Diagnostic Test Rhd
RIA	Radio Immune Assay
RF	Rheumatoid Factor
RFT	Renal Function Test
RH	Rifampicin +Isoniazid
RHZE	Rifampicin + Isoniazid + Pyrazinamide + Ethambutol
RIF	Rifampicin
RL	Ringer's Lactate
RNA	Ribonucleic Acid
RPR	Rapid Plasma Reagin [Assay]
RR	Regional Referral
RR-TB	Rifampicin-Resistant Tuberculosis
RTV	Ritonavir
RUTF	Ready-To-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SARS	Severe Acute Respiratory Syndrome
SBP	Systolic Blood Pressure
SC	Subcutaneous

SCA	Sickle Cell Anaemia
SCC	Squamous Cell Carcinoma
SCD	Sickle Cell Disease
sdNVP	Single Dose Nevirapine
SFH	Symphysis-Fundal Height
SJS	Stevens-Johnson Syndrome
SP	Sulphadoxine + Pyrimethamine
SpO2	Arterial Oxygen Saturation
SSRI	Selective Serotonin Reuptake Inhibitor
STI	Sexually Transmitted Infections
T3 or T4	Thyroxine 3 Or 4
TB	Tuberculosis
TDF	Tenofovir Disoproxil Fumarate
TEN	Toxic Epidermal Necrolysis
TIG	Tetanus Immunoglobulin Human
TSH	Thyroid Stimulating Hormone
TST	Tuberculin Skin Test
TT	Tetanus Toxoid
U/S or US	Ultrasound Sonography
UBTS	Uganda Blood Transfusion Service
UCI	Uganda Cancer Institute
UCMB	Uganda Catholic Medical Bureau
UE	Urea Electrolytes
UHI	Uganda Heart Institute
UHSC	Uganda Health Supply Chain
ULN	Upper Limit Of Normal
UNEPI	Uganda National Expanded Program On Immunisation
UNHLS	Uganda National Health Laboratory Services

USAID	United States Agency For International Development
UTI	Urinary Tract Infection
UV	Ultraviolet
UVF	Ureterovaginal Fistula
UVRI	Uganda Virus Research Institute
VCT	Voluntary Counselling And Testing
VDRL	Venereal Disease Research Laboratory [Test] [HIV]
VEN	Vital Essential Necessary
VHT	Village Health Team
VIA	Visual Inspection With Acetic Acid
VILI	Visual Inspection With Lugol's Iodine
VL	Viral Load
VSC	Voluntary Surgical Contraception
VTE	Venous Thromboembolism
VVF	Vulvovaginal Fistula
VVM	Vaccine Vial Monitor
VZV	Varicella Zoster Virus
WB	Whole Blood
WBC	White Blood Cell
WFA	Weight For Age
WFH/L	Weight For Height/ Length
WHO	World Health Organisation
WOA	Weeks of Amenorrhea
XDR-TB	Extensively Drug Resistant Tuberculosis
ZN	Ziehl - Neelsen [Stain]
Zn	Zinc

Introduction to Uganda Clinical Guidelines 2023

This fully updated publication replaces the UCG 2023 and is being circulated to all public and private sector prescribers, pharmacists, Training Institutions and regulatory authorities in the country.

For effective use of the UCG, it is recommended that carefully designed dissemination sessions be organized countrywide to ensure that users appreciate the new features, changes, structural arrangement and content to improve it's usability .

The following sections will present the structure and main features of the guideline to highlight the changes in this latest edition and help the user become familiar with the book and use it effectively.

What is the aim of the UCG?

The UCG aims to provide summarized easy-to-use, practical, complete and useful information on how to quickly and correctly diagnose and manage common conditions you are likely to encounter. This will ensure that patients receive the best possible clinical services and obtain prompt and effective relief from or cure of their complaint, thereby making the most appropriate use of scarce diagnostic and clinical resources, including medicines. It should, however, be emphasised that the UCG does not replace or substitute available textbooks on the subject.

Why is the UCG necessary?

Medicine is an ever-evolving and expanding field in terms of needs and knowledge. The UCG helps the country to prioritize and effectively use limited resources by guiding the procurement system to ensure the availability of the most needed medicines and supplies.

In the context of new knowledge and changing priorities, as a tool, the UCG assists health workers in their daily practice by providing information in an easy-to-follow and practical format.

How do I use the UCG?

First of all, familiarize yourself with it. Check the table of contents and see how the chapters are arranged and organized.

New Feature

The order of chapters has been maintained as in the previous versions. However, new chapters have been introduced, namely, self-care, management of hypoxia and COVID-19. The Palliative Care section has been expounded with more clarity. For the first time a purely herbal preparation with selenium has been included for management of stress. The snake bite section has been enriched with photographs of the common virulent snakes found in Uganda, to ease identification and thus more accurate intervention and management.

Most chapters are organised by disease monographs, arranged either in alphabetical order or another logical order (e.g., according to occurrence of disease progression). However, some chapters are organised according to syndrome or symptoms (e.g., child health, palliative care, oncology, sexually transmitted infections, emergencies and trauma), while TB and HIV are presented as individual sub-chapters.

New Feature

The chapters Covid -19, Self-care and Hypoxia management have been added with focus on primary care (prevention and early recognition of symptoms).

Disease monographs are organized in the order of: definition, cause/risk factors, clinical features and complications, differential diagnosis, investigations, management, and prevention.

New Feature

Palliative care ladder has been introduced to make it easier for pain assessment. Treatments are presented in logical order from non-pharmacological to

pharmacological, from the lower to the higher level of care. Where possible, alternatives and second-line options have been presented, as well as referral criteria.

Medicines are presented by their generic name, in **bold.** Unless otherwise specified, dosages are for adults and via oral route. Children's dosages are added whenever indicated, as well as duration and other instructions.

The level of care (LOC) is an important feature; it provides information about the level at which the condition can be appropriately managed. Often, treatment can be initiated at lower level, but the patient needs to be referred for further management, or for second-line treatment, or for complications. For antibiotics, it is recommended that treatment can be initiated in some cases awaiting laboratory results. HC1-4 refers to health centres of different levels (with HC1 being the community level), H to general hospital, RR to regional referral hospital, and NR to national referral hospital.

After familiarizing yourself with it, try using it! Practice finding conditions and looking them up to see how they are managed, using either the table of contents at the beginning or the index at the end.

Read all the introductory sections. They will give you useful advice for your daily practice. There is always something new to learn or to be reminded of.

Use it in your daily practice. The UCG is designed as a simple reference manual to keep at your work station, where you can consult it any time. Using it in front of patients and colleagues will show that you care deeply about the quality of your work, and it will provide good examples to other health workers.

The UCG cannot replace health workers' knowledge and skills; like your thermometer and stethoscope, it is a tool to help improve clinical practice by providing a quick and easily available summary of the recommended management of common health conditions.

What is the difference between the UCG and a textbook?

The UCG gives a summary of recommendations for managing priority conditions in Uganda. It does not provide extensive or in-depth information about all diseases and all treatments available in the world.

