Republic of Kenya

KENYA ESSENTIAL MEDICINES LIST - 2019

Ministry of Health

Kenya Essential Medicines List 2019

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[1] Proposals for amendments to the list should be submitted using the KEML Amendment Proposal Form (see Appendix 5)

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Foreword

The Kenya Essential Medicines List (KEML) is a key tool that should effectively be used to promote access to essential medicines, and through their correct selection, procurement, and use to achieve maximum therapeutic benefit and optimise patient outcomes as desired under Universal Health Coverage (UHC).

The KEML serves as a guide for the investment of healthcare funds to finance the most appropriate medicines to achieve therapeutic aims in response to prioritised public health needs.

It is also meant to guide health policy, focus attention and resources (time, financial, technical, and human) in areas and activities that support the above aims, such as training, quality assurance, financing and insurance, regulation and monitoring, appropriate use (including control of antimicrobial resistance), operational research and local production. Due to both global and local concerns about antimicrobial resistance, the review process adopted the WHO classification using Access, Watch and Reserve (AWaRe) categorization for antibacterial medicines, which is expected to guide the policy and regulatory mechanisms for accessing that class of medicines.

As such the KEML must be fully responsive to the aims and objectives of national health policies and strategies. In this respect, the KEML has incorporated the most current guidance to adequately address the heavy but gradually decreasing burden of communicable diseases (such as malaria, TB and HIV) has been incorporated into the KEML, and particular attention has been paid to medicines used to manage the ever-increasing numbers of those with non-communicable diseases, such as diabetes and cancer. Furthermore, medicines for other key areas of public health (often neglected or less well managed) such as leishmaniasis, filariasis, jiggers and those for use in geriatrics have been included in this KEML.

The rationale for listing medicines in the KEML 2019 was derived from a globally coordinated process of the World Health Organization (WHO), which develops the Model List of Essential Medicines, and makes the relevant information and knowledge available to countries for their own adaptation. The National Medicines and Therapeutics Committee (NMTC), through a Technical Working Group (TWG), coordinated adaptation of the evidence, held extensive stakeholder consultations, and referenced updated clinical guidelines where available for this updated KEML.

The KEML should therefore be used with **confidence** and commitment as a highly relevant, evidence-based, and up-to-date reference document. The systematic and well-managed consensus-based process through which it has been produced has ensured the incorporation of current evidence-based best therapeutic practices backed by extensive scientific data and robust application of selection criteria. Therefore the selection of the items listed is well justified and suitably adapted to the prevailing health sector context. The methodology for review also made sure that the document adequately addressed medicine selection from healthcare levels 1 to 6. This makes KEML 2019 not just a document for the lower levels of healthcare, as the perception has been for a long time, but also for use up to the national referral level.

The KEML 2019 is meant to guide medicine investments for all relevant actors in Kenya. Because of the strong evidence base, the KEML 2019 represents best practice in the selection of medicines for optimum therapeutic outcomes. Therefore, it is applicable to and recommended for use by policymakers and public sector providers at national and county levels; by private, faith-based, and non-governmental organisation (NGO) actors, and by development partners. On its part, the Government of Kenya will, going forward, use the KEML 2019 to guide selection of medicines to be provided under all benefit packages for UHC and all health workers are expected to adhere to it.

The listing of medicines in a national list such as the KEML is only the initial step in a series of measures which must be implemented to ensure that the expected benefits and substantial health impact such as UHC are realised. The Ministry of Health (MOH) is committed to supporting the KEML and institutionalizing the underlying principles and concepts, in respect of evidence-based priority-setting for medicines and other health technologies.

This arduous and technically complex task was completed only through the sustained commitment and dedicated work of many individuals who contributed their time, and expertise at the various stages of its development and with technical and financial support from the USAID Medicines, Technologies and Pharmaceutical Services (MTaPS) program.

The KEML provides a key tool in support of efforts to attain equity and high standards in healthcare. It is intended to guide medicine development, production, procurement and distribution, prescribing, dispensing and use, as well as the development, monitoring and evaluation of strategies, thereby enhancing Appropriate Medicines Use (AMU).

It is for use by all disciplines of healthcare workers, general practitioners, specialists and healthcare management personnel as well as students and interns.

This KEML comes at a time when Kenya is defining strategies to attain the Sustainable Development Goals (SDGs)[2], to which the country is committed and has prioritized universal health coverage (UHC) as one of the Big 4 Agenda for the Government of Kenya for 2017-2022. In this regard, access to health products & technologies, including medicines, is

[2] Goal 3 is 'Ensure healthy lives and promote well-being for all at all ages' with a key target 'Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all'.

one of the cornerstones of universal health coverage (UHC), and it is critical to the achieving the health-related SDGs.

The regular and consistent use of the KEML is expected to improve healthcare, and to contribute to attaining UHC and the constitutional right to health.

I therefore strongly encourage all relevant health professionals to make the best use of this KEML in their daily work and to provide feedback on its use, and any suggestions towards its improvement and future revisions.

Sicily K. Kariuki (Mrs), EGH

Cabinet Secretary

MINISTRY OF HEALTH

Preface

The Cabinet Secretary, MOH appointed the UHC Benefits Package Advisory Panel in June 2018. The mandate of the panel was to design an affordable and responsive health benefits package for the delivery of Universal Health Coverage.

The deliverables of the panel were:

1) Standard criteria for assessing inclusion and exclusion of services, procedures, health products & technologies in UHC Essential Benefits Package (UHC-EBP)
2) A portfolio of services, procedures, health products & technologies that are properly costed using the best quality evidence including actuarially-informed estimates of supply and demand, and based on realistic projections of current and future utilization. Emerging HPTs should be considered for inclusion provided that their cost-effectiveness and benefits to the people are justified.
3) A periodic work plan of activities based on assignments issued by the Cabinet Secretary.

The KEML falls under deliverable 2. The panel decided that it and other essential health product lists developed by MoH will be the basis for determining items to be provided under the UHC benefits package.

The KEML 2019 is derived from a robust and globally recognized process of scientific assessment of efficacy, safety and quality as well as cost-effectiveness evaluation. The investments required for such evaluations are massive, and the processes require standardization of the evidence, in order to promote uniformity in clinical care, disease control and public health protection.

The KEML is a critical tool in ensuring the right to health by ensuring optimum therapeutic interventions. Therefore, for the national and county governments, KEML 2019 should be the basis for selecting the medicines for procurement by public procuring entities, which by law are

required to make such procurements from the Kenya Medical Supplies Authority (KEMSA).

Furthermore, national and county governments have a duty to ensure that essential medicines under UHC are available within the context of a functioning health system, at all times in adequate amounts, in the appropriate dosage forms, with assured quality and adequate information, and at a price the individual and the community can afford.

To attain this, it is imperative that national and county governments develop sustainable solutions for financing essential medicines through increased budget allocations for health, and robust priority-setting mechanisms to optimize efficiency of the health budget. This should be accompanied by regularly updating the KEML through a robust and evidence-based national structure, system and process.

Dr Rashid Aman
Chief Administrative Secretary
MINISTRY OF HEALTH

Executive Summary

KEML 2019 ensures the past efforts of reviewing the Kenya Essential Medicines List, and ensures that medicines required at all the healthcare levels are included to guide efforts to improve access, in line with the Ministry of Health's aims under the Universal Health Coverage (UHC) initiative.

The Ministry of Health through the NMTC constituted a multidisciplinary team of professionals, namely the KEML Review TWG, to spearhead the effort of reviewing and ensuring that the KEML is based on the most current information, both globally and nationally. The KEML Review TWG convened a series of meetings and discussions with a variety of medical specialists as well as internal and external validation meetings to obtain this final product.

The Ministry of Health wishes to acknowledge all the efforts of those who provided inputs into this review, as well as the technical and financial support of USAID through the MTaPS program.

In this KEML 2019, medicines are listed by 33 major therapeutic categories. Within each category, medicines appear in alphabetical order and with the appropriate dosage forms indicated, the required strength and size, and the healthcare level of use. The listing does not imply preference for one medicine over another. For each medicine, the lowest level of use is indicated to guide procurement and patient management at various levels.

Medicines which had been listed in KEML 2016 for handling by specialists have been incorporated under the various healthcare levels. This is in recognition of the advancements within our health care settings.

A new categorization of antibiotics into Access, Watch and Reserve (AWaRe) classes has been introduced to guide the rational use of antibiotics in line with global guidance provided by the World Health Organisation.

KEML 2019 should facilitate use by all healthcare levels, up to and including national teaching and referral institutions.

The KEML 2019 will serve as a useful tool for:

- Healthcare financing and Essential medicines supply budgeting
- Procurement, supply and distribution
- Health insurance schemes
- Managing Donations
- Healthcare workforce development
- Appropriate use of medicines
- Antimicrobial resistance and use policies.

All health workers at all levels are encouraged to make use of the KEML 2019, as it is a crucial tool in advancing healthcare services for all Kenyans in line with the goals of Universal Health Coverage.

Susan N. Mochache, CBS
Principal Secretary
MINISTRY OF HEALTH

Acknowledgements

On behalf of the Ministry of Health, I would wish to acknowledge and sincerely thank all the contributors – the NMTC, the KEML Review TWG, specialists from both private and public sector, the reviewers and the consultant who have made this KEML a reality.[3]

I also wish to thank the World Health Organisation (WHO) for the solid and objective evidence base and ready guidance, and for ongoing policy guidance to optimize the KEML as a priority-setting tool for Universal Health Coverage (UHC).

Finally, I would also like to gratefully acknowledge the technical guidance and financial support provided by the USAID Medicines, Technologies and Pharmaceutical Services (MTaPS) program implemented by Management Sciences for Health.

Dr. J. Wekesa Masasabi
Ag. Director General for Health

[3] See Appendix 3 for a list of all the individuals involved

Abbreviations and Acronyms

Used in the text:

ACEI	Angiotensin-converting-enzyme inhibitors
ADRs	Adverse Drug Reactions
AIDS	Acquired immunodeficiency syndrome
AMR	Antimicrobial resistance
AWaRe	access, watch, and reserve
Disp	dispensary
DG	Director General (of Medical services)
EM	essential medicine
EML	Essential Medicines List
EMLc	Essential Medicines List for Children
HPT	health products and technologies
HTA	health technology assessment
KEML	Kenya Essential Medicines List
KEMSA	Kenya Medical Supplies Authority
KNH	Kenyatta National Hospital
LoU	level of use
MoH	Ministry of Health
MSH	Management Sciences for Health
MTaPS	Medicines, Technologies, and Pharmaceutical Services program
MTC	Medicines and Therapeutics Committee (Institutional)
NGO	non-governmental organization
NMTC	National Medicines and Therapeutics Committee
SOP	standard operating procedure
TOR	terms of reference
TWG	technical working group
UHC	Universal health coverage
WHO	World Health Organization

Used in the KEML table:

ads	adsorbed
amp	ampoule
aq	aqueous
BCG	Bacille Calmette Guerin
BNF	British National Formulary
CAPD	continuous ambulatory peritoneal dialysis
CCB	calcium channel blocker
CMV	Cytomegalovirus

Cl-	chloride ion
CPT	Cotrimoxazole Preventive Therapy
DT	dispersible tablet
e/c	enteric-coated (tablet)
eGFR	estimated glomerular filtration rate
f/c	film coated (tablet)
FDC	fixed dose combination
FP	family planning
g	grams
GI	gastrointestinal
GIT	gastrointestinal tract
HCl	hydrochloride salt
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
hr	hour
hyd	hydrogen
Ig	immunoglobulin
IM	intramuscular
IPTp	Intermittent preventive treatment of malaria
i/r or IR	immediate release
IU	international units
IV	intravenous
K+	potassium ion
KEMSL	Kenya Essential Medical Supplies List
L	litre
m/r	modified (controlled, delayed, prolonged, slow) release
MAT	Medically assisted therapy
mcg	micrograms
MDR-TB	multi drug resistant Tuberculosis
mg	milligrams
mL	millilitres
MRI	magnetic resonance imaging
MU	mega (million) units
NRT	nicotine replacement therapy
p-	para (e.g. in Para–aminosalicylic acid (PAS))
paed	paediatric
PCP	pneumocystis jirovecii pneumonia
PET	positron emission tomography
PFI	powder for injection (to be reconstituted with diluent)
PFOL	powder for oral liquid (to be reconstituted with diluent)

PPH	postpartum hemorrhage
ppm	parts per million
PWUD	people who use drugs
RA	rheumatoid arthritis
S/E	side effects
SC	subcutaneous
sod.	sodium
SODF	solid oral dose form (i.e. tablet or capsule)
SPECT	single photon emission computed tomography
SPF	sun protection factor
spp.	species
STI	sexually transmitted infections
TB	Tuberculosis
TPN	total parenteral nutrition
TU	Tuberculin units
UVB	ultraviolet B (radiation in sunlight rays)
Vit	Vitamin
vol	volume
w/w	weight by weight

Used in the list of Contributors

AKUH	Aga Khan University Hospital
CEO	Chief executive officer
CHAI	Clinton Health Access Initiative
Dept.	Department
Div	Division
DNMP	Division of National Malaria Program (Malaria control)
Dr	Doctor
ENT	ear, nose and throat
JOOTRH	Jaramogi Oginga Odinga Teaching and Referral Hospital
KEMRI	Kenya Medical Research Institute/Wellcome Trust
KMA	Kenya Medical Association
KMLTTB	Kenya Medical Laboratory Technicians and Technologists Board
KPA	Kenya Paediatric Association
KSA	Kenya Society of Anaesthesiologists (Anaesthetists)
MEDS	Mission for Essential Drugs and Supplies
MNTRH	Mathare National Teaching and Referral Hospital
MoF	Ministry of Finance
MTRH	Moi Teaching and Referral Hospital, Eldoret
NASCOP	National AIDS and STI Control Programme

Nbi	Nairobi
NTD	Neglected Tropical Diseases program
NTLD-P	National Tuberculosis, Leprosy and Lung Diseases program
PMU	Program management unit (GF secretariat, Treasury, MoF)
PPB	Pharmacy and Poisons Board
PSK	Pharmaceutical Society of Kenya
RH	Reproductive Health
RMHSU	Reproductive and Maternal Health Services Unit
Spec or Sp	Specialist
UoN	University of Nairobi
USAID	United States Agency for International Development

Essential Medicines List (EML)
Background Information

Enhancing Access to Essential Medicines (EM)

Access to Essential Medicines is a core component of the *right to health*, and a requisite to the attainment of national health goals. This national Essential Medicines List (EML) defines the priority focus for investment in medicines by the public health sector, towards ensuring the provision of equitable healthcare to the population in line with defined sector policies, strategies, norms and standards.

This EML is based on the Concept of **Essential Medicines,** defined by the World Health Organisation (WHO) as:

- Those medicines that meet **priority healthcare needs** of the population[4]
- Are carefully and systematically selected using an *evidence-based process* with due consideration of:
  - **public health relevance**
  - clear evidence on **efficacy** and **safety**
  - comparative **cost-effectiveness**[5]
- Meant to be always available in a functioning healthcare system:
  - in **adequate amounts**
  - in **appropriate dosage forms**
  - with **assured quality** and **adequate information**
  - at an **affordable price** for the individual and community.[5]

This EML is derived from the WHO Model List 21st edition (Adults) and 7th edition (Children) of 2019 and various current national guidelines for specific conditions which represent the best current therapeutic practice in each of the priority conditions covered.

The WHO Model List of Essential Medicines

The World Health Organisation (WHO) is the secretariat for the Expert Committee on Selection and Use of Essential Medicines, the group of

[4] World Health Organization (WHO). 2019. WHO Model List of Essential Medicines, 21st List, 2019. Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO.

[5] https://www.who.int/topics/essential_medicines/en/

experts responsible for revising and updating the Model List of Essential Medicines (EML) and the Model List of Essential Medicines for Children (EMLc). Every medicine listed is vetted for efficacy, safety and quality, and is subjected to a comparative cost-effectiveness evaluation with other alternatives in the same class of medicines. WHO updates the lists every two years and the lists have become an important guide for governments and institutions around the world, in the development of their own essential medicines lists.

The 2019 editions (i.e. the 21st EML and 7th EMLc) include *inter alia* ground-breaking new treatments for hepatitis C, various cancers (including breast cancer and leukaemia), multi-drug resistant tuberculosis (MDR-TB) and the new categorization of antibiotics into Access, Watch and Reserve (AWaRe) classes.

Placing a new medicine on the WHO EML is a first step towards improving access to innovative medicines that show clear clinical benefits and could have enormous public health impact globally. The AWaRe classification for antibiotics is intended to incorporate antibiotic stewardship so as to reduce and contain antimicrobial resistance (AMR) globally (see Appendix 8).

Access antibiotics have activity against a wide range of commonly encountered susceptible pathogens while showing low potential for development of resistance. These are antibiotics of choice for treatment of the top most common infectious diseases in a country. They should be available at all times, be affordable and quality-assured. In the WHO EML, they are listed as essential first-choice or second-choice empirical treatment options for specific infectious diseases.[4]

Watch antibiotics have higher resistance potential or higher toxicity concerns. They should be prioritized as key targets of national and local stewardship programs and monitoring. In the WHO EML, they are listed as essential first-choice or second-choice empirical treatment options recommended only for a limited number of specific infectious diseases. Unlike Access antibiotics which have lower priority for AMR stewardship activities, use of Watch antibiotics should be actively monitored.[4]

Reserve antibiotics should be reserved for treatment of confirmed or suspected infections due to multi drug-resistant organisms and treated

as "last-resort" options. While they must be accessible when required, their use should be limited to highly specific patients and clinical settings, when other antibiotic alternatives have failed or are not suitable, for example, due to contra-indications. They should be protected and prioritized as key targets of national and international AMR stewardship programmes, involving monitoring and utilization reporting, to preserve their effectiveness.[4]

The goal of the AWaRe classification for antibiotics is to reduce the use of antibiotics in the Watch and Reserve groups (the antibiotics most crucial for human medicine and at higher risk of resistance) while incresing the use of Access antibiotics where low availability has been experienced.

WHO recommends that each country compare its current list of essential antibiotics list against the WHO AWaRe list, and based on gathered evidence of local epidemiology of infectious diseases and antibiotic resistance profile of the causative micro-organisms in the country, then list its own antibiotics as Access or Watch class first-choice or second-choice options as well as Reserve class.

The purpose of the Model List is to provide guidance for the prioritization of medicines from a clinical and public health perspective. The hard work of implementation of the EML begins with efforts to ensure that those medicines are actually available to patients. This requires collaborative effort between governments, the private sector, civil society, WHO and other international partners.

Unlike the separate WHO model lists, the KEML incorporates medicines for both adults and children.

The National Medicines and Therapeutics Committee (NMTC)

The role of NMTCs is critically important in identifying appropriate medicines and other Health Products and Technologies (HPT) for use throughout the system and for guiding utilization of the same. When operating well, the NMTC is the leading clinical coordinating body, as well as the reference point for all activities with HPT-related components. NMTCs are a vital structure for ensuring evidence-based therapeutics, as part of a comprehensive quality of care program.

The first NMTC was established after the formulation of the Kenya National Drug Policy in 1994. However since then, the functioning of the NMTC has been erratic and ineffective, because of the perception that it was primarily a pharmaceutical body, focusing only on the intermittent development of therapeutic documents such as essential medicines lists and clinical guidelines rather than providing continuous advice and guidance on medicines and managing and utilizing health technologies.

It has suffered from a lack of enabling legislation, which would entrench the evidence-based guidance into decision-making for healthcare financing and service provision. Going forward, the Ministry of Health is committed to actively supporting all NMTC-coordinated initiatives to ensure that these challenges are minimised, in order to obtain the maximum value from its work including review and revision the KEML.

In addition, county governments, healthcare institutions and health facilities are encouraged to form similar Medicines and Therapeutics Committees (MTCs), to promote evidence-based processes that ensure the selection and use of those medicines that address the needs and priorities of the community in that area.

KEML Development Process

a) Background

Kenya developed its first Essential Medicines List in 1981. Over the years, the Essential Medicines List (EML) concept has become increasingly entrenched into the health system, with successive revisions of the KEML in 1993, 2003, 2010 and 2016. Although the KEML review and development process has encountered various challenges (see below), the document is now more than ever before (as a result of UHC) considered a key policy and reference for the sector, and efforts will continue to be made to ensure that it is regularly updated, effectively disseminated and its routine use promoted, monitored and evaluated.

b) Past experience with KEML 2016

The previous KEML (2016) was successfully developed by a technical working group under the supervision of the then NMTC, following a well-managed process. It was the product of extensive, diligent, highly

creditable and relevant work, but it suffered from a number of challenges which compromised the expected benefits.

These included insufficient distribution and dissemination; inadequate advocacy and promotion of its multiple uses and potential benefits; absence of monitoring and evaluation to guide future revision; and lack of active solicitation of feedback from users to verify its continuing relevance.

In the following years, the NMTC became dormant and suffered from uncertainties, disruption and lack of coordination during a period of enormous changes and restructuring within the health sector. These changes included various re-organizations of the Ministry of Health. As a result, the intended 2-3 yearly review delayed a bit.