Conditions have been selected based on their prevalence in the country and their impact on the population's health status. Treatments have been selected based on the following criteria:

Scientific evidence: recommendations are evidence-based, from international literature and local experts. For example, the situation analysis on antimicrobial resistance in Uganda conducted by the National Academy of Sciences was used to guide the choice of antibiotic treatments.

Cost-effectiveness: treatments have been selected based on their effectiveness, but also their affordability, to get the best "value for money", meaning the maximum benefit with the limited resources available. For example, a liver transplant is a very effective way to treat terminal cirrhosis, but it is definitely not affordable—money is better invested in treating patients with chronic hepatitis B!

What has changed compared to the previous edition?

- There are more chapters as explained before.
- The management sections have been re-edited to be more user-friendly, using the suggestions collected during a user survey.
- Information on new diseases has been added, following new epidemics and public health priorities (e.g., viral haemorrhagic fevers, Covid-19, yellow fever, nodding disease, sickle cell disease, newborn illnesses).
- More attention has been paid to non-communicable chronic diseases; for example, stroke and chronic obstructive pulmonary disease (COPD), and sections on diabetes, hypertension, asthma and mental conditions including diseases of elderly and dementia have been expanded.
- Recommendations have been aligned with the most recent national and international guidelines related to ART, TB, malaria, IMNCI, IMPAC, mhGAP (see the list of references in Appendix 4).
- Medications have been added or deleted and level of care has changed according to recent evidence and national policies.

- Skin management of Albinos using a sunscreen protection product has been included under the dermatological section.
- The essential medicines list has been removed from this edition to make the book pocket friendly.

What about the Essential Medicines and Health Supply List (EMHSLU)?

The essential medicines list has been removed from this edition to make the book pocket friendly. Always refer to the separate EMHSLU.

To implement the recommendations in the UCG, the medicines listed in the EMHSLU have to be procured and distributed in adequate quantity. This is why the procurement and supply system plays a fundamental role in the provision of quality healthcare.

The EMHSLU has all the medicines recommended in the UCG, with specification of the level of care (LOC) at which they can start being used, but it also has additional "specialty" medicines, which are items used at referral level (regional or national) or in the context of specialized services. They may not be included in the UCG, which focus more on primary care, but are still part of the list because they need to be procured to ensure the provision of a wider range of services at secondary and tertiary levels. In the context of limited resources, it is very important to learn to prioritize medicines for procurement: this is reflected by the vital, essential, necessary (VEN) classification in the EMHSLU, introduced in 2012.

Medicines are classified into three categories according to health impact:

V: vital medicines are potentially life-saving, and lack of availability would cause serious harm and side effects. These must ALWAYS be available—for example insulin, metformin, most antibiotics, first-line antimalarials, some anti-epileptics, and parenteral diuretics.

E: essential medicines are important; they are used to treat common illnesses that are maybe less severe but still significant. They are not absolutely needed for the provision of basic health care (e.g., anti-helminthics, pain killers).

N: necessary (or sometimes called non-essential) medicines are used for minor or self-limiting illnesses, or may have a limited efficacy, or a higher cost compared to the benefit.

Every effort has to be made to ensure health facilities do not suffer stock-outs of VITAL MEDICINES.

AWaRe classification

The WHO AWaRe classification was used to describe overall antibiotic use as assessed by the variation between use of Access, Watch, and Reserve antibiotics.

Why is a laboratory test menu in the appendix?

Laboratory is an important tool in supporting the diagnosis and management of various conditions. Tests are listed according to the level at which they can be performed, in order to inform health workers about the available diagnostics at each level for the suspected condition and guide on managemeent or referral decisions.

Primary Health Care

Definition

Primary healthcare is **essential healthcare** based on practical, scientifically sound and socially acceptable methods and technologies. Primary healthcare should be universally **accessible** to individuals and families **in the community** through their full **participation** and at a cost that the community and country can afford in the spirit of **self-reliance** and **self-determination.**

Primary healthcare forms an integral part of both the country's health system, of which it is the main focus, and of the community's overall social and economic development.

Primary healthcare brings healthcare as close as possible to where people live and work and is the community's **first level of contact** with the national health system.

"Primary health care is the key to the attainment of the goal of Health for All."

—Declaration of Alma-Ata International Conference on Primary Health Care, Alma-Ata, USSR, 6–12 September 1978

How to diagnose and treat in primary care

The principles of healthcare are the same wherever it takes place.

"Listen to the patient; he is telling you the diagnosis"

—Sir William Osler, MD, 1849–1919.

Communication skills in the consultation room

Good communication skills are essential for making a correct diagnosis and for explaining or counselling on the illness, its treatment, and prevention of future illness.

At the beginning of the consultation, use open questions, which allow the patient to express him or herself freely, listen without interrupting, and give him or her the chance to share their interpretations, fears and worries.

The Golden Minute

The golden 60 seconds at the start of the consultation is eliciting ideas, concerns and expectations without interrupting.

Move to more specific questions later, to ask for further details and clarifications.

The Seven Steps in a Primary Care Consultation

01 Greet
- Greet and welcome the patient. Ensure adequate space and privacy!

02 Look
- Observe the patient as he/she walks into your room for degree or state of illness. Look for danger signs and act immediately if necessary

03 Listen
- Ask about the main complaint or complaints, establish duration, and explore each symptom asking relevant questions
- Briefly ask about previous medical history, other past or present illnesses and current or recent medications

04 Examine
- Perform a complete medical examination, focused on but not limited to the complaints

05 Suspect diagnosis
- Write your findings, and think about possible diagnosis and differentials

06 Test
- Request tests to confirm or exclude possible diagnosis

07 Treat
- Conclude on a diagnosis and decide on the treatment, if needed
- Explain diagnosis, treatment, and follow-up to the patient
- Give counselling and advice as appropriate

NEW FEATURE

Introduced a section on self-care interventions for sexual and reproductive health (SRH), in the categories of self-awareness, self-testing and self-management, across the various health areas of Antenatal Care, Family Planning, HIV and STIs and post abortion care.

WHO defines self-care as the ability of individuals, families and communities to promote health, prevent disease, maintain health, and cope with illness and disability with or without the support of a healthcare provider.

The Ministry of Health developed the National Guideline on Self-Care Interventions for SRH. For details refer to the current guidelines

Chronic Care

- Health workers are faced with an increasing number of chronic diseases and conditions that require additional attention, such as hypertension, chronic heart problems, diabetes, cancers, mental conditions, HIV/AIDS, and TB.
- Communication is even more important to:
- Find out the duration of the symptoms, previous diagnosis, previous or current treatments and impact on daily life
- Explain the nature and management of the condition to the patient and counsel on lifestyle and adjustment
- Chronic diseases require long-term (sometimes lifelong) follow-up and treatment:
- Counsel and advise the patient on the importance of follow- up and treatment adherence
- Set up a system for scheduling appointments (on the model of HIV care!)
- At each monitoring visit, determine whether the patient's

condition is improving, stable, or deteriorating and assess whether patients are taking prescribed treatments properly (the right medicines, in the right doses, at the right time). Try to be consistent in prescribing and change the regimen only if it is not working or has side effects. If a treatment is working and well tolerated, maintain it!

- Counsel and motivate the patient to follow lifestyle recommendations, including selfcare.
- Assess the need for further support (e.g., pain management, counselling, etc.)
- A chronic care system requires collaboration among and integration of all levels of healthcare
- Higher levels of care may be responsible for initial diagnosis and prescription of treatment and periodic reviews and re-assessment in case of problems or complications
- Lower levels of care (including the community) may be responsible for routine follow-up, counselling and education, medication refills and prompt and early referral in case of problems.

Appropriate Medicines Use

According to WHO, "Rational [appropriate] use of medicines requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community".

Inappropriate medicine use can not only harm the patient, but by wasting resources, may limit the possibility of other people accessing healthcare! Both health workers and patients have an important role to play in ensuring appropriate use by:

- Prescribing (and taking) medicines ONLY when they are needed
- Avoiding giving unnecessary multiple medications to satisfy patients' demands or for financial gain

- Avoiding expensive alternative or second-line medications when an effective and inexpensive first-line is available
- Avoiding injections when oral treatment is perfectly adequate
- Ensuring that the correct dose and duration of treatment is prescribed, especially for antibiotics, to avoid resistance
- Providing adequate information and counselling to the patient to ensure adherence with instructions.

Antimicrobial Resistance (AMR)

According to the WHO definition

"Antimicrobial resistance occurs when microorganisms such as bacteria, viruses, fungi and parasites change in ways that render the medications used to cure the infections they cause ineffective. Antimicrobial resistance is facilitated by the inappropriate use of medicines, for example, when taking substandard doses or not finishing a prescribed course of treatment. Low-quality medicines, wrong prescriptions and poor infection prevention and control also encourage the development and spread of drug resistance".

The problem of AMR is a serious threat for the modern world:

- The resistance of malaria parasites has caused several changes in antimalarial regimens in the last 15 years
- MDR-TB (multi-drug resistant tuberculosis) is spreading and requires long and complex treatments
- HIV resistance is a serious concern, especially after long-term treatment
- AMR is spreading and, in some cases, commonly used antimicrobials are not as effective as before
- Antimicrobial resistance amomg bacteria other than TB and fungi (moulds and yeasts) that affect the immune-compromised is evolving, spreading and responsible for death from sepsis in general and high dependency units.

Inappropriae use of antibiotics (in human medicine but also in animal agriculture), poor quality products and ineffective infection control measures are all contributing factors. We are seriously at risk of finding ourselves in a situation with no affordable antimicrobial available to cure common and dangerous infections.

It is URGENT that both health workers and patients become aware of the problem and start acting by:

- Using antimicrobials only when it is really necessary and according to recommendations (e.g. not for simple viral infections!)
- Avoiding self-prescription of antibiotics
- Avoiding using last generation and broad spectrum antibiotics as first-line treatment
- Prescribing correct dosages for the correct duration and ensuring adherence to the prescription
- Practising strict measures of infection control in health facilities
- Improving hygiene and sanitation in the community, thereby reducing the circulation of germs.

AWaRE

- WHO has further introduced the AWaRE classification to guide prescribers during prescribing of antibiotics. The major focus of AWaRe approach is to reduce on the increasing antimicrobial resistance.
- The principal of AWaRe prescribing is based on **Access, Watch, Reserve.**
- Prescribers are encouraged to adhere to the above.

Prescribing Guidelines

The current PGD (Practical Guidelines for Dispensing at Lower/ Higher Level Health Facilities), provide comprehensive information about how to prescribe and dispense the medicines listed in the EMHSLU and UCG 2023. Carefully consider the following key questions before writing any prescription:

QUESTION	COMMENTS
Does the diagnosed condition require drug treatment?	⦿ Not all patients or conditions need a prescription for medicines (condition is self-limiting): non-medicine treatments or simple advice may be more suitable in certain situations
Is the prescribed treatment likely to have optimum therapeutic effect and to benefit the patient?	⦿ Good therapeutics depends on: ⦿ Accurate diagnosis of the condition ⦿ Knowledge of the relevant vavailable medicines ⦿ Ask patient about previous drug history (eg. drug reaction /allergy) ⦿ Selection of the most appropriate medicine, dose, route, and duration ⦿ In all cases, carefully consider the expected benefit of a prescribed medication against its potential risks
Is the selected dosage-form the most appropriate?	⦿ For systemic medications, ALWAYS USE THE ORAL ROUTE if possible, as it is the cheapest and least hazardous route ⦿ Always resist patient demands for you to prescribe injections or other expensive dose forms when they are not clearly indicated or appropriate

QUESTION	COMMENTS
	⦿ LIMIT INJECTIONS to situations where they are absolutely necessary (they carry risks and are more expensive) ⦿ Always explain to the patient the reasons for choosing a certain route
Can I justify using a combination of medicines? Do I really need to prescribe more than one medicine?	⦿ Do not prescribe a combination of medicines unless they have a proven and significant therapeutic advantage over corresponding single ingredient preparations ⦿ Do not practise multiple medicine prescribing (polypharmacy), especially when the diagnosis is uncertain. It is a tremendous waste of resources and puts the patient at increased risk without clear benefit
Have I taken into account all relevant patient criteria?	Consider the following: ⦿ Age, gender, weight—especially of children and elderly ⦿ Likelihood of side effects (including allergies) ⦿ Presence of renal or hepatic disease (many medicines may have to be used in reduced doses or avoided completely) ⦿ Any other medicines the patient may be taking (risk of unwanted medicine interactions or adverse effects)

QUESTION	COMMENTS
	⦿ Pregnancy and breastfeeding: only use medicines in pregnancy if the expected benefit to the mother is greater than any risk to the foetus/ baby and avoid all medicines if possible during the first trimester (the first three months of pregnancy) ⦿ Likely degree of adherence to treatment (simpler, shorter dosage regimes increase the chance of ⦿ the patient correctly following prescribed therapy)

Prescribing placebos

Avoid placebos whenever possible. Instead, spend some time reassuring and educating the patient. Use home remedies when possible (e.g., honey for cough in adults and children above 1 year).

Prescription writing

A wrong prescription is very risky for you and your patient.