Further, the potential impact of the KEML as a guideline was limited by the lack of enabling legislation to mandate evidence-based cost-effectiveness evaluation in the determination of the public financing of medicines. This lack of legal status of the KEML (and the associated clinical guidelines) has also contributed to a failure to establish sustainable structures and processes within the health system, for the necessary periodic, regular and timely update. Consequently, these health system gaps have led to increasing obsolescence, ever-decreasing relevance of, and low levels of adherence to, these very useful tools.

c) Preliminary review

Preparatory work for updating the KEML started in September 2019, using copies of the WHO Model Lists (ML) of July 2019, and compiling all the comparisons and deviations with the KEML 2016, Kenyatta National Hospital (KNH) Formularies of 2013 and 2019 (under development), and local clinical guidelines developed in 2016 and later, as key review tools and focus for medicine selection discussions.

d) Reconstitution of the NMTC 2019

In late July 2019, after months of preparation, the NMTC was reconstituted and its members appointed by the Director General for Health (DG). The composition of the membership was closely guided by

best practice in this area to ensure the correct representation of all key MoH Directorates and MoH-affiliate Semi-Autonomous Government Agencies (SAGAs) with direct relevance to HPT supply and regulation such as KEMSA and the Pharmacy and Poisons Board (PPB). The NMTC responsibilities were described as: policy development in the evaluation, selection and use of medicines and other health products; standards and guidelines development and dissemination; capacity building; rational prescribing and cost-effective use of HPT; advocacy; and information, education, and communication (IEC) for health providers in matters related to medicines and their use. In total, the NMTC 2019 has thirteen (13) members and twelve (12) Terms of Reference (ToRs).[6]

e) Preparation of key KEML review tools

In July 2019, the new WHO Model Lists 2019 (21st edition for adults, 7th edition for children) were made available online, necessitating start of the review of the KEML 2016 in comparison with all sets of clinical guidelines which had been either developed/updated from 2016[7], and the Kenyatta National Hospital Formulary 2019 (under development). These references provided additional useful comparison representing a more recent picture of medicines utilization in Kenya. Further reference was made to relevant international documents such as the British National Formulary.

Preparing the tool for the review of the KEML preceded the commencement of the review process in mid-September 2019. A consultant recruited through the support of the USAID Medicines, Technologies and Pharmaceutical Services (MTaPS) program was very useful in this preparatory work and also throughout the review process. The spreadsheet-based review tool looked at the following:

- a Yes List comparing the WHO model list with the KEML 2016 and identifying all items on the model list but not the KEML for consideration for possible inclusion

[6] See Appendix 7 for detail of NMTC TORs and Appendix 3 for its members
[7] See Appendix 4 for details

- a No List comparing the KEML 2016 with the model list and identifying all items on the KEML but not on the model list for consideration for deletion
- comparison of the above two lists to the essential medicines listed in 2016 and in national standard treatment guidelines and protocols as well as, where relevant, international guidelines and protocols and the KNH formulary for consideration for possible inclusion/deletion
- guidance from the infectious diseases specialists in classifying the antibiotics into AWaRe categorisation based on local evidence.

f) Establishment of the KEML Review Technical Working Group

In September 2019, after sufficient consultation, the TWG for the KEML review process was established through the NMTC with the required representative membership through appointment by the DG.[8] Members signed forms for managing conflict of interest.

The KEML Review TWG was tasked to adhere to WHO guidance on how to develop a National Essential Medicines List, which involves the establishment of a robust, scientific methodology in order to ensure the production of a credible and reliable output anchored in best scientific (evidence-based) practice.

The KEML Review TWG was expected to select medicines for listing in the KEML 2019, while applying the essential medicines concept and principles of rational selection, affordable pricing and sustainable financing, as well as engaging with and consulting with all the relevant experts and stakeholders in the review process. For example, the KEML TWG organised a meeting of infectious diseases specialists to categorise antibiotics useful locally into the required Access, Watch and Reserve categories.

Given the short time available and deadline applicable for the 2019 review process, it was not possible to fully implement use of the best scientific (evidence-based) practice this time around, but the TWG implemented key review and selection principles and methodologies. To make the

[8] See Appendix 6 for KEML Review TWG TORs and Appendix 3 for its members

methodology explicit and set the rules for the process, key criteria were identified for application during the selection process as detailed below in the section titled *Essential Medicines Selection Criteria*.

g) Undertaking the KEML review

Following the comparison of the KEML 2016 and WHO model lists, the KEML Review TWG convened two 3-day retreats followed by numerous consultations with medical specialists in all key therapeutic areas[9].

In the retreats, TWG members were reminded of the steps to be followed and the criteria to be applied. Members signed a form declaring their lack of conflict of interest to ensure transparency, impartiality and objectivity in their work.

Using the WHO Model Lists and the tool developed for the review, and through careful application of Essential Medicines principles and selection criteria, members of the KEML TWG carried out a systematic and thorough review of each essential medicine, discrepancies and issues requiring clarification were identified and discussed, and consensus was reached on required amendments to the KEML.

During the course of the review process, important practice issues (especially relating to current inappropriate use of medicines by health professionals) were identified for urgent attention.

h) Feedback to stakeholders

Thereafter, two half-day validation meetings were convened, the first being an internal validation meeting at which KEML TWG members reviewed inputs by the specialists, and the other an external validation meeting at which key internal and external stakeholders[10] were taken through the draft KEML and also made their inputs. Participants

[9] These included national disease programmes (HIV, Malaria, TB, vaccines, family planning/reproductive health, neglected tropical diseases), psychotherapeutics, anaesthesiology, dermatology, ophthalmology, cancer, cardiovascular conditions, vaccines & immunisation, clinical nutrition, radiology, ENT, gastroenterology, renal medicine, endocrinology, rheumatology, toxicology, infectious diseases, pulmonology, palliative care, haematology, wound care, among others.

[10] Including MoH officers, KNH representative, regulatory and supply organisation officials, county and facility representatives, development partners and NMTC members

expressed appreciation for the high quality and thoroughness of the work done.

i) Finalisation of the document for printing

Simultaneous post-retreat fine-tuning and editorial work was undertaken to produce a print-ready version for signing-off by the MoH top leadership, prior to printing, official launch and dissemination.

Challenges faced during the review and revision process

Despite the systematic, scientific approach and best efforts of the TWG, a number of challenges presented themselves during the process of revision of the KEML including:

- ***Lack of updated national treatment guidelines / protocols***. The WHO ML incorporates best current practice backed up by extensive scientific evidence. Certain national guidelines and treatment protocols had not been updated at the time of the KEML review. Among them are the national Clinical Management and Referral Guidelines (2009)[11], which cover a management of clinical conditions from the community level up to the hospital level. This meant that guidance on current clinical practice in many areas was inadequate, and depended what was provided by the KEML TWG members and the specialists who were consulted. The KEML Review TWG only referred to guidelines updated from 2016 onwards.
- ***Lack of required information.*** For certain proposed items, information was missing or incomplete such as: (relative) cost; availability; cost-effectiveness; numbers of patients expected to require/benefit from the item (to assist in making a judgement on public health priority); limited published scientific information on an item, its use, and trends in local antimicrobial resistance; and lack of written submissions for proposed list amendments to the list. These constraints highlight the lack of a health technology assessment (HTA) required to ensure fully evidence-based (scientific) selection (i.e. investment) decisions and

[11] *Clinical Management and Referral Guidelines* for Level 1 Community, for Levels 2-3 Primary Care, and for Levels 4-6 Hospitals (3 books) (Ministry of Health, 2009)

thus robust justification / evidence on which the decision for each medicine selection can be based.

- ***Inadequate orientation of some contributors to essential medicines concepts.*** Although some members of the TWG had participated in a a comprehensive induction programme,other TWG members and most of the specialists had not. Efforts were made to provide a brief explanation of the purpose of the KEML and the key criteria for medicine inclusion. Not surprisingly many proposals for addition of new medicines were received which, although mostly representing good clinical practice, did not fit the criteria for listing as an essential medicine on the KEML.
- ***Inconsistencies between the national treatment guidelines, hospital formulary and WHO model lists.*** Although updated national treatment guidelines (where available) and the Kenyatta National Hospital Formulary 2019 (under development) were produced in good faith and through extensive and inclusive technical consultative processes, the management of the processes was always not fully in line with best international good practice as defined by the WHO Handbook for Guideline Development[12] and the resulting output was inevitably compromised. For example, the documents contain many more medicines than are listed on the WHO Model List, some non-recommended and/or obsolete medicines, and multiple medicines per class, where best practice would dictate identifying a first line medicine and strictly limited, well-justified second-line options.

  The 2009 Clinical Management and Referral Guidelines were not fully responsive to essential medicine criteria in the selection of medicines for use in managing the conditions covered and have, with the passage of time, inevitably become obsolete. They are not well-aligned with the new KEML and are in need of urgent review and update following a well-defined, systematic and evidence-based process. The NMTC is expected to oversee the next review of the clinical guidelines in line with WHO guidance[12] and international best practice.

[12] See Handbook for Guideline Development, WHO 2012 (available at http://apps.who.int/iris/bitstream/10665/75146/1/9789241548441_eng.pdf)

- ***Cost.*** A medicine may satisfy all other criteria but be unaffordable given the likely continuing limited funding available for procurement of health products and technologies for the public health system. A proposed medicine required for use in Kenya should be cost effective and available preferably locally. Considerations include how much use of the item costs compared to available medicine alternatives; whether its use would divert scarce resources away from other public health items of higher priority/required by large numbers of patients; comparison of the cost andof using the medicine to the effects on patients who require it but are not able to access it. The KEML Review TWG noted that absolute treatment cost should not be a reason to reject a proposed addition if the relevant criteria are met; and affordability, rather than being a precondition for listing, is a consequence that can be managed after the decision to list.
- ***Time constraints.*** The KEML review process was expedited to guide medicine selection and procurement for the national rollout of UHC. This meant that compromises had to be made to enable the rapid completion of the review process, for example, it was not possible to gather all antimicrobial resistance trend information to advise antibiotics selection nor was it possible to place proposals in the public domain for review and comment.

Recommendations for Future KEML Review and Revision

- ***Legal establishment of the NMTC.*** In the context of the sustainable development goals (SDGs) set out by the United Nations General Assembly in 2015 for the year 2030, the KEML and the Kenya clinical management and referral guidelines are critical tools for the attainment of universal health coverage (UHC). Therefore, in order to ensure that HPT financing decisions are based on sound and robust evidence, it is imperative that the NMTC become legally entrenched into the health system, through an appropriate statutory committee or agency.
- ***Full application of guidance*** on the KEML review process including: the requirement for written amendment proposals backed up by scientific justification, greater involvement of general and key stakeholders, publishing of announcements of the process, invitations for

submissions and amendment proposals on the Ministry of Health website, and early commissioning of expert (specialist) reviews of priority sections of the list.

- ***Regular review and proper alignment.*** The KEML should be under constant review and a new edition published every 2 years in line with the updates of the WHO Model List (ML). Efforts must be made to ensure that future editions of the national clinical management and referral guidelines and the KEML are properly aligned, in order to realize the full benefits of evidence-based healthcare.
- ***Continued and intensified advocacy*** for the KEML, and improved awareness and application of essential medicines principles, especially in medicine selection decisions in preparation of clinical guidelines, essential medicines lists and formularies development/review.
- ***Active monitoring and assessment*** of the KEML for the uses described in the section *Main Uses of the KEML*, and of the utilisation and impact of listed medicines, especially those which are newly introduced.
- ***Development of the required capacity in health technology assessment (HTA)***[13] to facilitate comprehensive and complete assessment of medicines proposed for addition to the list, particularly where these are not on the WHO Model List (those listed medicines have been subjected to adequate HTA to support their inclusion).
- ***Utilise the NMTC as a key contributor to the development of health financing strategies.*** A key requirement in financing the UHC agenda is to ensure that the health interventions and technologies listed in the UHC benefits package are derived from systematic and objective cost-effectiveness evaluation. In this regard, it is important that clear criteria be established to guide evidence-based decision-making on which medicines and other health technologies can be procured and/or reimbursed with public funds.

[13] Health technology assessment (HTA) is a multidisciplinary activity that systematically examines the technical performance, safety, clinical efficacy, cost-effectiveness, organizational implications, social consequences, legal, and ethical considerations of the application of a health technology' [Report from the EUR-ASSESS Project, *Int J Technol Assess Health Care* 1997, 13(2)]

KEML Revision and Amendment Procedure

It is anticipated that the KEML will be *reviewed regularly* i.e. updated at least every 2 years, depending on the nature and extent of cumulative amendments required. Urgent amendments will be disseminated as required through the already established coordination forums or other mechanisms for communication within the healthcare system.

The NMTC will undertake the review and revision of future editions of the Clinical Management and Referral Guidelines and national essential HPT lists such as Kenya Essential Medicines List (KEML), Kenya Essential Medical Supplies List (KEMSL) and Kenya Essential Medical Laboratory commodities List (KEMCL). The NMTC will be well guided by:

- Feedback obtained from operational research on KEML use in each of the key medicines management areas identified in the section *Main Uses of the KEML*
- Reports on KEML use obtained through feedback by users and during the course of supportive supervision
- MoH-approved changes in disease management protocols (with concurrent changes to the relevant Clinical Guidelines)
- Changes made to the biannual WHO Model Lists
- Results of other relevant health research into disease management and medicines utilisation
- New product information provided by medicine manufacturers
- New information arising through quality assurance systems, e.g. pharmacovigilance and post-market surveillance, and
- Completed and submitted KEML Amendment Proposal Forms (see Appendix 5) received from users.

How an EML Benefits a Country

Priority setting

The EML represents priority-setting on two levels:

1. Careful identification of the priority health interventions

2. Careful selection of a limited range of EM results in better quality of care, better medicines management (including improved quality) and more cost-effective use of health resources.

General benefits

1. Many studies show the positive impact of clinical guidelines and EMLs on the availability and appropriate use of medicines within healthcare systems. This is very important in resource-limited settings where medicines availability in the public sector is often erratic.
2. Measures to ensure regular EM supply will result in real health gains and in increased public confidence in health services - and in the government of the day.

Specific benefits

1. ***Supply chain system:*** Use of an EML results in more efficient procurement, storage, distribution, inventory management, and record keeping. Health facilities hold lower stocks (smaller item range, predictable procurement with reduced level of safety stocks). There is better quality assurance (focus on fewer items); easier dispensing (greater familiarity with fewer items); more effective local production (efficiency in producing fewer items for a more predictable market).
2. ***Prescribing and dispensing:*** Use of an EML enables prescriber training and practice to be more focused and easier to deliver; production of more focused medicines information; minimizing of irrational treatment alternatives and better recognition of adverse drug reactions (ADRs).
3. ***Cost:*** Use of an EML should lead to lower treatment costs (through selection of the most cost-effective items); economies of scale (through identification of key items for national investment and therefore a substantial market for potential suppliers) and lower supplies management costs (fewer and relevant items to manage).
4. ***Patient Use:*** Use of an EML will result in focused education efforts on fewer, well known medicines; improved patient knowledge on

medicines use; increased treatment adherence and improved medicines availability.

Essential Medicines Selection Criteria

Inclusion of a medicine on the EML should be considered if the medicine, as far as reasonably possible, meets the following criteria:

1. **Relevance/Need:** *Public health relevance*: Contribution towards meeting the *priority health care needs* of the population; seriousness of public health consequences if the condition is untreated / not well managed
2. **Safety:** *Scientifically proven and acceptable safety* (side-effects and toxicity) in its expected way of use.
3. **Comparative efficacy:** *Proven and reliable efficacy compared with available alternatives* (based on adequate and scientifically sound data from clinical studies) and items already listed in the KEML under review, where applicable.
4. **Quality:** *Compliance with internationally accepted quality standards*, as recognized by the national medicines regulatory authority (in Kenya, the Pharmacy and Poisons Board), including stability under expected conditions of storage and use.
5. **Performance:** *Sufficient evidence of acceptable performance* in a variety of settings (e.g. levels of health care).
6. **Comparative cost-benefit:** a *favourable cost-benefit ratio* (in terms of *total* treatment costs) compared with available alternatives.
7. **Local Suitability/Appropriateness:** Preference should be given to a medicine which is well known to health professionals, suitable for local use (e.g. dose-form, staff training, support facilities) and *socio-culturally appropriate* (e.g. method of use/administration).
8. **Pharmacokinetic profile:** Wherever possible the medicine should have favourable pharmacokinetic properties (absorption, distribution, metabolism and excretion; drug interactions).
9. **Local production:** Whenever possible, the medicine should be locally manufactured (for improved availability, reduced procurement costs).

In addition to these criteria, the KEML Review TWG considered the following as they prepared the KEML 2019:

- Specialist requirements: whether use of the product requires specialised training, diagnostic, handling, monitoring or other skills; at what level of care such skills would be present
- Local suitability: whether the product is appropriate for use in the local context taking into consideration cultural, environmental and other factors; possible barriers
- Local registration and availability: whether the product is registered (retained) locally through the PPB. It is anticipated that selected products that are not yet registered will be fast-tracked for registration.
- Equity: whether the addition of the item to the KEML would result in diversion of scarce funding from public health products of greater priority / required by larger number of patients; whether the longer term effect of not having the product would result in even costlier care for the patient, e.g. potential disability, even though it might be a smaller number of patients and perhaps more costly.

Main Uses of the KEML

The KEML is a cornerstone of the national healthcare system, and a key component of both the national health and national pharmaceutical policies. It is a vitally important tool and reference for managing common health conditions in the country, as well as managing and utilising medicines at national, county and institutional (health facility) levels.

The KEML aims to support the smooth functioning of the healthcare system and radically improve the availability and appropriate use of medicines, for improved health status of the population. The health sector will realize the full benefits of the KEML when it is routinely, appropriately and fully utilized in the following key areas:

1. **Healthcare financing and essential medicine supply budgeting:** The KEML should be used as a basis for prioritization of investment of available healthcare finances and, together with accurate

quantification of HPT needs, for the estimation of required annual medicines supply budgets *at all levels of the healthcare system.* It should be the starting point for determining medicines financing by development partners.

2. **Health insurance schemes:** Medicines are a major cost element in healthcare financing for Government, insurance schemes and partners. The KEML 2019 will be the basis for selection of medicines for implementing the health benefits package as defined by the UHC benefits panel. As the health sector elaborates a comprehensive healthcare financing system, the KEML should be used as the basis for expanding coverage or reimbursement of medicines costs.
3. **Procurement, warehousing & distribution (including donations):** The KEML should be used as a basis for determining medicines procurement requirements for all healthcare levels. This applies equally to public, faith-based, non-governmental organization (NGO), private sector and other actors. The strong evidence-base for expected clinical benefits will help to guide investment of scarce health resources towards providing the most appropriate medicines to patients and the public.

   Use of the KEML will help focus management efforts on a needs-based and prioritized list of critical items, and can greatly improve the functioning and efficiency of medicine supply systems.

   The ***level of use (LOU)*** designation should be used to guide the supply and use of medicines at the appropriate levels of care, as defined in the 2017 Health Act.
4. **Management of donations:** Potential medicine donors and recipients should use the KEML to determine the most appropriate types and presentations of medicines for donation to meet public health priorities, including health emergencies. This should be done in line with up-to-date national guidelines on donation of medicines and health products.
5. **Healthcare workforce development:** Up-to-date clinical guidelines and the KEML should be key references in the training of healthcare personnel, to provide correct orientation on evidence-based management of health conditions, as well as the appropriate

prescribing, dispensing and use of medicines. This includes pre- and in-service training, as well as continuous professional education for human resources for health (HRH).

6. **Medicines regulation and monitoring (including quality assurance):** The KEML should be used as a basis for ensuring an effective system of regulation of all activities involving medicines (including import, export, local production, registration, levels of distribution/use, quality monitoring, post-market surveillance, pharmacovigilance, prescribing and dispensing). The KEML should guide medicines regulation decision-making, aimed at enhancing access to Essential Medicines. This may include fast-tracking registration and incentives to stimulate local pharmaceutical production of listed medicines. Information that is comprehensive and unbiased should be made available to health workers and the public.

7. **Appropriate use of medicines:** The KEML should be used as a basis for designing strategies and initiatives to promote the correct use of medicines by health professionals, patients and the public. Such activities should focus on promoting and improving utilization of Essential Medicines (on the KEML) as the most appropriate for attaining maximum health benefits.

   In particular, the KEML should be used as the focus of surveys, studies, operational research by the National Medicines & Therapeutics Committee (NMTC) and institutional MTCs, with the aim of improving the availability, affordability, prescribing, dispensing and use of medicines for greater public health impact. It should also be used as a basis for appropriate and effective monitoring and control measures applicable for items designated as *restricted use* only.

   AMR and antibiotic use policies: The KEML 2019 has classified antibiotics into 3 classes recommended by WHO i.e. Access, Watch and Reserve (AWaRe), which is also in line with the Kenya National Policy for the Prevention and Containment of Antimicrobial Resistance.

8. **Medicines policy monitoring and operational research:** Up-to-date clinical guidelines and the KEML should be used to identify

parameters for monitoring, evaluation and operational research in the health sector, with the aim of ensuring the continued relevance of medicines and pharmaceutical policies to current healthcare requirements; as well as establishing the required evidence base for effective, systematic and regular KEML review and revision.

9. **Pharmaceutical manufacturing:** The KEML should be used as a basis for local manufacturing decisions focusing on priority public health products and formulations. Incentives for local production should primarily target products listed on the KEML.

Presentation of Information in the KEML

In this KEML 2019, broad therapeutic differences are used to list medicines into 33 major categories. Within each category, medicines appear in alphabetical order and with the appropriate dosage forms indicated, the strength/size and the level of use (LoU).

The listing does not imply preference for one medicine over another. For each medicine, the lowest level of use has been indicated to guide procurement and patient management at the various levels.

In the previous KEML (2016), selected medicines had been listed in a Specialist List to be handled only by specialists due to requirement for specialised diagnostic or monitoring facilities or specialist medical care and/or training. In KEML 2019, this has been removed with medicines being listed directly under the various healthcare levels, in recognition of the advancements within our healthcare settings.

A new **categorization of antibiotics into Access, Watch and Reserve (AWaRe) classes** has been introduced to guide the appropriate use of antibiotics, with specification of the infectious disease conditions to be managed using each medicine.

Certain products have been designated as ***Restricted*** in the footnotes so as to allow for their use to be under appropriate and effective additional monitoring and control measures. For example, items that are costly and require provision through insurance reimbursement, items restricted to certain programs or health conditions, among others.