Unclear, incomplete, or inaccurate prescriptions are very dangerous for the patient. To avoid problems, follow the guidance below in writing your prescriptions:

PRESCRIPTION WRITING RULES
⦿ Write all prescriptions legibly in ink
⦿ Poor writing may lead to errors in interpretation by the dispenser, which may have harmful and possibly life-threatening consequences for the patient

PRESCRIPTION WRITING RULES
⦿ Write the full name, age, gender and address of the patient, then sign and date the prescription form ⦿ All prescriptions should clearly indicate the name and address of the prescriber and of the facility ⦿ A PRESCRIPTION IS A LEGAL DOCUMENT
⦿ Write the name of the medicine or preparation using its full generic name. ⦿ Unofficial abbreviations, trade names, and obsolete names should not be used.
⦿ State the strength of the medicine prescribed where relevant: ⦿ Quantities of one gram or more should be written as 1g, 2.5g, 10g, and so on ⦿ Quantities <1g but >1mg should be expressed in milligrams rather than grams, for example, 500mg and not 0.5g ⦿ Quantities <1mg should be expressed in micrograms and not in mg, for example, 100 micrograms rather than 0.1 mg or 100 mcg
⦿ If decimal figures are used, always write a zero in front of the decimal point where there is no other figure, for example 0.5 ml and not .5 ml
⦿ Always state dose regimen in full: - Dose size, Dose frequency, Duration oftreatment ⦿ The quantity to be dispensed is calculated from the regimen. ⦿ For example, doxycycline 100 mg every 12 hours for 7 days = to be dispensed: 14 tablets of 100 mg. ⦿ For in-patients, clearly state the route of administration and specify time of administration, if relevant

PRESCRIPTION WRITING RULES
⦿ Avoid use of instructions like "prn" or "to be used/taken as required". Indicate a suitable dose frequency instead ⦿ In the few cases where "as required" is appropriate, always state the actual quantity of the medicine to be supplied, when to take it and maximum amount
⦿ Where relevant, always remember to include on the prescription any special instructions necessary for the correct use of a medicine or preparation, for example "before food" or "apply sparingly".

Controlled medicine prescriptions

These medicines are covered by the provisions of the National Drug Policy and Authority Act 1993, which should be consulted for details of the appropriate legal requirements as stipulated. Medicines covered by the Act and appear in the UCG 2023 or EMHSLU 2023 include:

- Morphine injection
- Morphine oral solution
- Papaveretum + hyoscine injection
- Pethidine injection
- Codeine
- Tramadol
- Diazepam injection

These are all medicines of potential abuse that may result in dependence. All procedures involving them should be carefully recorded in the appropriate record books. They may only be prescribed by authorised prescribers who must observe the following legal requirements:

- Prescriptions must be in the prescriber's own handwriting, with a signature, date and the prescriber's address

- Prescriptions must state the name and address of the patient
- Prescriptions must state the total amount of the product to be supplied in words and figures
- It is an offence for a prescriber to issue and for a pharmacy to dispense prescriptions for controlled medicines unless they are in full compliance with the requirements of the law.

Notes

- Specialised palliative care nurses and clinical officers are authorised to prescribe oral morphine and other medicines used in palliative care.
- Morphine rarely causes psychological dependence when prescribed for severe pain.
- In certain exceptional circumstances, senior nurses in charge of departments, wards or theatres and midwives may also obtain and administer certain specified controlled medicines. Consult the relevant sections of the Act for details of the appropriate legal requirements in each case.
- Hospital in-patient prescriptions written on treatment cards or case sheets and signed/dated by the person administering the medicine are considered as compliant under the Act.

Prescribing in children and the elderly

In these guidelines, paediatric medicine doses are usually given according to body weight and not age, and are therefore expressed as mg/kg.

The main reason for this is that children of the same age may vary significantly in weight. Thus, it is safer and more accurate to prescribe medicines according to body weight. Moreover, this should encourage the good practice of weighing children whenever possible.

However, as a guide to prescribing by weight when a weighing scale is not available, the weight-for-age charts at the end of Chapter 17 can be used as an estimate for children from 1-24 months and 2-15 years, respectively. Always use lean/ideal body weight for children who are overweight/obese to avoid giving them overdoses.

Note: Paediatric doses calculated using mg/kg should not exceed the normal adult dose.

In the case of some medicines that have a wide therapeutic range and a good safety profile, dosages are given for age ranges for easy reference.

Prescriptions in the elderly also need additional attention because the elderly are more prone to side effects; they are more likely to take several medications (polypharmacy) with possible interactions, and they often have co-morbidities that can affect their response to medicines. Reduced doses and careful monitoring are always advised, and specific warnings have been added for some medicines.

Medicine interactions

Before prescribing any medicine, take care to avoid problems of interactions with other medicines by obtaining details of any other medication that the patient is taking, whether the medication is:

- Also prescribed at the same time
- Previously prescribed by another prescriber for the same or another condition and currently being taken by the patient
- Purchased or otherwise obtained by the patient for the purposes of self-medication at home.

Note on interactions with alcohol. If a prescribed medicine interacts with alcohol (for example, metronidazole, diazepam, anti-diabetic medicines, and tricyclic antidepressants), caution the patient to avoid taking alcoholic drinks during the course of treatment and for 48 hours afterwards.

Patient counselling

This vital part of patient management is often neglected with potentially serious consequences. Although counselling the patient may take time, if done systematically, it should only take a few minutes and could make the difference between treatment success and failure.

Include the following key components when counselling the patient:

- Explain the diagnosis and the likely cause of the disease or condition and discuss the proposed approach to treatment
- Describe the prescribed medicine therapy in detail including:
  - Medicine name
  - Function of the medicine
  - Dose regimen (size, frequency, duration)
  - Any additional instructions on correct use or storage of the medicine

- Any likely side effects and what to do if they occur
- Advise on important medicine interactions (including with alcohol)
- Give advice on how to contribute to the success of the treatment (for example, rest, diet, fluids and other lifestyle changes) and how to avoid the same problem in future
- Ensure the patient or caretaker fully understands the information and advice provided—ask him or her to repeat key points
- For health conditions that require self-care, proper advice should be given to the patient on self-awareness, self-testing and self-management.
- Ensure the patient is satisfied with the proposed treatment and has an opportunity to raise any problems or queries with you.

1 Emergencies and Trauma

1.1 COMMON EMERGENCIES

1.1.1 Anaphylactic Shock ICD10 CODE: T78.2

Severe allergic reaction that occurs rapidly (seconds or minutes) after administration, or exposure, and may be life threatening. It generally affects the whole body.

Causes

- Allergy to pollens, some medicines (e.g., penicillins, vaccines, acetylsalicylic acid), or certain foods (e.g. eggs, fish, cow's milk, nuts, some food additives)
- Reaction to insect bites, e.g., wasps and bees

Clinical features

- Body itching, hives (urticarial rash), swelling of lips, eyes, tongue
- Difficulty in breathing (stridor, wheezing)
- Hypotension and sudden collapse, excessive sweating, thin pulse
- Abdominal cramps, vomiting and diarrhoea.

Differential diagnosis

- Other causes of shock, e.g., haemorrhagic (due to bleeding), hypovolemic (severe dehydration), septic
- Asthma, foreign body in airways.

Management

TREATMENT	LOC
General measures Determine and remove the cause Secure the airways Restore BP: lay the patient flat and raise feet Keep patient warm	HC2
Sodium chloride 0.9% infusion 20 ml/kg by IV infusion over 60 minutes – Start rapidly then adjust rate according to BP Administer oxygen	HC3 HC4
Adrenaline (epinephrine) injection 1 in 1000 (1 mg/ml) 0.5 mg (0.5 ml) IM immediately, into anterolateral thigh – Repeat every 5-10 minutes according to BP, pulse rate, and respiratory function until better Child <6 years: 150 micrograms (0.15 ml) Child 6-12 years: 300 micrograms (0.3 ml)	HC2
In severely affected patients Hydrocortisone 200 mg IM or slow IV stat Child <1 year: 25 mg Child 1-5 years: 50 mg Child 6-12 years: 100 mg	HC3
If urticaria/itching Give an antihistamine as useful adjunctive treatment e.g., chlorpheniramine 4 mg every six hours Child 1-2 years: 1mg every 12 hours Child 2-5 years: 1 mg every 6 hours Child 5-12 years: 2 mg every 6 hours -Or Cetrizine 5mg once daily for adults Child 6 and above years: 5mg daily Child 1-6 years: 2.5mg once daily.	HC2V

TREATMENT	LOC
or promethazine 25-50 mg by deep IM or very slow IV (or oral) Child 1-5 years: 5 mg by deep IM Child 5-10 years: 6.25-12.5 mg by deep IM Repeat dose every 8 hours for 24-48 hours to prevent relapse Repeat adrenaline and hydrocortisone every 2-6 hours prn depending on the patient's progress	HC4

Notes

- Adrenaline: IM is the route of choice: absorption is rapid and more reliable than SC
- Monitor the patient for several hours (reaction may recur after several hours)
- If drug reaction, compile adverse drug reaction reporting form (see appendix 2)

Prevention

- Always ask about allergies before giving patients new medicine
- Keep emergency drugs at hand at health facilities and in situatiuons where risk of anaphlaxis is high, e.g. visiting bee hives or places that usually harbour snakes
- Counsel allergic patients to wear alert bracelet or tag.

1.1.2 Hypovolaemic Shock ICD10 CODE: R57.1

Condition caused by severe acute loss of intravascular fluids leading to inadequate circulating volume and inadequate perfusion.

Causes

- Loss of blood due to internal or external haemorrhage (e.g., post partum haemorrhage, splenic rupture etc.)

- Acute loss of fluids, e.g. in gastroenteritis, or extensive burns

Clinicalfeatures

- High heart rate, fast breathing rate
- Thin or absent pulse, cold extremities, slow capillary refill
- Low blood pressure
- Mental agitation, confusion

Classification of hypovolaemia in adults

Indicator	Class 1 Mild	Class 2 ProGressing	Class 3 Severe	Class 4 End Stage
Blood loss (Litres)	<0.75	0.75 – 1.5	1.5 –2	>2
% of total blood volume loss	<15	15- 30	30 – 40	>40
Pulse rate	Normal	>100	>120	>140
Pulse pressure	Normal	â	ââ	↓↓/A
Systolic BP	Normal	N	â	ââ
Capillary refill	Normal	á	áá	Absent
Respiratory rate	Normal	20 – 30	30 – 40	>45 or gasping
Mental state	Alert	Anxious	Confused	Confused/ unconscious
Urine output (ml/h)	>30	20 - 30	5 – 20	<5

Differential diagnosis

- Other types of shock

Management in adults

TREATMENT	LOC
❑ Control obvious bleeding with pressure ❑ Keep patient lying down with raised legs.	HC3
If established hypovolaemia class 2 and above ▪ Set 2 large bore IV lines ▪ IV fluids **Normal Saline 0.9%** (or **Ringer's lactate**) 20-30 ml/kg over 60 minutes according to response - If possible, warm the fluid - Start rapidly, monitor BP - Assess response to fluid resuscitation: BP, HR, RR, capillary refill, consciousness and urinary output ❑ If internal or external haemorrhage, consider blood transfusion **If rapid improvement and stable (blood loss <20% and not progressing)** ❑ Slow IV fluids to maintenance levels ❑ No immediate transfusion but do cross-matching ❑ Regular reassessment ❑ Detailed examination and definitive treatment according to the cause **If transient improvement (blood loss 20-40% or ongoing bleeding)** ❑ Rapid administration of fluids ❑ Initiate blood transfusion (see section 11.2) ❑ Regular reassessment ❑ Detailed examination and early surgery **If no improvement** ❑ Vigorous fluid administration ❑ Urgent blood transfusion ❑ Immediate surgery	HC4

TREATMENT	LOC
Caution Do not use glucose solution or plain water as replacement fluids	

1.1.2.1 Hypvovolaemic Shock In Children

Principles of management are similar to the ones in adults BUT:

- Recognising this may be more difficult than in adults
- Vital signs may change little, even when up to 25% of blood volume is lost (class 1 and 2 hypovolaemia)

- Tachycardia is often the first response to hypovolaemia but may also be caused by fear or pain

Classification of hypovolaemia in children

Indicator	Class 1 Mild	Class 2 Progres-Sing	Class 3 Severe	Class 4 End Stage
% of total blood volume loss <15		15-25	25-40	>40
Pulse rate	Normal	>150	>150	>150
Pulse pressure	Normal	N	↓	Absent
Systolic BP	Normal	N	↓	Absent
Capillary refill	Normal	↑	↑↑	Absent
Respiratory rate	Normal	N/↑	↑↑	↑↑ Slow sighing
Mental state	Normal	Irritable	Lethargic	Comatose
Urine output (ml/kg/ hour)	<1	<1	<1	<1

Normal ranges for vital signs in children

Age (Years)	Pulse (Rate/Min)	Systolic Bp (Mmhg)	Respiration (Rate/Min)	Blood Vol (Ml/Kg)
<1	120–160	70–90	30–40	85–90
1–5	100–120	80–90	25–30	80
6–12	80–100	90–110	20–25	80
>12	60–100	100–120	15–20	70

Management

TREATMENT	LOC
❑ Initial fluid challenge should represent 25% of blood volume as signs of hypovolaemia may only show after this amount is lost ❑ If there are signs of class 2 hypovolaemia or greater, give 20-30 ml/kg of Normal Saline 0.9% (or Ringer's lactate) over 60 minutes - Start rapidly - Monitor BP - Reduce rate depending on BP response	HC3
❑ Depending on response, repeat upto 3 times if necessary i.e. up to max 60 ml/kg ❑ If no response: ❑ Give further IV fluids and blood transfusion ❑ Initially transfuse 20 ml/kg of whole blood or 10 ml/kg of packed cells (only in severe anaemia)	HC4

1.1.3 Dehydration ICD10CODE: E86.0

A condition brought about by the loss of significant quantities of fluids and salts from the body.

Causes

- Vomiting and/or diarrhoea
- Decreased fluid intake
- Excessive loss of fluids, e.g. due to polyuria in diabetes, excessive sweating as in high fever, burns

Clinical features

- Apathy, sunken eyes/fontanel, loss of skin turgor (especially in children)
- Hypotension, tachycardia, deep (acidotic) breathing, dry mucosae, poor or no urine output.