Level of Use

This indicates the ***lowest level*** of the healthcare delivery system at which each particular medicine may reasonably be expected to be appropriately used (ie. after correct diagnosis and a correct decision on management of the condition according to current best therapeutic practice).

It is thus the *lowest level* at which the medicine is expected to be available for use (i.e. distributed, stored, prescribed and dispensed).

The current levels are as follows:

1 - Community health services
2 - Dispensary/clinic
3 - Health centre
4 - Primary hospital[14]
5 - Secondary hospital[15]
6 - Tertiary hospital[16]

[14] Sub-county hospitals

[15] County referral hospitals

[16] National (teaching and) referral hospitals

Summary of Main Changes in KEML 2019

The process of developing this KEML has resulted in significant changes to the items listed in the previous KEML 2016. The changes comprise additions of medicines that were previously not on the list, deletions of medicines that are either considered obsolete, or where other alternatives are considered more cost-effective based on available evidence; as well as changes to presentations to facilitate better administration and use.

The summary below highlights the main changes made in preparation of the KEML 2019.

Amendments Summary[17]

Deletions from KEML 2016	121
Additions to KEML 2019	540
Retentions from KEML 2016	532
Net increase	419

KEML 2019 Totals

Total medicines [18]	634
Total presentations[19]	976
Total list entries	1,072

[17] These are expressed in terms of entries, i.e. in a few cases there may be more than one list entry for a given item

[18] Drug combinations are counted separately

[19] I.e. all dose-forms, strengths, sizes of items; there are 96 multiple entries giving the total of 1,072 entries on the KEML

Kenya Essential Medicines List 2019

Kenya Essential Medicines List 2019

#	Medicine Name	Dose-form	Strength / Size	LoU
1. ANAESTHETICS, PRE- & INTRA-OPERATIVE MEDICINES and MEDICAL GASES				
1.1 General Anaesthetics and Oxygen				
1.1.1 Inhalational medicines				
1.1.1.1	Halothane	Inhalation	250mL	4
1.1.1.2	Isoflurane	Inhalation	250mL	4
1.1.1.3	Medical air	Inhalation (medical gas)		4
1.1.1.4	Nitrous oxide	Inhalation (medical gas)		4
1.1.1.5	Oxygen	Inhalation (medical gas)		2
1.1.1.6	Sevoflurane[20]	Liquid	250mL	5
1.1.2 Injectable medicines				
1.1.2.1	Dexmedetomidine[21]	Injection	100 micrograms/mL (2mL)	6
1.1.2.2	Ketamine	Injection	50mg (as HCl)/mL (10mL vial)	4
1.1.2.3	Midazolam[22]	Injection	1mg (as HCl)/mL (5mL amp)	4
1.1.2.4	Propofol[23]	Injection	10mg/mL (20mL vial)	4
1.1.2.5	Remifentanyl[24]	PFI	2mg/2mL	5
1.1.2.6	Thiopental sodium	PFI	500mg vial	4

[20] Use in critically ill geriatric and paediatric patients and those with cardiovascular disease
[21] Use only in theatre/ICU in neurosurgery
[22] Use as induction agent for anaesthesia
[23] Thiopental may be used as an alternative where Propofol is not available
[24] Use in ICU and Theatre for critically ill patients

#	Medicine Name	Dose-form	Strength / Size	LoU
1.2 Local Anaesthetics For spinal, epidural, caudal or IV regional anaesthesia, use **preservative-free** injections				
1.2.1	Bupivacaine	Injection	0.5% (as HCl) (10mL vial)	4
		Injection (spinal)[25]	0.5% (as HCl) (5mg/mL) + glucose 8% (80mg/mL) (4mL amp)	4
1.2.2	Ephedrine[26]	Injection	30mg (as HCl)/1mL	4
1.2.3	Lignocaine[27]	Injection (preservative-free)[28]	1% (as HCl) (vial)	4
		Injection	2% (as HCl) (30mL vial)	2
		Topical spray	2% (as HCl)	2
1.2.4	Lignocaine + Epinephrine (Adrenaline)	Dental cartridge	2% + 1:80,000 (1.8mL cartridge)	3
		Injection[29]	2% (HCl or sulphate) + 1:200,000 in vial	3
1.2.5	Phenylephrine[30]	Injection	10mg/mL	5
1.3 Pre- and intra-operative medication and sedation for short-term procedures				
1.3.1	Atropine	Injection	1mg (as sulphate)/1mL amp	4
1.3.2	Dexmedetomidine[31]	Injection	100 micrograms/mL (2mL)	6

[25] Also referred to as 'heavy spinal' or 'hyperbaric (heavy)'. May be available with glucose 7.5% (75mg/mL).
[26] Adjunct medicine. For use in spinal anaesthesia during delivery for prevention of hypotension. Also used as antidote (vasopressor) for ACEI drug overdose.
[27] Also known as Lidocaine
[28] Use only for epidural anaesthesia
[29] Use for suturing of minor cuts; and in eye surgeries under local anaesthesia
[30] Adjunct medicine. Use for intractable hypotension after epidural / spinal anaesthesia
[31] Can be used in short-term procedures for sedation/anaesthesia

#	Medicine Name	Dose-form	Strength / Size	LoU
1.3.3	Fentanyl[32]	Injection (preservative-free)	50 micrograms (as citrate)/mL (2mL amp)	4
1.3.4	Ketamine	Injection	50mg (as HCl)/mL (10mL vial)	4
1.3.5	Midazolam	Injection	1mg (as HCl)/mL (5mL amp)	4
1.3.6	Morphine	Injection	10mg (as HCl or sulphate) /1mL amp	4
1.3.7	Propofol	Injection	10mg/mL (20mL vial)	4
1.3.8	Remifentanyl	PFI	2mg/2mL	5
1.4 Medical gases				
1.4.1	Oxygen[33]	Inhalation		2
2. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) and CHOLINESTERASE INHIBITORS				
2.1	Atracurium	Injection	10mg (as besilate)/mL (5mL amp)	4
2.2	Cisatracurium	Injection	2mg (as besilate)/mL (10mL amp)	4
2.3	Dantrolene	Injection	20mg	4
2.4	Glycopyrronium[34]	Injection	200 micrograms (as bromide)/mL	4

[32] Restricted for intra-operative use only. Rapid onset, short-acting. May also be adjunct to spinal anaesthesia.

[33] For use in management of hypoxaemia. No more than 30% oxygen should be used to initiate resuscitation of neonates ≤ 32 weeks of gestation

[34] Use for neuromuscular blockade reversal, or intraoperative reduction of cholinergic effects in surgery

#	Medicine Name	Dose-form	Strength / Size	LoU
2.5	Neostigmine	Injection	2.5mg (as metasulphate)/1mL amp	4
2.6	Pyridostigmine	Tablet	60mg (as bromide)	4
2.7	Suxamethonium[35]	Injection	50mg (as chloride)/mL (2mL amp)	4
2.8	Vecuronium	PFI	10mg (as bromide) vial [c]	6
3. MEDICINES for PAIN and PALLIATIVE CARE				
3.1 Non-Opioids and Non-Steroidal Anti-Inflammatory Medicines (NSAIMs) Use NSAIMs with caution in patients with renal disease and cardiac conditions				
3.1.1	Acetylsalicylic acid (Aspirin)	Tablet	300mg	2
3.1.2	Celecoxib[36]	Tablet	200mg	4
3.1.3	Dexketoprofen[37]	Tablet	25mg	4
3.1.4	Ibuprofen[38]	Oral liquid	100mg/5mL [c]	2
		Tablet	200mg	2

[35] Also known as "Succinylcholine". Not to be used in children at high risk of malignant hyperthermia
[36] Use for long-term pain management in patients with history of dyspepsia or GI bleeding. If history of GI bleeding, use with PPI.
[37] Has less respiratory side-effects than Ibuprofen e.g. in those susceptible to asthmatic attacks
[38] Do not use in children aged <3 months old

#	Medicine Name	Dose-form	Strength / Size	LoU
3.1.5	Ketorolac[39]	Injection (IM/IV)	30mg/mL	2
3.1.6	Paracetamol	Injection (for IV infusion)[40]	10mg/mL (100mL vial)	4
		Oral liquid	120mg/5mL [c]	1
		Suppository	125mg [c]	2
		Tablet (scored)	500mg	1
3.2 Opioid analgesics				
3.2.1	Dihydrocodeine phosphate[41]	Tablet	30mg	3
3.2.2	Fentanyl	Transdermal patch	25 micrograms/hr[42]	5
		Transdermal patch	50 micrograms/hr[43]	5

[39] Use for acute pain management (≤5 days)
[40] **Not for anti-inflammatory use (no proven benefit). Use only for management of intra-operative pain.**
[41] **RESTRICTED.** Use only in adults for moderate pain management
[42] Releasing approximately 25 micrograms/hour for 72 hours
[43] Releasing approximately 50 micrograms/hour for 72 hours

#	Medicine Name	Dose-form	Strength / Size	LoU
3.2.3	Morphine[44]	Injection	10mg (as HCl or sulphate) /1mL amp	4
		Injection (for Infusion)[45]	30mg/mL	6
		Oral liquid	1mg (as HCl or sulphate)/mL	2
		Oral liquid	10mg (as HCl or sulphate)/mL	2
		Tablet (m/r)	30mg (sulphate)	4
3.3 Medicines for other common symptoms in palliative care				
3.3.1	Amitriptyline	Tablet	25mg	2
3.3.2	Bisacodyl	Tablet	5mg	2
3.3.3	Dexamethasone	Injection	4mg (as sodium phosphate)/1mL amp	3
		Tablet	500 micrograms	3
		Tablet (scored)	4mg	3
3.3.4	Diazepam	Injection	5mg/mL (2mL amp)	4
		Tablet (scored)	5mg	4
3.3.5	Gabapentin[46]	Tablet	300mg	4
3.3.6	Haloperidol[47]	Injection	5mg/1mL amp	3
		Tablet (scored)	5mg	3

[44] To be prescribed by specially trained palliative care professionals. Use for management of chronic pain.
[45] Use for patients with chronic pain who are feeding poorly. Use with Morphine pump
[46] Use for Neuropathic pain management
[47] For short-term use in patients (end-of-life care)

#	Medicine Name	Dose-form	Strength / Size	LoU
3.3.7	Hyoscine butylbromide	Injection	20mg/1mL amp	3
		Tablet[48]	10mg	3
3.3.8	Lactulose	Oral liquid	3.1-3.7g/5mL	4
3.3.9	Loperamide	Capsule	2mg	3
3.3.10	Metoclopramide[49]	Injection	5mg/mL (2mL amp)	4
		Tablet	10mg	2
3.3.11	Prednisolone	Oral liquid	15mg/5mL [c]	4
		Tablet	5mg	4
3.3.12	Ondansetron	Injection[50]	2mg (as HCl)/mL (2mL amp)	2
		Oral liquid[51]	4mg base/5mL [c]	2
		Tablet[50]	4mg (as HCl)	4

[48] **RESTRICTED. For use in patients with cancer only.** Use in management of small stomach syndrome and smooth muscle pain

[49] Metoclopramide should only be prescribed for short-term use (up to 3 days). Thereafter, review need for use. **Not for use in Children**

[50] Not for use in first trimester of pregnancy. Use only in children aged >6 months old

[51] Use only in children aged >6 months old

#	Medicine Name	Dose-form	Strength / Size	LoU
4. ANTIALLERGICS and MEDICINES used in ANAPHYLAXIS				
4.1	Chlorpheniramine	Injection[52]	10mg (as maleate)/1mL amp	2
		Oral liquid[53]	2mg (as maleate)/5mL	2
4.2	Dexamethasone	Injection	4mg (as sodium phosphate)/1mL amp	4
4.3	Epinephrine (adrenaline)[54]	Injection	1mg (as sodium phosphate)/1mL amp	2
4.4	Hydrocortisone	PFI	100mg (as sod. succinate) vial	2
4.5	Loratadine[55]	Tablet	10mg	2
4.6	Prednisolone	Oral liquid	15mg/5mL [c]	4
		Tablet	5mg	4
5. ANTIDOTES and OTHER SUBSTANCES used in POISONINGS				
5.1 Non-specific				
5.1.1	Activated Charcoal	PFOL	50g	2
5.2 Specific				
5.2.1	Acetylcysteine	Injection	200mg/mL (10mL amp)	4
5.2.2	Atropine sulphate	Injection	1mg/1mL amp	2
5.2.3	Benztropine[56]	Injection	2mg/2mL	4

[52] Use only for management of anaphylactic reactions and unspecified inflammatory reactions
[53] Use only in children aged >1 year old
[54] Strength may also be expressed as 1 in 1,000 or 0.1%
[55] Non-sedating antihistamine
[56] Use in management of acute dystonia (oculogyric crisis) in patients taking Antipsychotic medicines and Metoclopramide

#	Medicine Name	Dose-form	Strength / Size	LoU
5.2.4	Calcium folinate[57]	Injection	10mg/mL (5mL vial)	4
5.2.5	Calcium gluconate[58]	Injection	100mg/mL in 10mL amp	3
5.2.6	Dantrolene[59]	Injection	20mg	4
5.2.7	Deferasirox[60]	Tablet	100mg	4
5.2.8	Deferoxamine[61]	PFI	500mg (as mesilate) vial	4
5.2.9	Ethanol[62]	Injection	100% (10mL amp)	4
5.2.10	Ethanol, Medicinal[63]	Oral liquid	95-96%	4
5.2.11	Fomepizole[64]	Injection	5mg (as sulphate)/mL (20mL amp)	5
5.2.12	Flumazenil[65]	Injection	100 micrograms/mL (5mL amp)	4
5.2.13	Lipid emulsion[66]	Injection	20% (200 to 500mL)	5
5.2.14	Naloxone[67]	Injection	400 micrograms (as HCl)/1mL amp	4

[57] Use in management of Methanol poisoning
[58] Use in management of hyperkalaemia
[59] Use for management of spasticity associated with upper motor neuron disorders (e.g. spinal cord injury, stroke, cerebral palsy, or multiple sclerosis). Also used for management of hyperthermia and rhabdomyolysis due to drug-induced muscular hyperactivity; sepsis patients with rhabdomyolysis
[60] Used to reduce chronic iron overload in patients who are receiving long-term blood transfusions for conditions such as beta-thalassemia and other chronic anaemias
[61] Use in management of Acute Iron poisoning
[62] Pharmaceutical grade (i.e. BP, EP, USP); for use in Methanol poisoning. Also known as dehydrated or absolute alcohol. For administration as a 10% solution in glucose 5% IV infusion
[63] Pharmaceutical grade (i.e. BP, EP, USP); for use in Methanol poisoning. Also known as Medicinal Ethyl Alcohol. For dilution (1 part + 4 parts water) before use as a 20% solution; if unavailable, use ethanol 40% solution (e.g. vodka)
[64] Use in management of Methanol poisoning
[65] Use in management of sedative effects of benzodiazepines
[66] Antidote for systemic local anaesthesia toxicity
[67] **Not for use in neonates**

#	Medicine Name	Dose-form	Strength / Size	LoU
5.2.15	Penicillamine[68]	Tablet	250mg	5
5.2.16	Phytomenadione (Vit K1)[69]	Injection	10mg/mL (1mL amp)	4
5.2.17	Pralidoxime[70]	PFI	1g (as chloride or mesilate) vial	4
5.2.18	Protamine[71]	Injection	10mg/mL (as sulphate) (5mL amp)	4
5.2.19	Sodium hydrogen carbonate (Sodium bicarbonate)[72]	Injectable solution	8.4% (10mL amp)	4
5.2.20	Sodium nitrite[73]	Injection	30mg/mL (10mL amp)	4
5.2.21	Sodium thiosulphate[74]	Injection	250mg/mL (50mL amp)	4
5.2.22	Succimer [Dimercaptosuccinic acid (DMSA)][75]	Capsule	100mg	5
5.2.23	Thiamine (Vit B1)[76]	Tablet	50mg (as HCl)	4

[68] Use for management of Copper toxicity; second line management for Arsenic, Iron, Lead, Mercury and Zinc poisoning
[69] Use as Antidote for Warfarin
[70] Use in management of Organophosphate poisoning
[71] Low molecular weight anti-heparin
[72] Use in management of Methanol poisoning and for alkalinisation of urine in management of majority of drug overdose poisoning cases
[73] Should be procured and used together with Sodium thiosulphate in management of cyanide poisoning
[74] Should be procured and used together with Sodium nitrite in management of cyanide poisoning
[75] Use in management of heavy metal poisoning: Lead (symptomatic/asymptomatic), Mercury, Arsenic, Copper, Bismuth, Antimony
[76] Empirical treatment to prevent Wernicke-korsakoff syndrome in alcoholics and patients with altered mental status of unknown aetiology; also used in malnourished patients and as adjunct treatment in ethylene glycol (ethanol) poisoning in patients with properly diagnosed vitamin B deficiency

#	Medicine Name	Dose-form	Strength / Size	LoU
6. ANTICONVULSANTS/ANTIEPILEPTICS				
6.1	Carbamazepine	Oral liquid	100mg/5mL	4
		Tablet (cross-scored)	200mg (cross-scored)	4
6.2	Diazepam[77]	Rectal gel	5mg/mL (0.5mL tube)	2
6.3	Gabapentin	Tablet	300mg	4
6.4	Lamotrigine[78]	Tablet	25mg	4
			100mg	4
			5mg (chewable, dispersible)	4
			25mg (chewable, dispersible)	4
6.5	Levetiracetam[79]	Injection (IV)[80]	500mg	5
		Tablet (scored)[81]	500mg	4

[77] If not available, use diazepam injection solution 5mg/mL instead, administered rectally by syringe – *without the needle!!*
[78] Use as adjunctive therapy for treatment-resistant partial or generalized seizures
[79] Use for partial or generalised seizures as an alternative to Phenytoin
[80] Alternative for patients when oral administration is temporarily not feasible
[81] For use in adolescents and pregnant women

#	Medicine Name	Dose-form	Strength / Size	LoU
6.6	Lorazepam[82]	Injection	4mg/1mL amp	2
6.7	Magnesium sulphate[83]	Injection	500mg/mL (50%), (10mL amp/vial)	2
6.8	Midazolam[84]	Injection[85]	1mg (as HCl)/mL (5mL amp)	4
			10mg/mL	4
		Oromucosal solution[86]	5mg/mL	4
			10mg/mL	4
6.9	Phenobarbital (Phenobarbitone) sodium	Injection	30mg/1mL amp [c][87]	2
			200mg/1mL amp	2
		Tablet (scored)	30mg	2

[82] Intravenous Lorazepam is a first-line treatment for convulsive status epilepticus
[83] First-line treatment in eclampsia and severe pre-eclampsia in pregnant women. Not for use in other convulsant disorders. Provides 5g per 10mL amp/vial
[84] Management of status epilepticus for seizures refractory to second line treatment
[85] For buccal administration when solution for oromucosal administration is not available
[86] Management of status epilepticus for seizures refractory to second line treatment
[87] Use for paediatric emergencies

#	Medicine Name	Dose-form	Strength / Size	LoU
6.10	Phenytoin sodium	Injection	50mg/mL (5mL vial)	4
		Oral liquid	30mg/5mL	4
		Tablet / Capsule	50mg[88]	4
			100mg	4
6.11	Valproic acid (Sodium Valproate)	Injection[89]	100mg/mL in 4mL amp	4
			100mg/mL in 10mL amp	4
		Oral liquid	200mg/5mL	4
		Tablet (e/c)	200mg	4
			500mg	4
7. ANTI-INFECTIVE MEDICINES				
7.1 Anthelminthics				
7.1.1 Intestinal Anthelminthics				
7.1.1.1	Albendazole	Tablet (chewable)[90]	400mg	1
		Suspension[91]	100mg/5mL	1

[88] Allows for dosage adjustment
[89] Treatment of epilepsy in patients normally maintained on oral sodium valproate, and for whom oral therapy is temporarily not possible. Not for use in women of child bearing potential
[90] Do not use in 1st trimester of pregnancy
[91] For use in children aged 1 to 2 years

#	Medicine Name	Dose-form	Strength / Size	LoU
7.1.1.2	Mebendazole[92]	Tablet (chewable, dispersible)	500mg	1
7.1.1.3	Praziquantel	Tablet (scored)	600mg	1
7.1.2 Antifilarials Management of lymphatic filiariasis to be done with triple therapy regimen comprising Albendazole + Diethylcarbamazine dihydrogen citrate + Ivermectin				
7.1.2.1	Albendazole	Tablet (chewable)	400mg	1
7.1.2.2	Diethylcarbamazine (DEC)	Tablet (scored)	100mg (as dihydrogen citrate)	1
7.1.2.3	Ivermectin[93]	Tablet (scored)	3mg	1
7.1.3 Antischistosomals and other Antitrematode Medicines				
7.1.3.1	Praziquantel[94]	Tablet (scored)	600mg	1

[92] **RESTRICTED.** Mebendazole will only be used in the program '*Breaking Transmission strategy*'. Not to be procured

[93] Use for management of lymphatic filiariasis as triple therapy regimen comprising Albendazole + Diethylcarbamazine dihydrogen citrate + Ivermectin

[94] Can also be used for treatment of tapeworm infection

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2 Antibacterials				
7.2.1 Access Group Antibiotics				
7.2.1.1	Amikacin[95]	Injection	50mg (as sulphate)/mL in 2ml vial [c][96]	4
		Injection	250mg (as sulphate)/mL in 2ml vial	4
7.2.1.2	Amoxicillin[97]	Tablet (dispersible, scored)	250mg	2
		Capsule	500mg	2
7.2.1.3	Amoxicillin + clavulanic acid	Tablet (dispersible, scored)[98]	250mg + 62.5mg (i.e. 312.5mg)	3
		Tablet[98]	875mg + 125mg (i.e. 1g)	3
		PFI[99]	500mg + 100mg	4
			1g + 200mg	4
7.2.1.4	Ampicillin[100]	PFI	500mg vial	4

[95] Use only under close monitoring by a specialist due to its high toxicity. For treatment of urinary tract infection (complicated pyelonephritis), hospital acquired sepsis

[96] For Paediatric use

[97] Use for treatment of shigellosis and community-acquired pneumonia (CAP) in children; also in treatment of pharyngitis, sinusitis and otitis media

[98] Also called Co-amoxiclav; strength may be expressed as the total of the components. Use for treatment of community-acquired pneumonia (CAP) in adults, exacerbations of chronic obstructive pulmonary disease (COPD), and febrile neutropaenia (high/low risk). Second choice for urinary tract infection (complicated), pyelonephritis, septic arthritis (by Strep. Pyogenes).

[99] Use for treatment of community-acquired pneumonia (CAP) in adults, exacerbations of chronic obstructive pulmonary disease

[100] **RESTRICTED.** Use in treatment of Listeria, for intra-partum prophylaxis, GI endoscopy (only recommended for high risk patients undergoing high risk procedures)

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.1.5	Azithromycin[101]	Tablet (scored)	500mg (anhydrous)	2
		PFOL	200mg/5mL	2
7.2.1.6	Benzathine benzylpenicillin[102]	PFI	900mg (1.2MU) vial	2
7.2.1.7	Benzylpenicillin[103]	PFI	600mg (1MU) (as sodium or potassium salt) vial[104]	2
			3g (5MU) (as sodium or potassium salt) vial	4
7.2.1.8	Cefazolin[105]	PFI	1g (as sodium salt) in vial	4
7.2.1.9	Cefixime[106]	Tablet	400mg (as trihydrate)	2
7.2.1.10	Ceftriaxone	Injection (IM/IV)	250mg (as sodium salt) [c][107]	2
			1g (as sodium salt)[108]	2

[101] Use in treatment of community-acquired pneumonia (CAP) in children and adults (inpatient), especially in patients hypersensitive to penicillins; first line in management of selected STIs; cholera (children)

[102] Use only in treatment of selected STIs

[103] For use in children with Gentamicin in treatment of severe community acquired pneumonia (CAP); also used in treatment of cellulitis (severe); neonatal sepsis, children with severe acute malnutrition.

[104] At Level 2 facilities, use only in pre-referral management of a very sick child (with Gentamicin)

[105] Use for treatment of osteomyelitis (acute) in children, including in patients with sickle cell anaemia; septic arthritis; surgical prophylaxis. For use in patients aged >1 month

[106] **RESTRICTED.** Use at Level 2 is restricted to syndromic management of STIs only. First line treatment for selected STIs

[107] Use for treatment of complicated intra-abdominal infections; osteomyelitis (acute) in patients with sickle cell anaemia; hospital acquired sepsis, septic arthritis, among others. Do not administer with calcium; avoid in infants with hyperbilirubinaemia (only use if >41 weeks corrected gestational age)

[108] Second line treatment for selected STIs. At Level 2, use restricted to treatment of selected STIs. Use for treatment of meningitis (adults); complicated intra-abdominal infections; osteomyelitis (acute) in patients with sickle cell anaemia; hospital acquired sepsis, septic arthritis, among others. Do not administer with calcium.

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.1.11	Doxycycline[109]	Tablet / Capsule	100mg (as hyclate)	2
7.2.1.12	Flucloxacillin	Capsule[110]	250mg (as sodium salt)	2
		PFOL[110]	125mg (as sodium salt)/5mL	2
		PFI[111]	500mg (as sodium salt) vial	4
7.2.1.13	Gentamicin[112]	Injection	10mg/mL (as sulphate) (2mL vial)	2
			40mg/mL (as sulphate) (2mL vial)	3
7.2.1.14	Metronidazole	Injection[113]	5mg/mL (100mL vial)	4
		Oral liquid[114]	200mg/5mL (as benzoate)	2
		Tablet (f/c, scored)[114]	400mg	2
7.2.1.15	Nitrofurantoin[115]	Oral liquid	25mg/5mL [c]	3
		Tablet	100mg	3

[109] Use in treatment of moderate cellulitis and selected STIs. Contraindicated in pregnancy. Use in children <8 years only for life-threatening infections when no alternative exists.
[110] Use in treatment of Septic arthritis (due to Strep. pyogenes), moderate cellulitis
[111] Use in treatment of Septic arthritis (due to Strep. Pyogenes), acute osteomyelitis (due to S. aureus), osteomyelitis in newborns, moderate cellulitis
[112] Use with parenteral penicillin in treatment of severe community acquired pneumonia in children; in treatment of severe acute malnutrition in children; neonatal sepsis
[113] Use for treatment of complicated intra-abdominal infections; with Ceftraxone in management of appendectomy and colorectal infections (due to Enteric gram –ve bacillli, anaerobes)
[114] Use for treatment of complicated intra-abdominal infections, management of severe acute malnutrition (children)
[115] Use for treatment of urinary tract infection (uncomplicated/cystitis)

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.1.16	Phenoxymethylpenicilllin (Penicillin V)[116]	PFOL	250mg (as potassium salt)/5mL	3
		Tablet	250mg (as potassium salt)	3
7.2.1.17	Tinidazole[117]	Tablet (f/c)	500mg	2
7.2.2 Watch Group antibiotics				
7.2.2.1	Ceftazidime[118]	PFI	250mg (as pentahydrate) vial	4
			1g (as pentahydrate) vial	4
7.2.2.2	Ciprofloxacin[119]	Tablet (scored)	500mg (as HCl)	4
7.2.2.3	Clarithromycin[120]	Tablet (scored)	500mg	4

[116] Use for treatment of cellulitis (moderate, (in confirmed Strep. infections); also used in children with sickle cell anaemia. Also called Penicillin V.

[117] Use for treatment of complicated intra-abdominal infections. Useful longer-acting alternative to Metronidazole in treatment regimens where single daily doses may be used to improve adherence

[118] Use for treatment of hospital acquired pneumonia (HAP), febrile neutropaenia (high risk). For specialist 2nd line use only where required laboratory diagnostic support and clear antibiotic use protocols are available

[119] Use in treatment of Urinary tract infection (complicated) pyelonephritis; febrile neutro-paenia (Low risk); complicated intra-abdominal infections

[120] Use only in combination medicine regimens for treatment of H. pylori infection in adults

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.2.4	Clindamycin[121]	Capsule	150mg (as HCl)	4
		Injection	150mg (as phosphate)/mL (2mL vial)	4
		Oral liquid	75mg (as palmitate)/5mL [c]	4
7.2.2.5	Cotrimoxazole (Sulfamethoxazole + Trimethoprim)	Injection[122]	96mg/mL (5mL amp)	4
		Oral liquid[123]	240mg/5mL [c]	2
		Tablet (scored)[123]	800 + 160mg	2
7.2.2.6	Piperacillin + Tazobactam[124]	PFI	4g (as sodium salt) + 500mg (as sodium salt)	5
7.2.3 Reserve group antibiotics These antibiotics are restricted only to Level 5 & 6 Hospitals where they should be used under close monitoring with prescribing only by a specialist				
7.2.3.1	Colistin[125]	PFI	1MU (as colistimethate sodium) vial	5
7.2.3.2	Ertapenem [126]	PFI	1g	5

[121] Use as second choice in treatment of cellulitis (moderate, severe); specialist use only in bone & joint infections and secondary bacterial infections

[122] **RESTRICTED.** Use only for treatment of Pneumocystis jirovecii pneumonia (PCP), and infection with Stenotrophomonas (Xanthomonas) maltophilia

[123] **RESTRICTED.** Use only for prophylaxis against selected opportunistic infections in patients with HIV; treatment of Pneumocystis jirovecii pneumonia (PCP), and infection with Stenotrophomonas (Xanthomonas) maltophilia

[124] Use in treatment of Ventilator-associated pneumonia (VAP)

[125] Reserve medicine for treatment of Ventilator-associated pneumonia (VAP)

[126] Use for treatment of Pseudomonas infections and hospital acquired sepsis

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.3.3	Fosfomycin	Granules for oral suspension[127]	3g sachet	5
		PFI[128]	3g (as sodium) vial	5
7.2.3.4	Linezolid	Injection (IV)[129]	2mg/mL in 300mL bag	5
		Tablet[130]	600mg	5
7.2.3.5	Meropenem[131]	PFI	500mg (as trihydrate)	5
7.2.3.6	Polymyxin B[132]	PFI	500,000 IU vial	5
7.2.3.7	Teicoplanin[133]	Injection	200mg	5
7.2.3.8	Tigecycline[134]	PFI	50mg vial	5
7.2.3.9	Vancomycin[135]	PFI	500mg vial (as HCl)	5
7.2.4 Antileprosy medicines				

[127] Use as second choice treatment of urinary tract infection (uncomplicated/ cystitis)
[128] Use in treatment of urinary tract infection (due to E. coli).
[129] Treatment of severe cellulitis, acute osteomyelitis including in patients with sickle cell anaemia, and osteomyelitis in newborns
[130] Treatment of severe cellulitis, acute osteomyelitis including in patients with sickle cell anaemia
[131] Treatment of ventilator acquired pneumonia (VAP); hospital acquired sepsis; hospital acquired pneumonia (HAP); complicated intra-abdominal infections. Use only in patients aged > 3 months
[132] Treatment of ventilator-associated pneumonia (VAP)
[133] Prophylaxis and treatment of serious infections caused by Gram-positive bacteria, including methicillin-resistant Staphylococcus aureus (MRSA) and Enterococcus faecalis. Close monitoring of patient required as haematologic adverse drug reactions have been reported with use of this medicine
[134] Treatment of complicated intra-abdominal or skin infections especially in critically ill patients. Not for use in children/adolescents <18 years as its safety and efficacy not established
[135] Treatment of serious infections caused by Pseudomonas and methicillin-resistant Staphylococcus aureus (MRSA). Close monitoring of patient required as haematologic adverse drug reactions have been reported with use of this medicine

#	Medicine Name	Dose-form	Strength / Size	LoU
These Anti-leprosy medicines to be used only in combination, never individually, to prevent emergence of drug resistance				
7.2.4.1	Clofazamine	Capsule	50mg	4
			100mg	4
7.2.4.2	Dapsone	Tablet	100mg	4
7.2.4.3	Rifampicin (R)	Tablet / Capsule	150mg	4
			300mg	4
7.2.5 Antituberculosis medicines Antituberculosis treatment must always be with FDCs +/- additional relevant individual drugs				
7.2.5.1 Single medicines				
7.2.5.1.1	Ethambutol (E)	Tablet	100mg (dispersible)	2
			400mg	2
7.2.5.1.2	Isoniazid (H)	Tablet (scored)	50mg	2
		Tablet	100mg	2
			300mg	2
7.2.5.1.3	Pyrazinamide (Z)	Tablet	500mg	2
		Tablet (dispersible)	150mg	2
		Tablet (scored)	150mg	2
7.2.5.1.4	Rifabutin	Capsule	150mg	2
7.2.5.1.5	Rifampicin (R)	Capsule	150mg	2
			300mg	2

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.5.1.6	Rifapentine[136]	Tablet	150mg	2
7.2.5.2 Fixed dose combinations (FDCs)				
7.2.5.2.1	Rifampicin + Isoniazid (RH)	Tablet	150mg + 75mg	2
			75mg + 50mg [c]	2
7.2.5.2.2	Rifampicin + Isoniazid + Pyrazinamide (RHZ)	Tablet	75mg + 50mg + 150mg [c]	2
7.2.5.2.3	Rifampicin + Isoniazid + Pyrazinamide + Ethambutol (RHZE)	Tablet	150mg + 75mg + 400mg + 275mg	2
7.2.5.3 Medicines for treatment of Multi-drug resistant Tuberculosis (MDR-TB) Medicines for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control				
7.2.5.3.1	Amikacin (Am)	PFI	1g (as sulphate) vial	3
7.2.5.3.2	Amoxicillin + clavulanic acid (Co-Amoxiclav)	Tablet	875mg + 125mg (1g)	3
7.2.5.3.3	Bedaquiline (Bdq)	Tablet	100mg	3
7.2.5.3.4	Clofazimine (Cfx)	Capsule	50mg	3
			100mg	3
7.2.5.3.5	Cycloserine (Cs)	Tablet	125mg [c]	3
			250mg	3
7.2.5.3.6	Delamanid (Dlm)	Tablet	50mg	3
7.2.5.3.7	Imipenem + Cilastatin	PFI	250mg + 250mg vial	3
			500mg + 500mg vial	3

[136] For treatment of latent TB infection (LTBI) only

#	Medicine Name	Dose-form	Strength / Size	LoU
7.2.5.3.8	Levofloxacin (Lfx)	Tablet (dispersible)	100mg [c]	3
		Tablet	250mg	3
		Tablet (scored)	500mg	3
		Tablet	750mg	3
7.2.5.3.9	Linezolid (Lzd)	Tablet (dispersible)	150mg [c]	3
		Tablet	600mg	3
7.2.5.3.10	Moxifloxacin (Mfx)	Tablet (dispersible)	100mg [c]	3
		Tablet	400mg	3
7.2.5.3.11	p-aminosalicylic acid (PAS)	Granules	4g sachet	3
7.2.5.3.12	Prothionamide (Pto)	Tablet	250mg	3
7.2.5.3.13	Terizidone (Trd)	Tablet	300mg	3
7.3 Antifungal Medicines				
7.3.1	Amphotericin B[137]	PFI	50mg (as sodium deoxycholate) vial	4
7.3.2	Clotrimazole[138]	Vaginal tablet	500mg	2

[137] **RESTRICTED.** Use only in treatment of invasive fungal infections, e.g. fungal meningitis
[138] Use as alternative to Fluconazole in pregnancy

#	Medicine Name	Dose-form	Strength / Size	LoU
7.3.3	Fluconazole	Tablet / Capsule	150mg[139]	2
			200mg	4
		Injection[140]	2mg/mL (100mL bottle)	4
		Oral liquid[140]	50mg/5mL	4
7.3.4	Flucytosine[141]	Capsule	250mg	4
7.3.5	Griseofulvin	Tablet	125mg	2
			500mg	2
7.3.6	Itraconazole[142]	Capsule	100mg	5
7.3.7	Nystatin	Oral liquid (suspension)	100,000 IU/mL [c]	2
7.3.8	Terbinafine	Tablet	125mg	4
7.3.9	Voriconazole[143]	PFI	200mg vial	5

[139] Only for use in treatment of relevant STIs. Use at Level 2 restricted to STI syndromic management
[140] Use only in treatment of Cryptococcal Meningitis (CM)
[141] Use only in treatment of Cryptococcal Meningitis (CM). Flucytosine is the preferred 1st line for treatment of CM (according to WHO). Patient requires close monitoring
[142] For treatment of chronic pulmonary aspergillosis, histoplasmosis, sporotrichosis, paracoccidiodomycosis, mycoses caused by T. marneffei and chromoblastomycosis; and prophylaxis of histoplasmosis and infections caused by T. marneffei in AIDS patients
[143] Use for acute invasive aspergillosis

#	Medicine Name	Dose-form	Strength / Size	LoU
7.4 Antiviral Medicines				
7.4.1 Antiherpes medicines				
7.4.1.1	Acyclovir[144]	PFI	250mg vial (as sodium salt)	4
		Tablet (scored)	400mg	2
7.4.2 Antiretrovirals Essential medicines for treatment and prevention of HIV (prevention of mother-to-child transmission and post-exposure prophylaxis). Use of fixed dose combination (FDC (medicines for Antiretroviral therapy (ART) is recommended				
7.4.2.1 Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTI)				
7.4.2.1.1	Abacavir (ABC)[145]	Tablet	300mg	2
7.4.2.1.2	Lamivudine (3TC)	Oral liquid	50mg/5mL	2
7.4.2.1.3	Tenofovir disoproxil fumarate (TDF)[146]	Tablet	300mg	2
7.4.2.1.4	Zidovudine (AZT or ZDV)	Oral liquid	50mg/5mL	2
		Tablet	300mg	2
7.4.2.2 Non-nucleoside Reverse Transcriptase Inhibitors (NNRTI)				
7.4.2.2.1	Efavirenz (EFV)[147]	Tablet	200mg (cross-scored) [c]	2
7.4.2.2.2	Etravirine (ETV)	Tablet	25mg	3
			100mg	3
			200mg	3

[144] Use only in treatment of viral encephalitis, viral meningitis, Herpes simplex and Herpes zoster infections
[145] Patient should avoid alcohol while on ABC
[146] Use only in patients of ≥15 years or ≥35kg
[147] Use only in patients >3 years or >10kg

#	Medicine Name	Dose-form	Strength / Size	LoU
7.4.2.2.3	Nevirapine (NVP)	Oral liquid	10mg/mL	2
		Tablet (dispersible)	50mg	2
7.4.2.3 Protease Inhibitors (PI)				
7.4.2.3.1	Atazanavir (ATV)[148]	Capsule	100mg (as sulphate)	2
7.4.2.3.2	Atazanavir + Ritonavir (ATV/r)	Tablet (heat-stable)	300mg + 100mg	2
7.4.2.3.3	Darunavir (DRV)[149]	Tablet	75mg	3
			150mg	3
		Tablet (f/c)	600mg	3
		Oral liquid	10mg/mL (200mL)	3
7.4.2.3.4	Lopinavir + ritonavir (LPV/r)	Oral liquid[150]	400mg + 100mg/5mL	2
		Tablet (heat-stable)	100mg + 25mg	2
			200mg + 50mg	2
		Oral Pellets (capsule)[151]	40mg + 10mg [c]	2
7.4.2.3.5	Ritonavir (RTV)	Oral liquid	400mg/5mL	2
		Tablet (heat-stable)	100mg	2
		Oral powder	100mg sachet [c]	2

[148] Use in children > 25kg
[149] Use in children > 3 years
[150] Do not use LPV/r solution in infants aged <2 weeks of age. Requires cold chain during transport and storage. Store in a refrigerator (2°C to 8°C)
[151] Do not use in infants < 3 months and in children able to swallow tablets

#	Medicine Name	Dose-form	Strength / Size	LoU
7.4.2.4 Integrase Inhibitors				
7.4.2.4.1	Dolutegravir (DTG)[152]	Tablet	50mg	2
7.4.2.4.2	Raltegravir (RAL)[153]	Tablet	25mg	3
			100mg	3
			400mg (f/c)	3
		Granules for oral suspension	100mg sachet	3
7.4.2.5 Fixed Dose Combinations (FDCs)				
7.4.2.5.1	Abacavir + lamivudine (ABC/3TC)	Tablet (dispersible, scored)	120mg (as sulphate) + 60mg	2
		Tablet	600mg (as sulphate) + 300mg	2
7.4.2.5.2	Abacavir + Lamivudine + Lopinavir + ritonavir (ABC/3TC/LPV/r)	Granules for oral suspension	30mg (as sulphate) + 15mg + 40mg + 10mg	2
7.4.2.5.3	Tenofovir + Emtricitabine (TDF/FTC)[154]	Tablet	300mg + 200mg	2
7.4.2.5.4	Tenofovir + Lamivudine + Efavirenz (TDF/3TC/EFV)	Tablet	300mg + 300mg + 400mg	2
7.4.2.5.5	Tenofovir + Lamivudine + Dolutegravir (TDF/3TC/DTG)[155]	Tablet	300mg + 300mg + 50mg	2

[152] Use in patients ≥ 25kg. Not recommended in women and adolescent girls of childbearing potential because of potential risk of neural tube defects

[153] For use in pregnant women and second-line regimens in accordance with Kenya HIV treatment guidelines

[154] Use for oral Pre-Exposure Prophylaxis (PrEP)

[155] Use in patients ≥ 25kg. Not recommended in women and adolescent girls of child bearing potential because of potential risk of neural tube defects

#	Medicine Name	Dose-form	Strength / Size	LoU
7.4.2.5.6	Tenofovir + Lamivudine (TDF/3TC)	Tablet	300mg + 300mg	2
7.4.2.5.7	Zidovudine + Lamivudine (AZT/3TC)	Tablet	60mg + 30mg [c]	2
			300mg + 150mg	2
7.4.2.6 Medicines for prevention of HIV-related opportunistic infections				
7.4.2.6.1	Cotrimoxazole (Sulfamethoxazole + Trimethoprim)[156]	Oral liquid	240mg/5mL [c]	2
		Tablet	800 + 160mg	2
7.4.2.6.2	Dapsone[157]	Tablet	25mg	2
			100mg	2
7.4.3 Other Antivirals				
7.4.3.1	Gancyclovir[158]	PFI	500mg vial	4
7.4.3.2	Oseltamivir[159]	Oral powder	12mg/mL	5

[156] **RESTRICTED.** Use only for Cotrimoxazole Preventive Therapy (CPT) in HIV+ patients. For lilfe-long use. Effective in preventing specific opportunistic infections (OIs) for HIV+ patients with low CD4 counts (Pneumocystis jirovecii pneumonia (PCP) and toxoplasmosis), as well as reducing the risk of common bacterial infections, sepsis, diarrhoeal illness and malaria. Also used in treatment of Pneumocystis jirovecii pneumonia (PCP)

[157] **RESTRICTED.** Use only for Cotrimoxazole prophylaxis in HIV+ patients against Pneumocystis jirovecii pneumonia (PCP)

[158] Also known as Ganciclovir. Use in management of Cytomegalovirus (CMV) retinitis

[159] Use in severe illness due to confirmed or suspected Influenza virus infection in critically ill hospitalized patients