1.1.3.1 Dehydration in Children under 5 years

Assess degree of dehydration following the table below:

Clinical features of dehydration in children

Signs	Degree of Dehydration		
	None	Some	Severe
General condition	Well, alert	Restless, irritable	Lethargic, drowsy or unconscious
Eyes	Not sunken	Sunken	Sunken
Fontanel	Not sunken	Sunken	Sunken
Ability to drink	Drinks normally	Drinks eagerly, thirsty	Drinks poorly or not able to drink
Skin pinch	Goes back immediately	Goes back slowly; <2 seconds	Goes back very slowly; >2 seconds
Treatment	Plan A	Plan B	Plan C

Management

Plan A (No dehydration and for prevention)

TREATMENT	LOC
❑ Counsel the mother on the 4 rules of home treatment: extra fluids (ORS), continue feeding, zinc supplementation, when to return ❑ Give extra fluids: as much as the child will take - If child exclusively breastfed, give ORS or safe clean water in addition to breast milk - If child not exclusively breastfed, give one or more of: **ORS**, soup, rice-water, yoghurt, clean water - In addition to the usual fluid intake, give **ORS** after each loose stool or episode of vomiting Child <2 years: 50-100 ml Child 2-5 years: 100-200 ml - Give the mother 2 packets to use at home - Giving ORS is especially important if the child has been treated with Plan B or Plan C during current visit - Give frequent small sips from a cup ❑ Advice the mother to continue or increase breastfeeding. If child vomits, wait 10 minutes, then give more slowly - In a child with high fever or respiratory distress, give plenty of fluids to counter the increased fluid losses in these conditions - Continue giving extra fluid as well as ORS until - the diarrhoea or other cause of dehydration stops ❑ If diarrhoea, give Zinc supplementation Child <6 months: 10 mg once a day for 10 days Child >6 months: 20 mg once a day for 10 days	HC2

Plan B (Some dehydration)

TREATMENT	LOC
❑ Give ORS in the following approximate amounts during the first 4 hours - Only use child's age if weight is not known - You can also calculate the approximate amount of ORS to give a child in the first 4 hours as weight (kg) x 75 ml ❑ Show the mother how to give the ORS - Give frequent small sips from a cup - If the child wants more than is shown in the table, give more as required - If the child vomits, wait 10 minutes, then continue - more slowly ❑ For infants <6 months who are not breastfed, also give 100-200 ml of clean water during the first 4 hours ❑ Reassess patient frequently (every 30-60 minutes) for classification of dehydration and selection of Treatment Plan After 4 hours ❑ Reassess the patient ❑ Reclassify the degree of dehydration ❑ Select the appropriate Treatment Plan A, B or C ❑ Begin feeding the child in the clinic	HC2

Age (Months)	<4	4–12	13–24	25–60
Weight (Kg)	<6	6–9.9	10–11.9	12–19
Ors (Ml)	200–400	400–700	700–900	900–1400

TREATMENT	LOC
If mother must leave before completing the child's treatment ❑ Show her how to prepare ORS at home and how much ORS to give to finish the 4-hour treatment - Give her enough packets to complete this and 2 more to complete Plan A at home ❑ Counsel mother on the 4 rules of home treatment: extra fluids, continue feeding, zinc, when to return	

Plan C (Severe dehydration)

TREATMENT	LOC
If you are unable to give IV fluids and this therapy is not available nearby (within 30 minutes) but a nasogastric tube (NGT) is available or the child can drink ❑ Start rehydration with ORS by NGT or by mouth: Give 20 ml/kg/hour for 6 hours (total = 120 ml/ kg) ❑ Reassess the child every 1-2 hours - If there is repeated vomiting or increasing abdominal distension, give more slowly - If hydration status is not improving within 3hours, refer the child urgently for IV therapy ❑ After 6 hours, reassess the child ❑ Classify the degree of dehydration ❑ Select appropriate Plan A, B, or C to continue treatment	HC2

TREATMENT	LOC
If you are unable to give IV fluids but IV treatment is available nearby (i.e. within 30 minutes) ❑ Refer urgently for IV treatment If the child can drink: ❑ Provide mother with ORS and show her how to give frequent sips during the trip to the referral facility	HC2
If you are able to give IV fluids ❑ Set up an IV line immediately - If child can drink, give ORS while the drip is set up ❑ Give 100 ml/kg of Ringer's Lactate - Or half-strength Darrow's solution in glucose 2.5% or sodium chloride 0.9% - Divide the IV fluid as follows: ❑ Reassess patient frequently (every 30-60 minutes) to re-classify dehydration and treatment plan **If the patient is not improving** ❑ Give the IV fluids more rapidly	HC3
As soon as patient can drink, usually after 3-4 hours in infants or 1-2 hours in children ❑ Also give ORS 5 ml/kg/hour	
❑ Continue to reassess patient frequently; classify degree of dehydration; and select appropriate Plan A, B, or C to continue treatment.	

Note
If possible, observe child for at least 6 hours after rehydration to ensure that the mother can correctly use ORS to maintain hydration.

1.1.3.2 Dehydration in Older Children and Adults

Assess degree of dehydration following the table below.

CLINICAL FEATURE	DEGREE OF DEHYDRATION		
	MILD	MODERATE	SEVERE
General appearance	Thirsty, alert	Thirsty, alert	Generally conscious, anxious, clammy, cold extremities, cyanosis, wrinkly skin of fingers, muscle cramps, dizzy if standing
Pulse	Normal	Rapid	Rapid, thready, sometimes absent
Respiration	Normal	Deep, may be rapid	Deep and rapid
Systolic BP	Normal	Normal	Low, may be immeasurable
Skin pinch	Rturns rapidly	Rturns slowly	Returns very slowly (>2 seconds)
Eyes	Normal	Sunken	Very sunken
Tears	Present	Absent	Absent
Mucous membranes	Moist	Dry	Very dry
Urine output	Normal	Reduced, dark urine	Anuria, empty bladder

Note
At least 2 of these signs must be present

Management

TREATMENT	LOC
Mild dehydration ❑ Give oral ORS 25 ml/kg in the first 4 hours - Increase or maintain until clinical improvement **Moderate dehydration** ❑ Give oral ORS 50 mg/kg in the first 4 hours	HC2
Severe dehydration ❑ Ringer's lactate (or Normal Saline 0.9%) IV, 50 ml/kg in the first 4 hours - Give IV fluids rapidly until radial pulse can be felt, - then adjust rate - Re-evaluate vitals after 4 hours Volumes that are given over the first 24 hours in adults are shown in the table below	HC3

Time period	Volume of iv fluid
First hour	1 L
Next 3 hours	2 L
Next 20 hours	3 L

❑ After 4 hours, evaluate rehydration in terms of clinical signs (NOT in terms of volumes of fluid given)

❑ As soon as signs of dehydration have disappeared (but not before), start fluid maintenance therapy, alternating ORS and water (to avoid hypernatraemia) as much as the patient wants

Continue for as long as the cause of the original dehydration persists.