#	Medicine Name	Dose-form	Strength / Size	LoU
7.4.3.3	Ribavirin[160]	Injection (IV)	800mg in 10mL phosphate buffer solution	4
		Capsule	200mg	4
7.4.3.4	Valgancyclovir[161]	Tablet	450mg	5
7.4.4 Antihepatitis Medicines				
7.4.4.1 Medicines for Hepatitis B				
7.4.4.1.1 Nucleoside/Nucleotide reverse transcriptase inhibitors Medicines for Hepatitis B treatment should only be used under close supervision of a specialist				
7.4.4.1.1.1	Entecavir[162]	Oral liquid	0.05mg/mL	5
		Tablet	0.5mg	4
7.4.4.1.1.2	Lamivudine (3TC)	Tablet	150mg	4
		Oral liquid	50mg/5mL	5
7.4.4.1.1.3	Tenofovir disoproxil fumarate (TDF)[163]	Tablet	300mg	4
7.4.4.2 Medicines for Hepatitis C				
7.4.4.2.2 Non-pangenotypic direct-acting antiviral combinations				
7.4.4.2.2.1	Ledipasvir + Sofosbuvir	Tablet	90mg + 400mg	5

[160] Use in treatment of viral haemorrhagic fevers
[161] Also known as Valganciclovir. Use in management of Cytomegalovirus (CMV) retinitis
[162] Use for age ≥12 years
[163] TDF equivalent to 245mg Tenofovir disoproxil

#	Medicine Name	Dose-form	Strength / Size	LoU
7.5 Antiprotozoal Medicines				
7.5.1 Antiamoebic and antigiardiasis medicines				
7.5.1.1	Diloxanide[164]	Tablet	500mg (as furoate)	2
7.5.1.2	Diloxanide furoate + Metronidazole[165]	Oral liquid	250mg + 200mg	2
		Tablet	500mg + 400mg	2
7.5.1.3	Metronidazole	Injection	500mg/100mL vial	3
		Oral liquid	200mg/5mL (as benzoate)	2
		Tablet	400mg (scored)	2
7.5.1.4	Tinidazole[166]	Tablet (f/c)	500mg	2
7.5.2 Antileishmaniasis Medicines				
7.5.2.1	Amphotericin B[167]	PFI	(Liposomal) 50mg vial	4

[164] Use only in patients >25kg
[165] Combination required for clearance of cysts
[166] Useful for giardia (2g single dose); may also be used for other indications as a longer acting alternative to Metronidazole in treatment regimens where single daily doses may be used to improve adherence
[167] **RESTRICTED.** Use **only** for second-line treatment of visceral Leishmaniasis. Should be stored at 2–8 °C and should not be frozen. Protect from exposure to light

#	Medicine Name	Dose-form	Strength / Size	LoU
7.5.2.2	Paromomycin[168]	Injection solution (IM)	375mg/mL (as sulphate) (2mL amp)	4
7.5.2.3	Sodium stibogluconate[169]	Injection	100mg/mL (100mL amp)	4
7.5.3 Antimalarial medicines				
7.5.3.1 For curative treatment Medicines for the treatment of P. falciparum malaria cases should be used in combination according to treatment guidelines				
7.5.3.1.1	Artemether[170]	Injection (oily, IM)	80mg/mL in 1mL amp	2
7.5.3.1.2	Artemether + lumefantrine (AL)	Tablet[171]	20mg + 120mg	1
		Tablet (dispersible)[172]	20mg + 120mg [c]	1
7.5.3.1.3	Artesunate[173]	Injection (IM/IV)	30mg vial[174]	2
			60mg vial[175]	2
7.5.3.1.4	Artesunate + Pyronaridine tetraphosphate[176]	Tablet (f/c)	60mg + 180mg	2
		Granules for oral suspension	20mg + 60mg [c]	2

[168] Also called Aminosidine. Use only in combination with Sodium stibogluconate.
[169] Use only in combination with Paromomycin
[170] Use in management of severe malaria. Being a monotherapy, it should not be used except in the stated circumstances
[171] Do not use in 1st trimester of pregnancy (use oral Quinine). Use for patients 25 to >35kg
[172] Use for patients 5 to <25kg. Not recommended in children < 5kg
[173] Always follow artesunate treatment (24 hours minimum) with a 3-day course of artemether + lumefantrine (once the patient can take oral medication).
[174] Co-packed with 0.5mL amp of sodium bicarbonate 5% (50mg/mL) and 2.5mL amp of sodium chloride 0.9% (9mg/mL) as diluents
[175] Co-packed with 1mL amp of sodium bicarbonate 5% (50mg/mL) and 5mL amp of sodium chloride 0.9% (9mg/mL) as diluents
[176] Use for treatment of uncomplicated malaria (Plasmodium falciparum and P. vivax) in adults and children weighing ≥ 5kg. Not for use in children of weight <5kg

#	Medicine Name	Dose-form	Strength / Size	LoU
7.5.3.1.5	Dihydroartemisinin + Piperaquine (DHA-PPQ)[177]	Tablet	20mg + 160mg	3
		Tablet (scored)	40mg + 320mg	3
7.5.3.1.6	Doxycycline[178]	Capsule	100mg (as HCl or hyclate)	2
7.5.3.1.7	Primaquine[179]	Tablet	7.5mg (as diphosphate)	3
			15mg (as diphosphate)	3
7.5.3.1.8	Quinine	Injection[180]	300mg/mL (as HCl) (2mL amp)	3
		Tablet (f/c)[181]	300mg (as sulphate or bisulphate)	2
7.5.3.2 For Prophylaxis				
7.5.3.2.1	Atovaquone + Proguanil[182]	Tablet (f/c)	62.5mg (as HCl) + 25mg	4
			250mg (as HCl) + 100mg	4
7.5.3.2.2	Doxycycline[183]	Capsule	100mg (as HCl)	2

[177] Second line treatment for confirmed uncomplicated P. falciparum malaria treatment failure with 1st line AL. Use only in patients >5kg
[178] Given in combination with oral quinine to complete a total of 7 days treatment
[179] Use to achieve radical cure of P.vivax and P.ovale infections; given for 14 days
[180] For use only in the management of severe malaria when first line Artesunate injection is not available. Should only be given as an IV Infusion and never as IV (bolus) injection
[181] For use only in the management of severe malaria once patient has stabilised on injectable Quinine. Should only be used in combination with Doxycycline
[182] Chemoprophylaxis for non-immune persons visiting a malarious area
[183] Chemoprophylaxis for non-immune persons visiting a malarious area. Use only in patients > 8 years

#	Medicine Name	Dose-form	Strength / Size	LoU
7.5.3.2.3	Mefloquine[184]	Tablet	250mg (as HCl)	4
7.5.3.2.4	Proguanil[185]	Tablet	100mg (as HCl)	2
7.5.3.2.5	Sulfadoxine + Pyrimethamine[186]	Tablet	500mg + 25mg	2
7.5.4 Antipneumocystosis & Antitoxoplasmosis Medicines				
7.5.4.1	Cotrimoxazole (Sulfamethoxazole + Trimethoprim)	Injection	96mg/mL (5mL amp)	4
		Oral liquid	240mg/5mL [c]	4
		Tablet (scored)	800 + 160mg	4
7.5.4.2	Pyrimethamine[187]	Tablet	25mg	4
7.5.4.3	Sulfadiazine[187]	Tablet	500mg	4
7.5.5 Antitrypanosomal medicines				
7.5.5.1 African Trypanosomiasis				
a) Medicines for the treatment of 1st stage African trypanosomiasis				
7.5.5.1.1	Pentamidine isetionate[188]	PFI	200mg (as isetionate) vial	4

[184] Chemoprophylaxis for non-immune persons visiting a malarious area. Use only in patients > 5kg or age 3 months
[185] Use only for prophylaxis in patients with sickle-cell disease and tropical splenomegaly syndrome (TSS)
[186] **RESTRICTED.** For use only as prophylaxis i.e. Intermittent preventive treatment of malaria in pregnancy (IPTp)
[187] Use in management of Toxoplasmosis as combination of Pyrimethamine + Sulfadiazine
[188] To be used for the treatment of Trypanosoma brucei gambiense infection

#	Medicine Name	Dose-form	Strength / Size	LoU
7.5.5.1.2	Suramin sodium[189]	PFI	1g vial	4
b) Medicines for the treatment of 2nd stage African trypanosomiasis				
7.5.5.1.3	Eflornithine[188]	Injection	200mg (as HCl)/mL in 100mL bottle	4
7.5.5.1.4	Melarsoprol	Injection	3.6% solution (= 180mg), 5mL amp	4
7.5.5.1.5	Nifurtimox[190]	Tablet	120mg	4
7.6 Medicines for ectoparasitic infections				
7.6.1	Ivermectin	Tablet (scored)	3mg	3
8. ANTIMIGRAINE MEDICINES				
8.1 For treatment of Acute Attack				
8.1.1	Acetylsalicylic acid (Aspirin)	Tablet	300mg	2
8.1.2	Ibuprofen[191]	Tablet	200mg [c]	2
8.1.3	Paracetamol	Tablet (scored)	500mg	1
8.2 Prophylaxis				
8.2.1	Propranolol[192]	Tablet	40mg (as HCl)	4

[189] To be used for the treatment of the initial phase of Trypanosoma brucei rhodesiense infection
[190] Use only in combination with Eflornithine for treatment of Trypanosoma brucei gambiense infection
[191] Do not use in children < 3 months old
[192] **RESTRICTED.** Use only for Prophylaxis of Migraine (i.e. do NOT use as an alternative antihypertensive)

#	Medicine Name	Dose-form	Strength / Size	LoU
9. IMMUNOMODULATORS AND ANTINEOPLASTICS				
9.1 Immunomodulators for non-malignant disease and supportive medicines				
9.1.1	Antithymocyte globulin (ATG) (rabbit)[193]	PFI	25mg vial	6
9.1.2	Azathioprine	Tablet (scored)	50mg	5
9.1.3	Basiliximab[194]	PFI	20mg	6
9.1.4	Cyclosporin[195]	Capsule	25mg	6
			100mg	6
		Concentrate for injection[196]	50mg/mL in 1mL amp	6
9.1.5	Cyclophosphamide[197]	PFI	500mg vial	5
			1g vial	5
9.1.6	Everolimus[198]	Tablet	500 micrograms (or 0.5mg)	5

[193] Use for premedication prior to transplants to prevent organ rejection (lymphocyte depleting). May also be used in treatment of organ rejection
[194] Use for premedication prior to transplants to prevent organ rejection (non lymphocyte depleting)
[195] Also known as Ciclosporin
[196] Use in organ transplantation
[197] Immunosuppressant. Use in treatment of severe lupus, rheumatoid arthritis (RA), inflammatory muscle disease
[198] Use for maintenance immunosuppression following transplantation

#	Medicine Name	Dose-form	Strength / Size	LoU
9.1.7	Methylprednisolone[199]	PFI	125mg (as sodium succinate)	4
			500mg (as sodium succinate)	4
9.1.8	Mycophenolic acid[200]	Tablet (e/c)	180mg (as mycophenolate sodium)	6
			360mg (as mycophenolate sodium)	6
9.1.9	Mycophenolate mofetil[201]	Tablet	250mg	6
			500mg	6
9.1.10	Prednisolone	Tablet	5mg	5
			20mg	5
9.1.11	Rituximab[202]	Injection (IV)	10mg/mL (10mL vial)	6
			10mg/mL (50mL vial)	6
9.1.12	Tacrolimus	Concentrate (for IV infusion)	5mg/1mL amp	6
		Capsule	500 micrograms	6
			1mg	6
			5mg	6

[199] Use for management of rheumatologic conditions
[200] Mycophenolic acid is the active ingredient of Mycophenolate mofetil
[201] Use for prophylaxis of organ rejection in patients receiving kidney, heart or liver transplants. Should be used concomitantly with cyclosporine and corticosteroids. Newer medicine with less side effects compared to Mycophenolate sodium
[202] Use for desensitization and treatment of antibody mediated rejection; management of juvenile idiopathic arthritis and RA, systemic vasculitis, inflammatory muscle disease

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2 Antineoplastic and supportive medicines				
9.2.1 Cytotoxic medicines				
9.2.1.1	Arsenic trioxide[203]	Concentrate solution for Infusion	1mg/mL	6
9.2.1.2	Asparaginase[204]	PFI	10,000 IU vial	5
9.2.1.3	Bendamustine[205]	Injection	100mg/20mL vial	5
9.2.1.4	Bleomycin[206]	PFI	15mg vial (as sulphate)	5
9.2.1.5	Calcium folinate[207]	Injection	10mg/mL (5mL vial)	5
			10mg/mL (30mL vial)	5
		Tablet	15mg	5
9.2.1.6	Capecitabine[208]	Tablet	150mg	5
			500mg	5
9.2.1.7	Carboplatin[209]	Injection	10mg/mL (15mL vial)	5
			10mg/mL (45mL vial)	5

[203] Use in combination with All-trans retinoid acid (ATRA) for management of acute promyelocytic leukaemia

[204] Use in treatment of acute lymphoblastic leukaemia (ALL) in patients who have developed hypersensitivity to E. coli-derived asparaginase. Type required is that produced by Erwinia chrysanthemi (also known as Crisantaspase). Anaphylaxis treatment must be available.

[205] Use in treatment of chronic lymphocytic leukaemia (CLL) /small lymphocytic lymphoma (SLL), diffuse large B cell lymphoma (DLBCL), follicular lymphoma

[206] Use in Hodgkin lymphoma, Kaposi sarcoma, ovarian and testicular germ cell tumour

[207] Use in early stage colon & rectal cancers, gestational trophoblastic neoplasia, metastatic colorectal cancer, osteosarcoma, Burkitt lymphoma; also in chemotherapy protocol for acute lymphocytic leukaemia (ALL)

[208] Use in treatment of early stage colon & rectal cancers, metastatic breast & colorectal cancers

[209] Use in treatment of early stage breast cancer; epithelial ovarian cancer; easopharyngeal cancer; non-small cell lung cancer; osteosarcoma; retinoblastoma; cervical cancer

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.1.8	Chlorambucil[210]	Tablet	2mg	5
9.2.1.9	Cisplatin[211]	Injection	1mg/mL (50mL vial)	5
9.2.1.10	Cyclophosphamide[212]	PFI	500mg vial	5
		PFI	1g vial	5
		Tablet	50mg	5
9.2.1.11	Cytarabine[213]	PFI	100mg vial	5
			1g vial	5
9.2.1.12	Dacarbazine[214]	PFI	200mg vial (as citrate)	5
9.2.1.13	Dactinomycin (Actinomycin D)[215]	PFI	500 micrograms vial	5
9.2.1.14	Daunorubicin[216]	PFI	20mg vial (as HCl)	5
			50mg vial (as HCl)	5
9.2.1.15	Docetaxel[217]	Injection (premixed)	20mg vial	5
			80mg vial	5

[210] Use in chronic lymphocytic leukaemia

[211] Use in treatment of cervical cancer; head and neck cancer (as a radio-sensitizer); nasopharyngeal cancer (as a radio-sensitizer); non-small cell lung cancer; osteosarcoma; ovarian and testicular germ cell tumours

[212] Use in treatment of chronic lymphocytic leukaemia, diffuse large B-cell lymphoma, early stage breast cancer, gestational trophoblastic neoplasia, Hodgkin & follicular lymphomas, rhabdomyosarcoma, Ewing sarcoma, acute lymphoblastic leukaemia, Burkitt lymphoma, metastatic breast cancer

[213] Use in treatment of acute myeloid leukaemia; acute lymphoblastic leukaemia; acute promyelocytic leukaemia; Burkitt lymphoma

[214] Use in treatment of Hodgkin lymphoma

[215] Use in treatment of gestational trophoblastic neoplasia; rhabdomyosarcoma; nephroblastoma (Wilms tumour)

[216] Use in treatment of acute lymphoblastic leukaemia; acute myeloid leukaemia; acute promyelocytic leukaemia

[217] Use in treatment of early stage & metastatic breast cancers, metastatic prostate cancer

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.1.16	Doxorubicin[218]	PFI or Solution for Injection[219]	10mg vial (as HCl)	5
			50mg vial (as HCl)	5
9.2.1.17	Etoposide[220]	Capsule	50mg	5
			100mg	5
		Injection	20mg/mL (5mL vial)	5
9.2.1.18	Fluorouracil[221]	Injection	50mg/mL (5mL vial)	5
9.2.1.19	Gemcitabine[222]	PFI	200mg vial	5
			1g vial	5
9.2.1.20	Hydroxycarbamide (Hydroxyurea)[223]	SODF	500mg	5
9.2.1.21	Ifosfamide + Mesna[224]	Injection	1g + 600mg	5
			2g + 1200mg	5
9.2.1.22	Imatinib[225]	Tablet	400mg (as mesylate)	5

[218] Use in treatment of diffuse large B-cell lymphoma, early stage breast cancer, Hodgkin lymphoma, Kaposi sarcoma, follicular lymphoma, metastatic breast cancer, osteosarcoma, Ewing sarcoma, acute lymphoblastic leukaemia, nephroblastoma (Wilms tumour); Burkitt lymphoma; multiple myeloma

[219] The solution for injection is preferred and requires cold chain storage

[220] Use in treatment of testicular germ cell tumour, gestational trophoblastic neoplasia, Hodgkin and Burkitt lymphomas, non-small cell lung cancer, ovarian germ cell tumour, retinoblastoma, Ewing sarcoma, acute lymphoblastic leukaemia

[221] Use in treatment of HER2 negative breast cancer, adenocarcinoma, squamous cell carcinoma, metastatic colon & rectal Cancers, pancreatic and anal cancer

[222] Use in treatment of epithelial ovarian cancer, non-small cell lung cancer

[223] Use in treatment of acute lymphoblastic leukaemia, chronic myeloid leukaemia, acute lymphoblastic leukaemia

[224] Use in treatment of relapsed/refractory Hodgkins Lymphoma

[225] Use in treatment of chronic myeloid leukaemia, gastrointestinal stromal tumour

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.1.23	Irinotecan[226]	Injection	20mg/mL (2mL vial)	5
			20mg/mL (5mL vial)	5
9.2.1.24	Liposomal Doxorubicin[227]	Solution for Injection	20mg vial	5
9.2.1.25	Melphalan[228]	Tablet	2mg	5
		PFI[229]	50mg vial	5
9.2.1.26	Mercaptopurine[230]	Tablet	50mg	5
9.2.1.27	Methotrexate[231]	PFI (preservative-free)	25mg (as sodium salt)/mL (2mL vial)	5
			25mg (as sodium salt)/mL (20mL vial)[232]	5
		Tablet	2.5mg (as sodium salt)	5
			10mg	5
9.2.1.28	Oxaliplatin[233]	Solution for Injection	2mg/mL (25mL vial)	5
			2mg/mL (50mL vial)	5

[226] Use in treatment of metastatic colon and rectal cancer, glioblastoma, pancreatic cancer, metastatic anal cancer, rhabdomyosarcoma
[227] Use in treatment of Kaposi's sarcoma, relapsed/refractory Hodgkins lymphoma
[228] Use in treatment of multiple myeloma, relapsed/refractory Hodgkins lymphoma
[229] Also for intraocular administration for retinoblastoma
[230] Use in treatment of acute lymphoblastic leukaemia, acute lymphocytic leukaemia, acute promyelocytic leukaemia
[231] Use in treatment of early stage breast cancer, gestational trophoblastic neoplasia, osteosarcoma, acute lymphoblastic and promyelocytic leukaemias
[232] Providing a total of 500mg per 20mL vial
[233] Use in treatment of early stage colon cancer, metastatic colorectal cancer

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.1.29	Paclitaxel[234]	Concentrate (for IV infusion)	6mg/mL (5mL vial)	5
			6mg/mL (16.7mL vial)	5
			6mg/mL (50mL vial)	5
9.2.1.30	Procarbazine[235]	Capsule	50mg (as HCl)	5
9.2.1.31	Tioguanine[236]	SODF	40mg [c]	5
9.2.1.32	Vinblastine[237]	Injection	1mg/mL (as sulphate) (10mL vial)	5
9.2.1.33	Vincristine[238]	PFI	1mg (as sulphate) vial	5
9.2.1.34	Vinorelbine[239]	Injection	10mg/mL (1mL vial)	5
			10mg/mL (5mL vial)	5
9.2.2 Targeted therapies				
9.2.2.1	All-trans retinoid acid (ATRA)[240]	Capsule	10mg	5
9.2.2.2	Bortezomib[241]	PFI	3.5mg vial	5

[234] Use in treatment of epithelial ovarian cancer, early stage & metastatic breast cancers, Kaposi sarcoma, nasopharyngeal cancer, non-small cell lung cancer, ovarian germ cell tumour. Requires special (non-PVC) tubing (infusion set) since it absorbs through plastic
[235] Use in treatment of Hodgkin lymphoma
[236] Use in treatment of acute myeloid leukaemia (AML), acute lymphocytic leukaemia (ALL) and in metronomic chemotherapy
[237] Use in treatment of Hodgkin lymphoma, Kaposi sarcoma, testicular & ovarian germ cell tumours
[238] Use in treatment of diffuse large B-cell lymphoma; gestational trophoblastic neoplasia; Hodgkin lymphoma; Kaposi sarcoma; follicular lymphoma; retinoblastoma; rhabdomyosarcoma; Ewing sarcoma; acute lymphoblastic leukaemia; nephroblastoma (Wilms tumour); Burkitt lymphoma
[239] Use in treatment of non-small cell lung cancer, metastatic breast cancer
[240] Use in treatment of acute promyelocytic leukaemia
[241] Use in treatment of multiple myeloma