Notes

- Volumes shown are guidelines only. If necessary, volumes can be increased or initial high rate of administration maintained until clinical improvement occurs
- In addition to ORS, other fluids such as soup, fruit juice and safe clean water may be given
- Initially, adults can take up to 750 ml ORS/hour.
- If sodium lactate compound IV infusion (Ringer's Lactate) is not available, use half-strength Darrow's solution in glucose 2.5% or sodium chloride infusion 0.9%. However, both of these are less effective
- Continued nutrition is important, and food should be continued during treatment for dehydration.

Caution

- Avoid artificially sweetened juices.

Prevention (for all age groups)

- Encourage prompt use of ORS at home if the personis vomiting and/or having diarrhoea.

1.1.4 Fluids and Electrolytes Imbalances ICD10 CODE: E87.8

A condition where losses of bodily fluids from whatever cause has led to significant disturbance in the normal fluid and electrolyte levels needed to maintain physiological functions.

Causes

Disorders may occur in the fluid volume, concentration (sodium composition), and distribution of fluid and other electrolytes and ph. The main cause is problems in intake, loss and/or distribution and balance between water and electrolytes, as shown in the table below:

MECHANISM	EXAMPLES
Gastrointestinal loss	⦿ Excessive vomiting and diarrhoea ⦿ Nasogastric drainage ⦿ Fistula drainage
Haemorrhage	⦿ Internal or external
Fluid sequestration	⦿ Paralytic ileus, intestinal obstruction ⦿ Peritonitis
Loss through skin/ wounds	⦿ Sweating ⦿ Extensive burns
Urinary loss	⦿ Decompensated diabetes
Fluid retention and electrolytes or water imbalances	⦿ Renal, hepatic and heart failure (see specific section for management)
Reduced intake	⦿ Post operative patients
Excessive intake	⦿ Water intoxication, IV fluids overload

Clinical features

- ⦿ Dehydration in mild/moderate fluid (water and electrolytes) deficiency
- ⦿ Hypovolaemic shock in severe fluid deficiency
- ⦿ Oedema (including pulmonary oedema) in fluid excess
- ⦿ Specific effects due to electrolytes imbalances

Management

IV fluids and electrolytes therapy has three main objectives:

- Replace lost body fluids and continuing losses
- Correct eventual imbalances
- Maintain daily fluid requirements.

Always use an IV drip for patients who are seriously ill (except patients with congestive heart failure; for these, use only an indwelling needle) and may need IV drugs or surgery. If the fluid is not needed urgently, run it slowly to keep the IV line open.

Maintenance fluid therapy

TREATMENT	LOC
Administer daily fluid and electrolyte requirements to any patient not able to feed ❑ The basic 24-hour maintenance requirement for an adult is 2.5-3 litres - One third of these daily fluids should be (isotonic) - sodium chloride 0.9% infusion (or Ringer's Lactate), the other two thirds Glucose 5% infusion ❑ As well as the daily requirements, replace fluid lost due to the particular condition according to the assessed degree of dehydration.	HC3

Notes

- Closely monitor all IV drips to ensure that the rate is adjusted as required
- Check the drip site daily for any signs of infection; change drip site every 2-3 days or when the drip goes into tissues (extravasation).

Replecment therapy in specific conditions

TREATMENT	LOC
Dehydration ❑ see section 1.1.3	HC3
Diarrhoea and vomiting with severe dehydration, paralytic ileus, intestinal obstruction ❑ Replace fluid losses with isotonic (sodium) solutions containing potassium e.g. compound sodium lactate infusion (Ringer's Lactate solution) ❑ Or half-strength Darrow's solution in 2.5% glucose infusion	
Haemorrhage **If there is blood loss and the patient is not in shock** ❑ Use sodium chloride 0.9% infusion for blood volume replacement giving 0.5-1 L in the 1st hour and not more than 2-3 L in 4 hours **If there is blood loss >1 litre** ❑ Give 1-2 units of blood to replace volume and concentration	
Shock ❑ Give Ringer's Lactate or sodium chloride 0.9% infusion 20 ml/kg IV over 60 minutes for initial volume resuscitation - Start rapidly, closely monitor BP - Reduce the rate according to BP response ❑ In patients with severe shock and significant haemorrhage, give a blood transfusion	

Notes

- Closely monitor all IV drips to ensure that the rate is adjusted as required
- Check the drip site daily for any signs of infection; change drip site every 2-3 days or when the drip goes into tissues (extravasation).

1.1.4.1 IV Fluid management in children ICD10 CODE: E87.8

TREATMENT	LOC
❑ Total daily maintenance fluid requirement is 100 ml/kg for the first 10 kg plus - 50 ml/kg for the next 10 kg plus 25 ml/kg for each subsequent kg ❑ Give more than above if child is dehydrated or in fluid loss or fever (10% more for each 1 C of fever)	HC4

Fluid management in neonates

TREATMENT	LOC
❑ Encourage mother to breastfeed or if child unable, give expressed breast milk via NGT ❑ Withhold oral feeding in case of bowel obstruction, necrotizing enterocolitis, or if feeding is not tolerated (abdominal distension, vomiting everything) ❑ Withhold oral feeding in acute phase of severe sickness, in infants who are lethargic, unconscious or having frequent convulsions	HC4
Total amount of fluids (oral and/or IV) Day 1: 60 ml/kg/day of Dextrose 10% Day 2: 90 ml/kg/day of Dextrose 10% Day 3: 120 ml/kg/day of half normal saline and dextrose 5% Day 4 onwards: 150 ml/kg/day ❑ If only IV fluids are given, do not exceed 100 ml/ kg/ day unless child is dehydrated, under a radiant heater or phototherapy ❑ If facial swelling develops, reduce rate of infusion ❑ When oral feeding is well established, raise the total amount to 180 ml/kg/day.	

Shock in non-malnourished child

TREATMENT	LOC
❑ Use Ringer's lactate or normal saline ❑ Infuse 20 ml/kg as rapidly as possible	HC3
If no improvement ❑ Repeat 10-20 ml/kg of IV fluids ❑ If bleeding, give blood at 20 ml/kg **If still no improvement** ❑ Give another 20 ml/kg of IV fluids **If no improvement further still** ❑ Suspect septic shock ❑ Repeat 20 ml/kg IV fluids and consider adrenaline or dopamine **If improvement noted at any stage (reducing heart rate, increase in blood pressure and pulse volume, capillary refill <2 seconds)** ❑ Give 70 ml/kg of Ringer's lactate (or Normal saline if Ringer's not available) over 5 hours (if infant <12 months) or 2.5 hours (if child >12 months)	HC4

Note
- In children with suspected malaria or anaemia with shock, IV fluids should be administered cautiously and blood should be used in severe anaemia

Shock in malnourished child

TREATMENT	LOC
❑ In malnourished children, give 15 ml/kg over 1 hour, use one of the following: - Ringer's lactate with 5% glucose - Half strength darrow's solution with 5% glucose - 0.45% Sodium chloride plus 5% glucose	HC3

Shock in malnourished child

TREATMENT	LOC
❑ Repeat once **If signs of improvement** ❑ Switch to oral or NGT ReSoMal at 10 ml/kg/hour for up to 10 hours	HC3
If no improvement ❑ Give maintenance IV fluids 4 ml/kg/hour f Transfuse 10 ml/kg slowly (over 3 hours) f Start refeeding ❑ Start IV antibiotics.	