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.2.3	Gefitinib[242]	Tablet	250mg	5
9.2.2.4	Imatinib[243]	Tablet	100mg (as mesylate)	5
			400mg (as mesylate)	5
9.2.2.5	Nilotinib[244]	Capsule	200mg	5
9.2.2.6	Rituximab[245]	Injection (IV)	10mg/mL (10mL vial)	5
			10mg/mL (50mL vial)	5
9.2.2.7	Trastuzumab[246]	PFI	150mg vial	5
			440mg vial + diluent	5
9.2.2.8	Topotecan[247]	Injection	2.5mg	5
9.2.3 Immunomodulators				
9.2.3.1	Filgrastim[248]	Injection (prefilled syringe)	120 micrograms/0.2mL	5
			300 micrograms/0.5mL	5
9.2.3.2	Lenalidomide[249]	Capsule	5mg	5
			25mg	5

[242] Use as alternative to Erlotinib for EGFR mutation-positive advanced non-small cell lung cancer
[243] Use in treatment of chronic myeloid leukaemia; gastrointestinal stromal tumour
[244] Use in treatment of Imatinib-resistant chronic myeloid leukaemia
[245] Use in treatment of diffuse large B-cell and follicular lymphomas, chronic lymphocytic leukaemia
[246] Use in treatment of early stage & metastatic HER2-positive breast cancer
[247] Use in treatment of Small Cell Lung Cancer (SCLC) sensitive disease after failure of first-line chemotherapy; combination therapy with Cisplatin for stage IV-B, recurrent or persistent cervical cancer which cannot be treated with surgery and/or radiation therapy; metastatic ovarian cancer after failure of initial or subsequent chemotherapy
[248] Use as primary prophylaxis in those at high risk for developing febrile neutropenia associated with myelotoxic chemotherapy; use as secondary prophylaxis for patients who have experienced neutropenia following prior myelotoxic chemotherapy; to facilitate administration of dose dense chemotherapy regimens
[249] Use in combination with Dexamethasone for treatment of multiple myeloma (MM)

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.3.3	Pembrolizumab[250]	Injection	100mg/4mL	6
9.2.3.4	Thalidomide[251]	Capsule	100mg	5
9.2.4 Hormones and antihormones				
9.2.4.1	Abiraterone[252]	Tablet	250mg	5
9.2.4.2	Anastrozole[253]	Tablet	1mg	5
9.2.4.3	Bicalutamide[254]	Tablet	50mg	5
9.2.4.4	Capecitabine[255]	Tablet	150mg	5
			500mg	5
9.2.4.5	Dexamethasone[256]	Injection	4mg/1mL amp (as sodium phosphate)	5
		Tablet (scored)	4mg	5
9.2.4.6	Diethylstilboestrol (DES)[257]	Tablet	5mg	5

[250] **RESTRICTED. Availed through Fee for service for Insurance reimbursement (special request only).** Use in treatment of unresectable or metastatic melanoma, non-small cell lung cancer, head & neck squamous cell carcinoma, classical Hodgkin lymphoma, metastatic small cell lung cancer, microsatellite instability-high cancer, gastric and cervical cancers, primary mediastinal large B-cell lymphoma, hepatocellular and Merkel cell carcinomas, urothelial and renal cell carcinomas, oesophageal and endometrial cancers

[251] Use (with Melphalan & Prednisolone) in management of multiple myeloma

[252] Use in treatment of metastatic castration-resistant prostate cancer

[253] Use in treatment of early stage breast cancer; metastatic breast cancer. Letrozole tablets 2.5mg may be available and used as a much cheaper alternative

[254] Use in treatment of metastatic prostate cancer

[255] Use as adjuvant in hormonal breast cancer

[256] Use in treatment of acute lymphoblastic leukaemia; multiple myeloma

[257] Use in treatment of prostrate cancer

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.4.7	Goserelin	Implant (in syringe applicator)	3.6mg (as acetate)[258]	5
			10.8mg (as acetate)[257]	5
9.2.4.8	Hydrocortisone[259]	PFI	100mg vial (as sodium succinate)	5
9.2.4.9	Methylprednisolone[259]	PFI	500mg (as sodium succinate) [c]	5
9.2.4.10	Prednisolone[260]	Oral liquid	15mg/mL [c]	5
		Tablet	5mg	5
9.2.4.11	Tamoxifen[261]	Tablet	20mg (as citrate)	5
9.2.5 Nuclear medicine (Radiopharmaceuticals)				
9.2.5.1 Radiopharmaceuticals for Single photon emission computed tomography (SPECT) Use in Single photon emission computed tomography (SPECT)				
9.2.5.1.1	Dimercaptosuccinic acid (DMSA)[262]			6
9.2.5.1.2	Hepatobiliary iminodiacetic acid (HIDA)[263]			6
9.2.5.1.3	Hexamethylpropyleneamineoxime (HMPAO)[264]			6
9.2.5.1.4	Iminodiacetic acid[265]			6

[258] Use in treatment of non-malignant conditions in gynaecology
[259] Use in treatment of acute lymphoblastic leukaemia
[260] Use in treatment of chronic lymphocytic leukaemia; diffuse large B-cell lymphoma; Hodgkin lymphoma; follicular lymphoma; acute lymphoblastic leukaemia; Burkitt lymphoma; metastatic castration-resistant prostate cancer; multiple myeloma
[261] Use in treatment of early stage & metastatic breast cancers
[262] Use in SPECT: for assessing renal morphology, structure and function
[263] Use in SPECT: for viewing the bile ducts, gall bladder and liver
[264] Use in SPECT: for detection of eosinophilic infiltration in eosinophilic gastroenteritis; detection of altered cerebral perfusion in stroke and other cerebrovascular diseases
[265] Use in SPECT: for visualization of the liver and biliary tree

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.5.1.5	Iodine 123[266]			6
9.2.5.1.6	Iodine 131[267]			6
9.2.5.1.7	Mercaptoacetyltriglycine (MAG)[268]			6
9.2.5.1.8	Methylene diphosphonate (MDP)[269]			6
9.2.5.1.9	Sesta methoxyisobutylisonitrile (sestamibi)[270]			6
9.2.5.1.10	Technetium-99m generator[271]			6
9.2.5.2 Radiopharmaceuticals for Positron emission tomography (PET) Use in Positron emission tomography (PET)				
9.2.5.2.1	Fluorodeoxyglucose (FDG)[272]			6
9.2.5.2.2	Copper 64 (Cu 64)[273]			6
9.2.5.2.3	Lutetium-177 dotatate[274]			6
9.2.5.2.4	Gallium-68 dotatate[274]			6
9.2.6 Supportive medicines				
9.2.6.1	Allopurinol[275]	Tablet	100mg [c]	5
			300mg [c]	5

[266] Use in SPECT: for imaging and treating medullary thyroid cancer
[267] Use in SPECT: for treatment of hyperthyroidism and thyroid cancer
[268] Use in SPECT: for evaluating functioning of the kidneys
[269] Use in SPECT: for skeletal imaging
[270] For use in SPECT: for myocardial perfusion scintigraphy; identification of parathyroid adenomas; radio-guided surgery of the parathyroid; scintimammography
[271] Use in SPECT
[272] Use in PET: Diagnosis and treatment monitoring for many cancers
[273] Use in PET: Diagnosis and targeted treatment of prostate cancer
[274] Use in PET: treatment of neuroendocrine tumours
[275] Use in management of Tumour lysis syndrome

#	Medicine Name	Dose-form	Strength / Size	LoU
9.2.6.2	Mesna	Injection	100mg/mL (2mL amp)[276]	5
			100mg/mL (4mL amp)[277]	5
		Tablet	400mg[277]	5
9.2.6.3	Rasburicase[278]	Injection	7.5mg/vial	5
9.2.6.4	Zoledronic acid[279]	Concentrate solution for Infusion	800 micrograms/mL (in 5mL vial)	5
9.3 Medicines for benign prostatic hyperplasia (BPH)				
9.3.1	Finasteride	Tablet	5mg	4
9.3.2	Tamsulosin	Tablet	400 micrograms (as HCl)	4
10. ANTIPARKINSONISM MEDICINES				
10.1	Benzhexol	Tablet	5mg (as HCl)	4
10.2	Levodopa + Carbidopa	Tablet	100mg + 10mg	4
			250mg + 25mg	4
10.3	Pramipexole	Tablet (scored)	180 micrograms base	4
			700 micrograms base	4
11. MEDICINES for ALZHEIMER'S disease and DEMENTIA				
11.1	Donepezil[280]	Tablet	5mg	4
			10mg	4

[276] Use in management of haemorrhagic cystitis when high dose Cyclophosphamide is administered
[277] Use in treatment of testicular & ovarian germ cell tumours, osteosarcoma, rhabdomyosarcoma, Ewing sarcoma
[278] Use in management of Tumour lysis syndrome
[279] Use in treatment of malignancy-related bone disease. Provides 4mg per 5mL vial
[280] Use in management of mild to moderate dementia due to Alzheimer's disease

#	Medicine Name	Dose-form	Strength / Size	LoU
11.2	Memantine[281]	Tablet	5mg	4
12. MEDICINES affecting the BLOOD				
12.1 Antianaemics				
12.1.1	Erythropoetin (alpha or beta) stimulating agents	Injection (prefilled syringe)	2,000 IU/ 0.5mL	4
12.1.2	Ferrous salt	Oral liquid (drops)	Equivalent to 25mg (iron as sulphate)/mL	2
		Tablet (f/c)	60-65mg elemental iron	2
12.1.3	Ferrous salt + Folic acid[282]	Tablet	60-65mg elemental iron + 400 micrograms	2
12.1.4	Folic acid	Tablet	400 micrograms[283]	2
			5mg[284]	4
12.1.5	Hydroxocobalamin (Vit B12)	Injection	1mg/1mL amp (as HCl, acetate or sulphate)	4
12.1.6	Iron sucrose[285]	Injection	100mg	4
12.2 Medicines affecting coagulation				
12.2.1 Coagulant medicines				
12.2.1.1	Phytomenadione (Vit K1)	Injection	10mg/mL (0.2mL) amp [c][286]	2
12.2.1.2	Phytomenadione (Vit K1)	Injection	10mg/mL (1mL amp)	4

[281] Use in management of moderate dementia due to Alzheimer's disease when acetylcholinesterase inhibitors are contra-indicated or are not tolerated. First choice in treatment of severe dementia
[282] Nutritional supplement for use during pregnancy
[283] Use periconceptually for prevention of first occurrence of neural tube defects
[284] Supplementation in patients with sickle cell anaemia
[285] Use in dialysis patients where oral absorption of Iron is poor and to correct iron deficiency anaemia
[286] Use for all Newborns

#	Medicine Name	Dose-form	Strength / Size	LoU
12.2.2 Anticoagulant medicines				
12.2.2.1	Enoxaparin	Injection (prefilled and calibrated syringe)	40mg/0.4mL	4
			80mg/0.8mL	4
12.2.2.2	Heparin sodium[287]	Injection	5,000 IU/mL (5mL vial)	4
12.2.2.3	Rivaroxaban[288]	Tablet	10mg	5
			15mg	5
			20mg	5
12.2.2.4	Tranexamic acid	Injection	100mg/mL (5mL amp)	4
		Tablet	500mg	4
12.2.2.5	Warfarin[289]	Tablet (scored)	1mg (as sodium salt)	4
			5mg (as sodium salt)	4
12.3 Other medicines for haemoglobinopathies				
12.3.1	Deferasirox[290]	Tablet	100mg	4
			400mg	4

[287] For use in both adults and children
[288] Use for patients with atrial fibrillation and pulmonary embolism. **RESTRICTED:** Not for use in pregnancy and patients with prostheic mitral valves
[289] For use in both adults and children
[290] Use to reduce chronic iron overload in patients receiving long-term blood transfusions for conditions such as beta-thalassemia and other chronic anaemias

#	Medicine Name	Dose-form	Strength / Size	LoU
12.3.2	Deferoxamine mesilate[291]	PFI	500mg vial	4
12.3.3	Hydroxycarbamide (Hydroxyurea)	Capsule	250mg	4
			500mg	4
		SODF[292]	100mg/45mL	4
13. BLOOD PRODUCTS of HUMAN ORIGIN and PLASMA SUBSTITUTES				
13.1 Blood and Blood Components				
13.1.1	Plasma, fresh-frozen			4
13.1.2	Platelets			4
13.1.3	Red blood cells			4
13.1.4	Whole blood			4
13.2 Plasma-derived Medicines				
13.2.1 Human immunoglobulins				
13.2.1.1	Anti-D immunoglobulin[293]	PFI + diluent	750 IU/mL (2mL vial)	4
13.2.1.2	Anti-Hepatitis B immunoglobulin (HBIG)[294]	Injection	100 IU/mL	4
13.2.1.3	Anti-Rabies immunoglobulin[295]	Injection	200 IU/mL (5mL vial)	2

[291] Deferasirox oral form may be an alternative, depending on cost and availability
[292] Paediatric strength not commercially available. For extemporaneous preparation using Hydroxyurea powder
[293] Rh_0 (human monoclonal). Contains 1,500IU = 300 micrograms per 2mL vial when reconstituted
[294] Use for sexual assault survivors and children born to Hepatitis B+ mother
[295] Ig (Equine)

#	Medicine Name	Dose-form	Strength / Size	LoU
13.2.1.4	Anti-Tetanus immunoglobulin[296]	Injection	500 IU vial	4
13.2.1.5	Normal immunoglobulin[297]	Injection (IV)	5% protein solution (100mL vial)	4
			10% protein solution (100mL vial)	4
13.2.2 Blood Coagulation Factors				
13.2.2.1	Coagulation factor VIII	PFI (Extended half-life)	250 IU vial	4
			500 IU vial	4
			1,000 IU vial	4
13.2.2.2	Coagulation factor IX	PFI (Extended half-life)	250 IU/vial	4
			500 IU/vial	4
			1,000 IU vial	4
13.3 Plasma substitutes				
13.3.1	Human albumin infusion[298]	Solution	5%	4
			20%	4
13.3.2	Hydroxyethyl starch[299]	Solution for Infusion	6%	4

[296] Ig (Human)
[297] Normal Ig. Use for primary immune deficiency and Kawasaki disease
[298] Required for protein supplementation for patients with burn and other chronic wounds
[299] Plasma expander

#	Medicine Name	Dose-form	Strength / Size	LoU
13.3.3	Gelatin-based colloid[300]	Solution for Infusion	4%	4
13.3.4	Polygeline[301]	Infusion (IV)	3.5% (500mL pack)	4
14. CARDIOVASCULAR MEDICINES				
14.1 Antianginal Medicines				
14.1.1	Bisoprolol	Tablet	1.25mg	4
			5mg	4
14.1.2	Carvedilol	Tablet	6.25mg	4
			12.5mg	4
14.1.3	Glyceryl trinitrate	Tablet (sublingual)	500 micrograms	4
14.1.4	Isosorbide dinitrate	Tablet	20mg	4
14.1.5	Trimetazidine	Tablet (m/r)	35mg	4
14.2 Antiarrhythmic medicines				
14.2.1	Adenosine[302]	Injection	6mg/2mL	6
14.2.2	Amiodarone	Injection[303]	50mg (as HCl)/mL in 3mL	5
		Tablet[304]	100mg (as HCl)	4
			200mg (as HCl)	4

[300] Plasma expander. Use as alternative in patients with renal insufficiency and intolerance to starch plasma expanders
[301] Partially degraded gelatin. Plasma expander
[302] Use in management of supraventricular tachycardia in Critical care units
[303] Only for IV use in ICU/Critical care units. Reserved for use in exceptional cases when other therapy for Arrhythmias associated with structural and congenital heart disease has failed
[304] Tablet form enables conversion from IV to oral administration

#	Medicine Name	Dose-form	Strength / Size	LoU
14.2.3	Bisoprolol	Tablet	1.25mg	4
			5mg	4
14.2.4	Carvedilol	Tablet	6.25mg	4
			12.5mg	4
14.2.5	Digoxin	Oral liquid[305]	50 micrograms/mL	4
		Tablet	250 micrograms	4
14.2.6	Verapamil[306]	Tablet	40mg (as HCl)	4
14.3 Antihypertensive medicines				
14.3.1 Angiotensin converting enzyme (ACE) Inhibitors (ACEIs)				
14.3.1.1	Enalapril	Tablet (scored)	5mg (as hydrogen maleate)	3
		Tablet	10mg (as hydrogen maleate)	4
14.3.2 Angiotensin Receptor Blockers (ARBs)				
14.3.2.1	Losartan	Tablet (scored)	50mg	3
14.3.2.2	Telmisartan[307]	Tablet	40mg	4
14.3.3 Beta Blockers (BBs)				
14.3.3.1	Bisoprolol	Tablet	1.25mg	
			5mg	

[305] Measure doses with the graduated pipette provided
[306] Replaces 80mg as a lower strength has less side effects and easier to manage in case given by mistake
[307] Has 24-hour action

#	Medicine Name	Dose-form	Strength / Size	LoU
14.3.3.2	Carvedilol	Tablet	6.25mg	4
			12.5mg	4
14.3.3.3	Labetalol[308]	Injection	5mg/mL (20mL amp)	5
14.3.4 Calcium channel Blockers (CCBs)				
14.3.4.1	Amlodipine	Tablet	5mg	3
14.3.4.2	Nifedipine[309]	Tablet (s/r)	20mg	4
14.3.4.3	Verapamil	Tablet (s/r)	240mg (as HCl)	5
14.3.5 Thiazide & Thiazide-like Diuretics				
14.3.5.1	Hydrochlorothiazide (HCTZ)	Tablet (scored)	25mg	3
14.3.6 Other anti-hypertensive agents				
14.3.6.1 Centrally acting antihypertensive agents				
14.3.6.1.1	Methyldopa[310]	Tablet (f/c)	250mg	4
14.3.6.1.2	Phenoxybenzamine[311]	Capsule	10mg	5
14.3.6.2 Potasium sparing Diuretics				
14.3.6.2.1	Spironolactone[312]	Tablet (scored)	25mg	4
14.3.6.3 Loop Diuretics				
14.3.6.3.1	Torasemide[312]	Tablet (scored)	20mg	5

[308] For use in Critical Care units for hypertensive emergencies and for management of Hypertension in pregnancy
[309] Use for management of Hypertension in pregnant women
[310] **RESTRICTED.** For use only for Hypertension in Pregnancy and resistant Hypertension
[311] Use in management of Phaechromocytoma
[312] Use in patients needing enhanced diuretic effect

#	Medicine Name	Dose-form	Strength / Size	LoU
14.3.6.4 Vasodilators				
14.3.6.4.1	Hydralazine	Injection[313]	20mg (as HCl)	3
		Tablet	25mg (as HCl)	3
		Tablet	50mg (as HCl)	4
14.3.6.5 Alpha 1 Receptor Blockers				
14.3.6.5.1	Doxazosin[314]	Tablet	2mg	4
14.3.6.5.2	Prazosin[314]	Capsule	1mg	4
			5mg	4
14.3.6.6 Others				
14.3.6.6.1	Sildenafil[315]	Tablet	25mg	4
14.3.7 Combination Antihypertensive medicines Fixed dose combination (FDC) drugs are recommended as they minimize toxicity and therefore side effects as well as improve adherence to treatment				
14.3.7.1	Amlodipine + Hydrochlorothiazide (HCTZ)[316]	Tablet	5mg + 12.5mg	4
14.3.7.2	Losartan + Hydrochlorothiazide (HCTZ)	Tablet	50mg + 12.5mg	3

[313] **RESTRICTED.** Use only in acute management of severe pregnancy-induced hypertension. NOT recommended for use in treatment of essential hypertension in view of greater efficacy and safety of other medicines

[314] Use for management of resistant hypertension

[315] Use for management of pulmonary hypertension

[316] Calcium channel Blocker (CCB)/Thiazide FDC results in better reduction of blood pressure

#	Medicine Name	Dose-form	Strength / Size	LoU
14.3.7.3	Lisinopril + Hydrochlorothiazide	Tablet	20mg + 12.5mg	4
14.3.7.4	Telmisartan + Amlodipine[317]	Tablet	40mg + 5mg	4
14.3.7.5	Telmisartan + Hydrochlorothiazide[317]	Tablet	40mg + 12.5mg	4
			80mg + 12.5mg	4
14.4 Medicines used in Heart Failure				
14.4.1	Bisoprolol	Tablet	1.25mg	4
			5mg	4
14.4.2	Carvedilol	Tablet	12.5mg	4
14.4.3	Digoxin	Oral liquid[318]	50 micrograms/mL	4
		Tablet	125 micrograms	4
14.4.4	Dobutamine	Injection (solution)	12.5mg/mL (20mL)	5
14.4.5	Dopamine[319]	Injection	40mg/mL (as HCl) (5mL vial)	5
14.4.6	Enalapril	Tablet (scored)	5mg (as hydrogen maleate)	4
14.4.7	Furosemide	Injection	10mg/mL (2mL amp)	4
		Tablet (cross-scored)[320]	40mg	3
14.4.8	Hydralazine	Tablet	25mg (as HCl)	4
			50mg (as HCl)	4

[317] Has 24-hour action
[318] Measure doses with graduated pipette provided
[319] Should only be used when there is protracted hypotension. Only for use in ICU
[320] Use for management of Hypertension in patients with renal failure

#	Medicine Name	Dose-form	Strength / Size	LoU
14.4.9	Isosorbide dinitrate	Tablet	20mg	4
14.4.10	Ivabradine	Tablet (scored)	5mg	5
		Tablet	7.5mg	5
14.4.11	Losartan	Tablet (scored)	50mg	4
14.4.12	Metolazone[321]	Tablet	5mg	5
14.4.13	Milrinone[322]	Injection (solution)	1mg/mL (10mL)	6
14.4.14	Nitroglycerin (NTG)	Injection	2.5mg/mL (10mL) amp	5
14.4.15	Norepinephrine (Noradrenaline)[323]	Injection	1mg/mL	5
14.4.16	Sacubitril + Valsartan[324]	Tablet (f/c)	24mg + 26mg	5
14.4.17	Spironolactone	Tablet (scored)	25mg	4
14.4.18	Torasemide[325]	Tablet (scored)	20mg	5
14.5 Antithrombotic medicines				
14.5.1 Anti-platelet medicines				
14.5.1.1	Acetylsalicylic acid (Aspirin)	Tablet	75mg	4
14.5.1.2	Clopidogrel	Tablet	75mg	4

[321] Use for management of oedema in people with congestive heart failure
[322] Use only in Hospitals with Critical Care units for patients with pulmonary hypertension especially post-operative open heart surgery, under close supervision by specialist
[323] Use only when there is protracted hypotension
[324] First line treatment for heart failure
[325] Use in patients needing enhanced diuretic effect

#	Medicine Name	Dose-form	Strength / Size	LoU
14.5.2 Thrombolytic medicines				
14.5.2..1	Tenecteplase[326]	Injection (graduated prefilled syringe)	50mg (10mL)	6
14.6 Lipid-lowering agents				
14.6.1	Atorvastatin	Tablet	20mg	4
			40mg	4
15. DERMATOLOGICAL MEDICINES (Topical)				
15.1 Antifungal medicines				
15.1.1	Clotrimazole	Cream	1%	2
15.1.2	Miconazole	Cream	2% (as nitrate)	3
15.1.3	Terbinafine[327]	Cream	1% (as HCl)	4
15.2 Anti-infective medicines				
15.2.1	Fusidic acid[328]	Ointment	2% (15g)	4
15.2.2	Mupirocin[329]	Ointment	2% (15g)	4
15.2.3	Silver sulphadiazine[330]	Cream	1% (50g)	2
15.3 Anti-inflammatory and antipruritic medicines				
15.3.1	Betamethasone[331]	Cream[332]	0.1% (as valerate)	4
		Ointment[333]	0.1% (as valerate)	4
15.3.2	Calamine	Lotion	15%	1

[326] Only for use in hospitals with ICU and specialist
[327] Use only in refractive infections
[328] Use **RESTRICTED** to <14 days. Sodium fusidate cream 2% may also be used
[329] Use for prevention of local infection when performing dialysis procedures
[330] Use only in patients aged >2 months
[331] Avoid use in neonates (hydrocortisone cream preferred).
[332] Use for early management of skin conditions
[333] Use for management of longer-lasting skin conditions

#	Medicine Name	Dose-form	Strength / Size	LoU
15.3.3	Clobetasone propionate	Ointment	0.05%	4
15.3.4	Crotamiton[334]	Cream	10% (30g)	2
15.3.5	Hydrocortisone	Cream	1% (as acetate)	2
		Ointment	1% (as acetate)	3
15.3.6	Mometasone[335]	Ointment	0.1% (as furoate) (30g)	4
15.3.7	Tacrolimus[336]	Ointment	0.03% (as monohydrate) (10g)	4
			0.1% (as monohydrate) (10g)	4
15.4 Medicines affecting skin differentiation and proliferation				
15.4.1	Benzoyl peroxide[337]	Gel	5% (30g)	4
15.4.2	Dithranol[338]	Paste	2%	4
15.4.3	Podophyllin resin[339]	Solution	15% (in benzoin tincture) (15mL)	3
15.4.4	Salicylic acid[340]	Ointment	3%	4
15.5 Scabicides and pediculicides				
15.5.1	Benzyl Benzoate[341]	Lotion	25% (50mL)	2
15.5.2	Calamine	Lotion	15%	1

[334] Use for management of pruritis (especially after scabies)
[335] Potent topical steroid
[336] Medicine of choice in children since is not steroid-based; also use for management of moderate to severe atopic eczema, especially if refractory
[337] Use for management of acne vulgaris
[338] Use for management of Psoriasis. Not commercially available hence for extemporaneous preparation from Dithranol powder
[339] Use for management of warts and for keratosis
[340] Use for management of dermatitis, scabies, psoriasis
[341] Not for use in children (use Crotamiton)

#	Medicine Name	Dose-form	Strength / Size	LoU
15.5.3	Crotamiton[342]	Cream	10% (30g)	2
15.5.4	Ivermectin	Tablet (scored)	3mg	3
15.6 Medicines for Jiggers				
15.6.1	Benzyl Benzoate[343]	Lotion	25% (50mL)	2
15.6.2	White soft paraffin (Petroleum jelly)[344]	Topical application	100g	1
15.7 Sunscreen preparations				
15.7.1	Sun screening agent(s)[345]	Cream or lotion	SPF 50+	1
16. DIAGNOSTIC AGENTS				
16.1 Ophthalmic diagnostics				
16.1	Fluorescein	Test strip	0.6mg	4
16.2	Tropicamide + Phenylephrine[346]	Eye drops	0.8% + 5% w/v	4

16.2 Radiocontrast media

A Health facility should have an equipped emergency tray in case of a reaction from any contrast media. All patient reactions to contrast media must be documented using the pharmacovigilance forms provided with the product by the manufacturer. The health facility should also maintain a register for the same. The register should capture: Unique patient identifier; 3 patient names; Hospital name; Examination number; contrast agent name and formulation; dose amount; date, time & method of administration; injection site; any adverse reactions; document type; renal function tests for serum creatinine and eGFR before examination[347]

[342] Use for management of pruritis (especially after scabies)
[343] Not for use in children
[344] Use for management of jiggers. Also called White petrolatum
[345] Must have 50-plus Sun Protection Factor (SPF) and protect against both UVA and UVB, especially protecting against 98% of UVB rays. Various preparations may be available
[346] Use in cataract surgery and eye examinations
[347] Ref: ACR manual on contrast media, ver 10.3, 2018

#	Medicine Name	Dose-form	Strength / Size	LoU
16.2.1	Amidotrizoate[348]	Solution (oral and rectal use)	370-420mg iodine/mL (as sodium or meglumine salt) (100mL)	4
16.2.2	Barium sulphate	Suspension (aq)	95% w/w concentration (1 litre)	4
		Paste (for oral or rectal use)[349]	92% w/w concentration	4
16.2.3	Iso-osmolar contrast media[350]	Solution for IV injection/infusion	320mg iodine/mL (100mL)	4
16.2.4	Non ionic low osmolar water-soluble iodinated contrast media	Injection	300mg iodine/mL (50mL) [c][351]	4
			300mg iodine/mL (100mL) [c][351]	4
			350mg iodine/mL (50mL)[352]	4
			350mg iodine/mL (100mL)[352]	4
			300mg iodine/mL (50mL) [For intrathecal, oral, intra-cavitary and intravenous use] [c][353]	4

[348] For non-injectable use. Restrict to areas that will not be in contact with intravascular compartments
[349] Used as enema. Not commercially available; has to be compounded as extemporaneous preparation
[350] Use for patients with high risk profile (diabetes, oncology, etc) with dehydration and needing urgent contrast examinations (at risk of nephrotoxity, etc); also for intra-arterial injection
[351] For use in children
[352] For use in adults
[353] For use in children. Low osmolar water soluble iodinated contrast media with specific manufacturer recommendations for use in the listed anatomical regions

#	Medicine Name	Dose-form	Strength / Size	LoU
			300mg iodine/mL (100mL) [For intrathecal, oral, intra-cavitary and intravenous use] [c][353]	4
			350mg iodine/mL (50ml) [For oral, intra-cavitary and intravenous use][354]	4
			350mg iodine/mL (100ml) [For oral, intra-cavitary and intravenous use][354]	4
16.3 MRI contrast media Only a Radiologist should recommend use of Contrast media for MRI. Only use MRI Contrast media when absolutely necessary				
16.3.1	Gadobutrol	Injection (solution) (IV)	1mmol/mL (7.5mL)[355]	4
		Injection (solution) (IV)	1mmol/mL (15mL)[355]	4
16.3.2	Gadodiamide	Injection (solution) (IV)	0.5 mmol/mL (20mL)[356]	4
16.3.3	Gadopentate dimeglumine	Injection (solution) (IV)	0.5 mmol/mL (10mL)[357]	4
			0.5 mmol/mL (15mL)[357]	4

[354] Low osmolar water soluble iodinated contrast media with specific manufacturer recommendations for use in the listed anatomical regions
[355] Equivalent to 604.72mg/mL
[356] Equivalent to 287mg/mL
[357] Equivalent to 469.01mg/mL

#	Medicine Name	Dose-form	Strength / Size	LoU
17. DISINFECTANTS and ANTISEPTICS				
17.1 Antiseptics				
17.1.1	Chlorhexidine	Solution for dilution	5% (as gluconate/ digluconate)	2
17.1.2	Ethanol	Solution	70% (denatured)	2
17.1.3	Povidone iodine	Solution	10% (equiv. to Iodine 1%)	2
17.2 Disinfectants				
17.2.1	Alcohol-based hand rub	Solution	Isopropyl alcohol 75% (500mL dispenser)	1
17.2.2	Glutaral[358]	Solution	2%	2
17.2.3	Sodium hypochlorite[359]	Solution	4-6% chlorine	1
18. DIURETICS				
18.1	Amiloride	Tablet	5mg (as HCl)	4
18.2	Furosemide[360]	Injection	10mg/mL (2mL amp)	4
		Oral liquid	20mg/5mL [c][361]	4
		Tablet (cross-scored)	40mg	4
18.3	Hydrochlorothiazide (HCTZ)	Tablet (scored)	25mg	4

[358] Previously called Activated Gluteraldehyde. Use within 6 months of date of manufacture. Only use freshly made dilutions

[359] Provides approximately 50,000ppm available chlorine

[360] Can also be used for management of Hypertension in patients with renal failure

[361] Paediatric strength not commercially available. For extemporaneous preparation using Furosemide tablets

#	Medicine Name	Dose-form	Strength / Size	LoU
18.4	Mannitol	Injectable solution	20%	4
18.5	Spironolactone	Tablet (cross-scored)	25mg	4
		Tablet (scored)	100mg[362]	4
18.6	Vasopressin[363]	Injection	20 units/mL	5
19. GASTROINTESTINAL MEDICINES				
19.1 Antiulcer medicines				
19.1.1	Lansoprazole[364]	Tablet (dispersible)	15mg [c]	4
19.1.2	Omeprazole	PFI[365]	40mg (as sodium salt) vial	4
		Capsule	20mg	3
19.2 Antiemetics				
19.2.1	Dexamethasone	Tablet	4mg	4
19.2.2	Domperidone[366]	Oral liquid	5mg/5mL	5
		Tablet	10mg	3
19.2.3	Fosaprepitant[367]	Injection	150mg	5
19.2.4	Metoclopramide[368]	Injection	5mg/mL (2mL amp)	4
		Tablet	10mg	2

[362] Diuretic for use in older patients
[363] Used for management of diuresis after neurotrauma
[364] For paediatric use
[365] Use in management of severe peptic ulcer as well as peptic ulcer in general when oral route is not possible
[366] Alternative in patients who cannot tolerate Metoclopramide and in young children requiring an oral liquid antiemetic. For children, use under close supervision of a Paediatrician. Additional restrictions apply (small increased risk of serious cardiac side effects).
[367] Use in combination with other antiemetic medicines for management of stubborn emesis
[368] Not for use in Children. Metoclopramide should only be prescribed for short-term use (up to 3 days). Thereafter, review need for use.

#	Medicine Name	Dose-form	Strength / Size	LoU
19.2.5	Olanzepine[369]	Tablet	5mg	5
19.2.6	Ondansetron	Injection[370]	2mg (as HCl)/mL (2mL amp)	2
		Oral liquid[371]	4mg base/5mL [c]	2
		Tablet[370]	4mg (as HCl)	4
19.3 Anti-inflammatory medicines				
19.3.1	Mesalazine	Tablet (e/c)	400mg	4
19.3.2	Prednisolone	Tablet	5mg	4
19.4 Laxatives				
19.4.1	Bisacodyl	Tablet	5mg	2
		Suppository	5mg	2
19.4.2	Lactulose[372]	Oral liquid	3.1-3.7g/5mL	4
19.5 Medicines used in Diarrhoea				
19.5.0	Oral rehydration salts + Zinc sulphate	Co-pack (4 sachets + 10 tablets)	PFOL in sachet to make 500mL + 20mg tablet (dispersible) [c]	2
19.5.1 Oral Rehydration				
19.5.1.1	Oral rehydration salts (ORS)	PFOL (to make 500mL)	Sachet (WHO low-osmolarity formula)	1

[369] For control of emesis and stimulation of appetite
[370] Not for use in first trimester of pregnancy. Use only in children aged >6 months old
[371] Use only in children >6 months old
[372] Preferred for use in elderly patients

#	Medicine Name	Dose-form	Strength / Size	LoU
19.5.1.2	Rehydration solution for malnutrition (ReSoMal)[373]	PFOL (to make 1L)	Sachet (42g) (WHO formula)	4
19.6 Vasoconstrictor Medicines				
19.6.1	Terlipressin[374]	Injection	1mg (as acetate) in 8.5ml solution	4
19.7 Medicines used for Ascites and GI bleeding				
19.7.1	Vasopressin[375]	Injection	20 units/mL	5
20. MEDICINES for ENDOCRINE DISORDERS				
20.1 Adrenal Hormones & Synthetic Substitutes				
20.1.1	Fludrocortisone[376]	Tablet	100 micrograms (as acetate)	4
20.1.2	Hydrocortisone[377]	Tablet	5mg	4
			20mg	4
20.2 Androgens				
20.2.1	Testosterone	Gel[378]	1%	4
		Injection (oily)[379]	250mg (as enanthate)/1mL amp	4

[373] Use with ORS in acute diarrhoea
[374] Containing 0.12 mg/ml Terlipressin. Use for management of variceal bleeding and hepatorenal syndrome
[375] Use for management of ascites and GI bleeding
[376] Use in management of congenital adrenal hyperplasia
[377] Use in management of congenital adrenal hyperplasia in newborns for long-term use, Addison's disease
[378] Use for treatment of disorders of sexual development
[379] Use in management of delayed puberty

#	Medicine Name	Dose-form	Strength / Size	LoU
20.3 Estrogens				
20.3.1	Conjugated Estrogens	Tablet[380]	300 micrograms	4
		Cream (Vaginal)[381]	0.625mg/g (30g)	4
20.3.2	Estradiol[382]	Transdermal patch	0.1mg/day	4
20.4 Progestogens				
20.4.1	Medroxyprogesterone[383]	Tablet	5mg (as acetate)	4
20.5 Medicines for diabetes				
20.5.1 Insulins				
20.5.1.1	Insulin, Ultra short-acting (Rapid)[384]	Injection	100 IU/mL (10mL vial)	4
20.5.1.2	Insulin, Short acting (Soluble)	Injection	100 IU/mL (10mL vial)	3
20.5.1.3	Insulin, intermediate-acting	Injection	100 IU/mL (10mL vial)	4
20.5.1.4	Insulin, Premixed (Short acting + Intermediate acting)[385]	Injection	100 IU/mL (10mL vial)	4
20.5.1.5	Insulin, Premixed (Ultra short acting + Intermediate acting)[386]	Injection	100 IU/mL (10mL vial)	4

[380] Use as Hormone Replacement Therapy (HRT)
[381] Use as Hormone Replacement Therapy (HRT); also used in management of labial fusion or urethrocele in women or young girls
[382] Use for management of all cases of delayed puberty including Turner's syndrome
[383] Use for management of menstrual conditions and abnormal uterine bleeding
[384] Recombinant Human Insulin Analogue
[385] Premix insulin (30 Regular + 70 NPH). Recombinant Human Insulin Analogue
[386] Premix insulin (25% Ultra short acting + 75% Intermediate acting). Recombinant Human Insulin Analogue

#	Medicine Name	Dose-form	Strength / Size	LoU
20.5.1.6	Insulin, Long-acting (basal) [Glargine][384]	Injection	100 IU/mL (10mL vial)	4
20.5.2 Oral hypoglycaemic agents				
20.5.2.1 Sulphonylureas				
20.5.2.1.1	Gliclazide[387]	Tablet (m/r)	30mg	4
		Tablet (i/r)	40mg	4
20.5.2.2 Biguanides				
20.5.2.2.1	Metformin	Tablet	500mg (as HCl)	3
			500mg (as HCl) [c][388]	4
20.5.2.3 Thiazolidinediones				
20.5.2.3.1	Pioglitazone[389]	Tablet	15mg	4
20.5.2.4 Dipeptidylpeptidase (DPP)-4 inhibitors (Gliptins)				
20.5.2.4.1	Sitagliptin[390]	Tablet	50mg	5
20.5.2.5 SGLT-2 inhibitors				
20.5.2.5.1	Empagliflozin[390]	Tablet	10mg	5
20.6 Medicines for hypoglycaemia				
20.6.1	Diazoxide	Suspension[391]	50mg/mL	4

[387] Can be used for Chronic Kidney Disease (CKD) as it is cardio-protective unlike Glibenclamide
[388] Use for management of Type 2 diabetes mellitus in child of age 10-17 years
[389] Use in management of Type 2 diabetes mellitus (alone or combined with Metformin or a Sulphonylurea, or with both, or with insulin)
[390] Use in patients with Type 2 Diabetes mellitus where other antidiabetic drugs have failed to achieve effective glycaemic control
[391] Use to manage hypoglycaemia in new-borns. Suspension not commercially available; has to be compounded as extemporaneous preparation

#	Medicine Name	Dose-form	Strength / Size	LoU
20.7 Thyroid Hormones and Anti-thyroid Medicines				
20.7.1	Carbimazole	Tablet	5mg	4
20.7.2	Levothyroxine	Tablet	25 micrograms (as sodium salt) [c]	4
			50 micrograms (as sodium salt)	4
			100 micrograms (as sodium salt)	4
20.7.3	Lugol's Iodine solution[392]	PFOL	~130mg total iodine/mL	4
20.7.4	Propranolol[393]	Tablet (scored)	40mg	4
20.7.5	Propylthiouracil[394]	Tablet	50mg	4
20.8 Other endocrine medicines				
20.8.1	Carbergoline[395]	Tablet	0.5mg	4
21. IMMUNOLOGICALS				
21.1 Diagnostic agents				
21.1.1	Tuberculin, purified protein, derivative (PPD)[396]	Injection (solution)	0.1mL vial (single dose)	4

[392] Use for management of thyroid conditions and protection of thryoid gland after radiation exposure or radioactive iodine treatment. Oral liquid not commercially available; has to be compounded from Potassium iodide powder as extemporaneous preparation

[393] Use in management of hyperthyroidism

[394] Use as medicine of choice (i.e. rather than Carbimazole) during 1st trimester of pregnancy and in lowest effective dose to control hyperthyroid state

[395] For management of hyperprolactinemia / suppression of lactation

[396] Contains 2 tuberculin units (TU)/0.1mL. For Mantoux test i.e. for screening for tuberculosis and for tuberculosis diagnosis

#	Medicine Name	Dose-form	Strength / Size	LoU
21.2 Sera and Immunoglobulins				
21.2.1	Anti Snake venom immunoglobulin	Injection (for IV infusion)	Monovalent serum (for Boomslang (Dyspholidus typus, African) bites), vial[397]	2
			Polyvalent serum (African) (10mL vial)[398]	2
21.3 Vaccines				
Recommended for all				
21.3.1	BCG vaccine (live attenuated)	PFI + diluent	1mL vial (multi dose)	2
21.3.2	DPT + HiB + Hep B vaccine (pentavalent)	Injection (suspension)	5mL vial (10 doses)	2
21.3.3	Hepatitis B vaccine	Injection (suspension)	Single dose vial	2
			Multi dose vial	2
21.3.4	HPV vaccine (quadrivalent)[399]	Injection	Single or multi dose vial	2
21.3.5	Measles vaccine (live attenuated)[400]	PFI + diluent	5mL vial (10 doses)	2
21.3.6	Measles + Rubella vaccine (MR)	PFI + diluent	5mL vial (10 doses)	2

[397] Monovalent antivenom that is often not part of general Polyvalent antivenom. This snake is common in Kilifi and Kajiado

[398] 16 species mixture covering Bitis, Naja, Echis, Dendroaspis, Pseudohaje, Dispholidus, Thelotornis, Hydrophis spp

[399] Human papillomavirus vaccine containing 6, 11, 16 and 18 serotypes. For school health programme roll-out

[400] For use during measles outbreaks

#	Medicine Name	Dose-form	Strength / Size	LoU
21.3.7	Pneumococcal vaccine (10-valent ads. conjugate)	Injection (suspension)	2mL vial (4 doses)	2
21.3.8	Pneumococcal vaccine (13 valent or higher adsorbed conjugate)[401]	Injection (syringe)	Single or multi dose vial	2
21.3.9	Polio vaccine (IPV)	Injection	Multi dose vial	2
21.3.10	Polio vaccine, oral (OPV) (live attenuated)	Oral drops	10mL vial (20 doses)	2
21.3.11	Rotavirus vaccine	Oral suspension	Single dose vial	2
21.3.12	Tetanus toxoid (adsorbed)[402]	Injection (suspension)	10mL vial (20 doses)	2
21.3.13	Tetanus + Diphtheria (Td) vaccine[403]	Injection	10mL vial (20 doses)	2
21.3.14	Tetanus + Diphtheria + Pertussis (Tdap) vaccine[404]	Injection	0.5mL (single dose)	2
Recommended for some regions				
21.3.15	Yellow fever vaccine (live, attenuated)[405]	Injection	Single or multi dose vial	2
Recommended for some high-risk populations				
21.3.16	Cholera vaccine	Oral suspension	1.5mL vial (single dose) single dose vial	2
21.3.17	Hepatitis A vaccine	Injection	80 units (Paed)	2
			160 units (Adult)	2

[401] For use in special populations e.g. patients with sickle-cell disease, adults and adolescents living with HIV
[402] Phase-out expected from end 2019 with replacement by Tetanus + Diphtheria (Td) vaccine
[403] Use to reinforce immunization of adults, adolescents and children over 10 years
[404] Use to reinforce immunization of adults, adolescents and children over 11 years
[405] Use only for health-workers during outbreaks and for travellers to areas with yellow fever