Commonly used IV fluids and indication

NAME	COMPOSITION	INDICATIONS
Sodium Chloride 0.9% (normal saline)	Na 154 mmol/L Cl 154 mmol/L	Shock, dehydration in adults (and children) Maintenance fluid in adults
Dextrose (Glucose) 5%	Glucose 25 g in 500 ml	Maintenance fluid in adults
Dextrose (Glucose) 10%1 (to be prepared)	Glucose 50 g in 500 ml	Hypoglycaemia in children and adults Maintenance fluids in newborns day 1 and 2
Dextrose 50%	Glucose 50 g in 100 ml	Hypoglycaemia in adults
Ringer's lactate (Sodium lactate compound, Harmann's solution)	Na 130 mmol/L K 5.4 mmol/L Ca 1.8 mmol/L	Shock, dehydration in children (and adults) Maintenance fluid in adults
½ strenghth Darrow's solution in 5% glucose	Na 61 mmol/L K 17 mmol/L Glucose 25 g in 500 ml	Shock and dehydration in malnourished children

NAME	COMPOSITION	INDICATIONS
Half normal saline (Nacl 0.45%) dextrose 5%2 (to be prepared)	Na 77 mmol/L Cl 77 mmol/L Glucose 25 g in 500 ml	Maintenance fluid in children Shock and dehydration in malnourished children
Normal saline or Ringer's lactate with 5% dextrose3 (to be prepared)	Na 154/130 K 0/5.4 Glucose 25 g in 500 ml	Maintenance fluid in children

Note

1 Prepare from Dextrose 5% and 50%:

- Remove 50 ml from Dextrose 5% 500 ml bottle and discard
- Replace with 50 ml of Dextrose 50%. Shake
- Follow normal aseptic techniques
- Use immediately, DO NOT STORE

2 Prepare from Normal saline 500 ml bottle and dextrose 5% and 50%

- Replace 250 ml of Normal saline with 225 ml of
- Dextrose 5% and 25 ml of Dextrose 50%

3 Prepare by replacing 50 ml of normal saline or Ringer's 500 ml bottle with 50 ml of Dextrose 50%

1.1.5 Febrile Convulsions ICD10 CODE: R56

A generalized tonic-clonic seizure associated with a rapid rise in temperature due to an extracranial illness. It is a diagnosis of exclusion: specific conditions (cerebral malaria, meningitis, epilepsy) should be excluded. It commonly affects children from age 3 months to 6 years.

Causes

- Malaria
- Respiratory tract infections
- Urinary tract infections

- Other febrile conditions

Clinical features

- Elevated temperature (>38 C)
- Convulsions usually brief and self-limiting (usually <5 minutes, always <15 minutes) but may recur if temperature remains high
- No neurological abnormality in the period between convulsions
- Generally benign and with good prognosis

Differential diagnosis

- Epilepsy, brain lesions, meningitis, encephalitis
- Trauma (head injury)
- Hypoglycaemia
- If intracranial pathology cannot be clinically excluded (especially in children <2 years) consider lumbar puncture or treat children empirically for meningitis

Investigations

- Blood: Slide/RDT for malaria parasites
- Random blood glucose
- Full blood count
- LP and CSF examination

¾ Urinalysis, culture and sensitivity
¾ Chest X-ray

Management

TREATMENT	LOC
❑ Use tepid sponging to help lower temperature ❑ Give an antipyretic: paracetamol 15 mg/kg every 6 hours until fever subsides	HC2

TREATMENT	LOC
If convulsing ❑ Give diazepam 500 micrograms/kg rectally (using suppositories/rectal tube or diluted parenteral solution) Maximum dose is 10 mg Repeat prn after 10 minutes **If unconscious** ❑ Position the patient on the side (recovery position) and ensure airways, breathing and circulation (ABC) **If persistent convulsions** ❑ see section 9.1.1	HC2 HC4

Prevention

Educate caregivers on how to control fever (tepid sponging and paracetamol)

1.1.6 Hypoglycaemia ICD10 CODE: E16.2

A clinical condition due to reduced levels of blood sugar (glucose). Symptoms generally occur with a blood glucose <3.0 mmol/L (55 mg/dl).

Cause

- Overdose of insulin or anti-diabetic medicines
- Excessive alcohol intakeSepsis, critical illnesses
- Hepatic disease
- Prematurity
- Starvation
- Operations to reduce the size of the stomach (gastrectomy)
- Tumours of the pancreas (insulinomas)
- Certain drugs e.g. quinine
- Hormone deficiencies (cortisol, growth hormone)

Clinical features

- Early symptoms: hunger, dizziness, tremors, sweating, nervousness and confusion

- Profuse sweating, palpitations, weakness
- Convulsions
- Loss of consciousness

Differential diagnosis

- Other causes of loss of consciousness (poisoning, head injury etc.)

Investigations

- Blood sugar (generally <3.0 mmol/L)
- Specific investigations: to exclude other causes of hypoglycaemia

Management

TREATMENT	LOC
If patient is able to swallow	HC2
❑ Oral glucose or sugar 10-20 g in 100-200 ml water (2-4 teaspoons) is usually taken initially and repeated after 15 minutes if necessary	
If patient is unconscious	
❑ Adults: glucose 50% 20-50 ml IV slowly (3 ml/ minute) or diluted with normal saline, followed by 10 % glucose solution by drip at 5-10 mg /kg/	HC3
minute until patient regains consciousness, then encourage oral snacks	
Child: Dextrose 10% IV 2-5 ml/kg	
❑ If patient does not regain consciousness after 30 minutes, consider other causes of coma	
❑ Monitor blood sugar for several hours (at least 12 if hypoglycaemia caused by oral antidiabetics) and investigate the cause – manage accordingly.	

Note

- After dextrose 50%, flush the IV line to avoid sclerosis of the vein (dextrose is very irritant)
- Preparation of Dextrose 10% from Dextrose 5% and Dextrose 50%:
  - Remove 50 ml from Dextrose 5% bottle and discard
  - Replace with 50 ml of Dextrose 50%. Shake
  - Follow normal aseptic techniques
  - Use immediately, DO NOT STORE.

Prevention

- Educate patients at risk of hypoglycaemia on recognition of early symptoms e.g. diabetics, patients who have had a gastrectomy
- Advise patients at risk to have regular meals and to always have glucose or sugar with them for emergency treatment of hypoglycaemia
- Advise diabetic patients to carry an identification tag

1.2 TRAUMA AND INJURIES

1.2.1 Bites and Stings

Wounds caused by teeth, fangs or stings.

Causes

- Animals (e.g. dogs, snakes), humans or insects

Clinical features

- Depend on the cause