#	Medicine Name	Dose-form	Strength / Size	LoU
21.3.18	Malaria vaccine[406]	Injection	1mL vial (2 doses)	2
21.3.19	Meningococcal meningitis vaccine[407]	Injection	Single or multi dose	2
21.3.20	Rabies vaccine (cell culture)	Injection	Single dose (Purified Verocell / Human diploid)	2
21.3.21	Typhoid vaccine[408]	Injection (solution)	Single or multi dose	2
Recommended for immunisation programmes with certain characteristics				
21.3.22	Influenza vaccine (inactivated)[409]	Injection	0.5mL vial (single dose)	2
22. OPHTHALMOLOGICAL PREPARATIONS				
22.1 Anti-infective agents				
22.1.1	Acyclovir[410]	Eye ointment	3%	4
22.1.2	Azithromycin	Eye drops	1.5%	5
22.1.3	Erythromycin[411]	Eye ointment	0.5% [c]	4
22.1.4	Gentamicin	Eye drops	0.3% (as sulphate)	2
22.1.5	Gentamicin + Dexamethasone[412]	Eye drops	0.3% + 0.1%	4

[406] Use to prevent malaria in young children (pilot program)
[407] Sero-type specific. Use for outbreaks, vaccination of asplenic patients and travellers to affected areas
[408] Use is reserved for specific at-risk patients, i.e. nephrotics, immunosuppressed patients, travellers to typhoid prevalent areas
[409] For use in special populations e.g. geriatric patients (age ≥ 65 years), adults and adolescents living with HIV
[410] Also known as Aciclovir
[411] Use in treatment of infections due to Chlamydia trachomatis or Neisseria gonorrhoea
[412] For use by patients post-cataract surgery

#	Medicine Name	Dose-form	Strength / Size	LoU
22.1.6	Natamycin[413]	Eye drops	5%	5
22.1.7	Ofloxacin	Eye drops	0.3% (as sulphate)	4
22.1.8	Tetracycline	Eye ointment	1% (as HCl)	1
22.2 Anti-inflammatory agents				
22.2.1	Fluoromethalone[414]	Eye drops	0.1%	3
22.2.2	Ketorolac trometamol[415]	Eye drops	0.5%	4
22.2.3	Methylprednisolone[416]	PFI	1g vial (as sodium succinate)	5
22.2.4	Prednisolone	Eye drops	1% (as acetate) (5mL)	4
22.2.5	Triamcinolone acetonide[417]	Injection (aq. suspension)	40mg/1mL amp	5
22.3 Local Anaesthetics				
22.3.1	Tetracaine[418]	Eye drops	0.5% (as HCl)	4
22.4 Miotics and Anti-Glaucoma Medicines				
22.4.1	Acetazolamide[419]	Tablet	250mg	4
22.4.2	Dorzolamide	Eye drops	2% (as HCl)	4
22.4.3	Latanoprost	Solution (eye-drops)	0.005%	4
22.4.4	Pilocarpine[420]	Solution (eye-drops)	4% (as HCl or nitrate)	5

[413] Better antifungal medicine for fungi common to Kenya
[414] Use for treating mild allergies when a stronger steroid e.g. Prednisolone is not necessary
[415] Use for pain management post-surgery
[416] Use for management of Optic neuritis under supervision of a specialist
[417] Use for management of severe intractable allergies under supervision of a specialist
[418] Previously called Amethocaine. Not for use in pre-term neonates
[419] Use for severe glaucoma
[420] Use for angle-closure glaucoma and when preparing patients for glaucoma surgery

#	Medicine Name	Dose-form	Strength / Size	LoU
22.4.5	Timolol	Eye drops	0.5% (as hyd. maleate)	4
22.5 Mydriatics				
22.5.1	Atropine	Eye drops	0.1% (as sulphate) [c][421]	4
		Eye drops	0.5% (as sulphate)	4
22.5.2	Tropicamide + phenylephrine[422]	Eye drops	0.8% + 5% w/v	4
22.6 Anti-vascular endothelial growth factor (VEGF) preparations				
22.6.1	Bevacizumab	Injection	25mg/mL (4mL vial)	6
22.7 Anti-allergy medicines for the eye				
22.7.1	Azelastine[423]	Eye drops	0.05%	2
22.7.2	Sodium cromoglicate	Eye drops	2%	5
22.8 Other medicines for the eye				
22.8.1	Hypertonic saline[424]	Eye drops	3%	5
22.8.2	Methyl cellulose[425]	Eye drops	0.3 - 1%	4
23. MEDICINES for REPRODUCTIVE HEALTH and PERINATAL CARE				
23.1 Contraceptives				
23.1.1 Oral hormonal contraceptives				
23.1.1.1	Ethinylestradiol + Levonorgestrel	Tablet	30 micrograms + 150 micrograms	2

[421] For use in infants
[422] Use for Cataract surgery and eye examinations
[423] Use for mild allergies
[424] Use for management of corneal oedema. Made locally in sterile preparation units of health facilities
[425] Use for eye lubrication (Artificial tears)

#	Medicine Name	Dose-form	Strength / Size	LoU
23.1.1.2	Ethinylestradiol + Norethisterone	Tablet	35 micrograms + 1mg	2
23.1.1.3	Levonorgestrel	Tablet	30 micrograms[426]	2
			1.5mg	2
For Emergency contraception				
23.1.1.4	Levonorgestrel	Tablet	750 micrograms (pack of 2)[427]	2
23.1.2 Injectable hormonal contraceptives				
23.1.2.1	Medroxyprogesterone acetate (DMPA)	Depot Injection (IM)[428]	150mg/1mL (prefilled syringe)	2
		Depot Injection (SC)[429]	104 mg/0.65 mL (prefilled syringe)	2
23.1.3 Intrauterine devices (IUD)				
23.1.3.1	Copper-containing device[430]			2
23.1.3.2	Levonorgestrel (LNG)[431]	LNG-releasing Intrauterine system (LNG-IUS)	Reservoir with 52mg	2
23.1.4 Contraceptive implants				
23.1.4.1	Etonorgestrel-releasing implant	Implant	68mg (1 rod)	2

[426] Also known as Progestin-only pills (POPs)
[427] Also known as Emergency contraceptive pills (ECP)
[428] Also known as DMPA-IM. May be used at Level 1 (Community) in areas with community midwife services
[429] Also known as DMPA-SC. May be used at Level 1 (Community) in areas with community midwife services
[430] Set (1 IUCD + applicator)
[431] Also used in management of Abnormal Uterine bleeding

#	Medicine Name	Dose-form	Strength / Size	LoU
23.1.4.2	Levonorgestrel-releasing implant	Implant	150mg (2 x 75mg rods)	2
23.2 Ovulation Inducers				
23.2.1	Clomifene (Clomiphene)	Tablet	50mg (as citrate)	4
23.2.2	Human chorionic gonadotropin (HCG)	Injection	5,000 IU/vial	5
23.2.3	Human menopausal gonadotropin (HMG)[432]	Injection	75 IU	5
23.2.4	Letrozole	Tablets	2.5mg	4
23.3 Medicines for treatment of Endometriosis				
23.3.1	Danazol	Capsule	50mg	4
23.3.2	Dienogest	Tablet	2mg	4
23.3.3	Goserelin	Injection (depot, SC)	3.6mg (as acetate)	4
23.3.4	Levonorgestrel (LNG)	LNG-releasing Intrauterine system (LNG-IUS)	Reservoir with 52mg	4
23.4 Medicines for treatment of Fibroids				
23.4.1	Goserelin	Injection (depot, sc)	3.6mg (as acetate)	4
23.4.2	Leuprorelin (Leuprolide)	Injection (depot, sc)	3.75mg (as acetate)	4
23.5 Medicines for treatment of Abnormal uterine bleeding				
23.5.1	Norethisterone[433]	Tablet	5mg	4
23.6 Uterotonics (Medicines acting on the Uterus)				

[432] Use for stimulation of ovulation and pregnancy in patients with ovulatory dysfunction not due to primary ovarian failure

[433] Also used for induction of menses, to counter effect of Estradiol

#	Medicine Name	Dose-form	Strength / Size	LoU
23.6.1 Oxytocics				
23.6.1.1	Carbetocin[434]	Injection (heat stable)	100 micrograms/mL	4
23.6.1.2	Ergometrine[435]	Injection	500 micrograms (as hydrogen maleate)/1mL amp	4
23.6.1.3	Mifepristone + Misoprostol[436]	Tablet	200mg + 200 micrograms	4
23.6.1.4	Misoprostol	Tablet	200 micrograms[437]	2
		Vaginal tablet	25 micrograms	4
23.6.1.5	Oxytocin[438]	Injection	10 IU/1mL amp	2
23.6.1.6	Prostaglandin E2[439]	Vaginal tablet	3mg	4
23.7 Anti-oxytocics (tocolytics)				
23.7.1	Salbutamol[440]	Injection	500 micrograms (as sulphate)/mL (5mL amp)	4
23.8 Other Medicines Administered to the Mother				

[434] Use for treatment of high-risk patients with predisposition to postpartum haemorrhage (PPH) together with Misoprostol and Oxytocin

[435] Use as adjuvant in treating PPH. Ensure protection from light (amber ampoules, dark storage)

[436] Use only for medical termination of pregnancy

[437] For **Misoprostol 200mcg tablets**, used for management of incomplete abortion and miscarriage; prevention and treatment of post- partum haemorrhage (PPH) where Oxytocin is not available or cannot be safely used. For **Misoprostol 25mcg Vaginal Tablet**, use only for induction of labour where appropriate facilities are available.

[438] Use for PPH prevention and treatment. All Oxytocin should be refrigerated

[439] Also known as Dinoprostone. Requires cold chain storage and transport

[440] **RESTRICTED.** Use only for threatened abortion

#	Medicine Name	Dose-form	Strength / Size	LoU
23.8.1	Dexamethasone[441]	Injection	4mg (as disodium phosphate)/mL	4
23.8.2	Tranexamic acid[442]	Injection	100mg/mL (10mL amp)	4
23.9 Medicines Administered to the Neonate [C]				
23.9.1	Caffeine citrate[443]	Injection	20mg/mL (3mL vial) [c]	4
		Oral liquid (drops)	20mg/mL (as disodium phosphate) [c]	4
23.9.2	Chlorhexidine[444]	Gel	7.1% (as digluconate) (20 g tube) [c]	2
23.9.3	Ibuprofen	Injection solution	5mg/mL (2mL amp) [c]	5
23.9.4	Prostaglandin E2[445]	Injection solution	1mg/mL [c]	5
23.9.5	Sildenafil[446]	PFOL	10mg/mL	5
23.9.6	Surfactant	Suspension for intratracheal instillation	25mg/mL [c][447]	5
			80mg/mL [c][448]	5

[441] Management of pre-term labour
[442] Beneficial in reducing maternal mortality in pregnant women with PPH
[443] Equivalent to 10mg caffeine base/mL. Use for treatment of premature infants with persistent apnoea
[444] Delivering chlorhexidine 4%. **Use only for umbilical cord care.** Ensure that it is not mistakenly used as an Eye ointment
[445] Management of infants with ductus-dependent cyanotic congenital heart disease
[446] Use for management of pulmonary hypertension in the newborn
[447] Beractant (bovine lung extract) (4mL single-use vial)
[448] Poractant alpha (porcine lung phospholipid fraction) (1.5mL vial)

#	Medicine Name	Dose-form	Strength / Size	LoU
24. PERITONEAL DIALYSIS SOLUTION Various dialysis solutions and systems are available and in use. Selection of the most appropriate presentations should be made by specialists				
24.1	Intraperitoneal dialysis solution (CAPD)[449]	Parenteral solution	Of appropriate composition	4
24.2	Haemodialysis solution	Parenteral solution	Of appropriate composition	4
25. MEDICINES for MENTAL and BEHAVIOURAL DISORDERS				
25.1 Medicines used in Psychotic disorders				
25.1.1	Aripiprazole[450]	Tablet	15mg	4
25.1.2	Chlorpromazine	Injection	25mg/mL (as HCl) (2mL amp)	2
		Tablet	50mg (as HCl)[451]	2
			100mg (as HCl)	2
25.1.3	Clozapine[452]	Tablet (scored)	100mg	4
25.1.4	Flupentixol	Injection (oily, depot)	20mg/mL (as decanoate) (2mL amp)	4
25.1.5	Fluphenazine	Injection (oily, depot)	25mg/1mL (as decanoate) amp	4
25.1.6	Haloperidol	Injection	5mg/1mL amp	4
		Injection (oily)	50mg/1mL amp	4
		Tablet (scored)	5mg	2

[449] Continuous ambulatory peritoneal dialysis (fluid). Available in strengths 1.5%, 2.5% and 4.25% and volumes 500mL, 1 litre and 2 litres. Strength and volume to be procured based on individual patient need

[450] Antipsychotic effective for managing psychosis in diabetic patients

[451] For use in elderly patients unable to tolerate 100mg

[452] For use as second-line antipsychotic when other medicines fail

#	Medicine Name	Dose-form	Strength / Size	LoU
25.1.7	Midazolam[453]	Injection (IM)	5mg/mL (3mL amp)	4
25.1.8	Olanzapine[454]	PFI	10mg	4
		Tablet (dispersible)	10mg	2
25.1.9	Paliperidone palmitate[455]	Injection	75mg/mL	4
			100mg/mL	4
			150mg/mL	4
25.1.10	Quetiapine	Tablet (i/r, scored)	100mg	4
		Tablet (e/r)	300mg	4
		Tablet (i/r, scored)	300mg	4
25.1.11	Risperidone	Tablet (scored)	2mg	3
25.1.12	Zuclopenthixol	Injection (oily)[456]	100mg/mL (as acetate) (2mL amp)	4
		Injection (oily, depot)[457]	200mg/1mL (as decanoate) amp	4
		Oral drops[458]	20mg/mL (20mL)	4

[453] **RESTRICTED.** Use only for management of agitation in acute psychosis
[454] **RESTRICTED.** Use only in patients refractory to, or intolerant of, 1st generation antipsychotics
[455] **RESTRICTED. Availed through Fee for service for Insurance reimbursement (special request only).** Use for management of schizophrenia
[456] Use in short-term management of acute psychoses such as mania or schizophrenia and exacerbation of chronic psychosis
[457] Maintenance in schizophrenia and paranoid psychoses; also useful for patients with poor compliance to oral medication
[458] Use in treatment of acute schizophrenia and other acute psychoses; severe acute states of agitation; mania in those who are compliant with oral medication. For use in children as well as adults not compliant with injectable form. 1 drop is equivalent to 1mg

#	Medicine Name	Dose-form	Strength / Size	LoU
25.2 Medicines used in Mood disorders				
25.2.1 Medicines used in Depressive disorders				
25.2.1.1	Amitriptyline	Tablet	25mg (as HCl)	2
25.2.1.2	Escitalopram[459]	Tablet	10mg	3
25.2.1.3	Fluoxetine	Tablet (scored)	20mg (as HCl)	3
25.2.1.4	Mirtazapine[460]	Tablet	15mg	3
25.2.2 Medicines used in Bipolar disorders				
25.2.2.1	Carbamazepine	Tablet (cross-scored)	200mg	4
25.2.2.2	Divalproex sodium	Tablet	500mg	4
		Tablet	750mg	4
25.2.2.3	Lithium carbonate[461]	Tablet (scored)	400mg	6
		Tablet (m/r)	400mg	6
25.2.2.4	Quetiapine	Tablet (i/r, scored)	100mg	4
		Tablet (e/r)	300mg	4
		Tablet (i/r, scored)	300mg	4
25.3 Medicines for Anxiety disorders				
25.3.1	Bromazepam[462]	Tablet (scored)	3mg	4
25.3.2	Escitalopram	Tablet	10mg	3
25.3.3	Mirtazapine	Tablet	15mg	3

[459] Use in management of major depressive disorder and generalized anxiety disorder
[460] Use in management of depression complicated by anxiety or trouble sleeping. Does not affect libido
[461] **RESTRICTED.** For use by Specialists with close patient blood level monitoring at Level 6 hospitals
[462] **RESTRICTED.** Only use in anxiety with agitation

#	Medicine Name	Dose-form	Strength / Size	LoU
25.4 Medicines used in Obsessive-compulsive disorders				
25.4.1	Clomipramine	Capsule	25mg (as HCl)	4
25.5 Medicines for Disorders due to Psychoactive Substance Abuse These products to be used under close supervision within substance dependency treatment programmes				
25.5.1	B vitamins, high potency[463]	Injection (IV)	Pair of amps. (2 x 5mL)	4
25.5.2	Buprenorphine[464]	Tablet (sublingual)	2mg (as HCl)	4
		Tablet (sublingual)	8mg (as HCl)	4
25.5.3	Buprenorphine + Naloxone	Tablet (sublingual)	2mg + 500 micrograms (both as HCl)	4
		Tablet (sublingual)	8mg + 2mg (both as HCl)	4
25.5.4	Bupropion[465]	Tablet	150mg	4
25.5.5	Methadone[464]	Oral liquid	5mg/mL (as HCl) (concentrate)	4
25.5.6	Naltrexone	Tablet[466]	50mg (as HCl)	4
		Injection[467] (IM, suspension for extended release)	380mg (as HCl)	4
		Implant	765mg (as HCl)[468]	6

[463] Use in adults and children for rapid therapy of severe depletion/malabsorption of water soluble vitamins B and C, especially in alcoholism. Contains ascorbic acid 500mg, nicotinamide 160mg, pyridoxine HCl 50mg, riboflavin (as phosphate sodium) 4mg and thiamine HCl 250mcg across the two 5mL amps

[464] **RESTRICTED.** For use in Medically assisted therapy (MAT) clinics for People who use drugs (PWUDs)

[465] Use as smoking cessation aid

[466] Use in management of Opioid dependence and prevention of relapse in Alcohol use disorders

[467] Use for prevention of relapse in Alcohol use disorders. Can be administered by a Nurse

[468] **RESTRICTED. Availed through fee for service for insurance reimbursement (special request only).** Use only in alcohol rehabilitation treatment

#	Medicine Name	Dose-form	Strength / Size	LoU
25.5.7	Nicotine (NRT)[469]	Chewing gum	2mg	4
			4mg	4
		Transdermal patch[470]	7-21mg/24 hours	4
25.6 Medicines used in attention deficit hyperactivity disorder (ADHD)				
25.6.1	Methylphenidate[471]	Tablet	10mg	4
		Tablet (e/r)	18mg	4
25.7 Medicines for sleep disorders				
25.7.1	Melatonin	Tablet (soluble)	4mg	4
25.7.2	Zolpidem	Tablet	10mg	4
26. MEDICINES acting on the RESPIRATORY TRACT				
26.1 Antiasthmatic medicines and medicines for chronic obstructive pulmonary disease				
26.1.1	Budesonide	Inhalation (aerosol)	100 micrograms/dose (200 dose)	4
			200 micrograms/dose (200 dose)	4
26.1.2	Budesonide + Formoterol	Dry powder inhaler	100 micrograms + 6mg/metered dose (120 dose)	4
			200 micrograms + 6mg/metered dose (120 dose)	4
26.1.3	Epinephrine (adrenaline)[472]	Injection	1mg/1mL amp	2

[469] As polacrilex (polacrilin complex)
[470] Use as smoking cessation aid
[471] **RESTRICTED.** Use should be strictly controlled and actively monitored
[472] As hydrochloride or hydrogen tartrate; strength also expressed as 0.1% or 1 in 1,000

#	Medicine Name	Dose-form	Strength / Size	LoU
26.1.4	Ipratropium bromide	Inhalation (aerosol)	20 micrograms/metered dose (200 dose)	4
		Nebuliser solution	500 micrograms/2mL unit dose vial (isotonic)	4
26.1.5	Montelukast	Tablet (chewable)	5mg (as sodium salt)[473]	4
		Tablet	10mg (as sodium salt)	4
26.1.6	Salbutamol	Nebuliser solution	5mg/mL (as sulphate)	2
26.1.7	Salbutamol + Beclomethasone[474]	Inhalation (aerosol)	100 micrograms + 50 micrograms	4
26.1.8	Salbutamol + Ipratropium	Nebuliser solution	200 micrograms (as sulphate) + 1mg (as bromide) per 1mL (2.5mL amp)	4
26.1.9	Tiotropium[475]	Powder for inhalation in a capsule	18 micrograms / capsule	4
27. EAR, NOSE and THROAT MEDICINES				
27.1 Medicines for the Ear				
27.1.1	Ciprofloxacin	Solution (ear drops)	0.3% (as HCl)	2
27.1.2	Ciprofloxacin + Dexamethasone	Solution (ear drops)	0.3% (as HCl) + 0.1%	3
27.1.3	Clotrimazole	Solution (ear drops)	1%	3

[473] Use in children of age > 2 years for management of allergic rhinitis, exercise-induced asthma
[474] Use in management of exacerbation of asthma
[475] This medicine should be procured alongside the administration device. **Restriction:** for children, use only in those aged > 12 years

#	Medicine Name	Dose-form	Strength / Size	LoU
27.1.4	Cinnarizine[476]	Tablet	25mg	5
27.1.5	Hydrogen peroxide[477]	Solution (ear drops)	3% (stabilised)	2
27.1.6	Neomycin + Betamethasone[478]	Solution (ear & nasal drops)	0.5% (as sulphate) + (0.1% as sodium phosphate)	3
27.2 Medicines for the Nose				
27.2.1	Budesonide	Nasal spray	100 micrograms / metered dose [c]	4
27.2.2	Fluticasone[479]	Nasal spray	27.5 micrograms (as propionate or furoate)	5
27.2.3	Liquid paraffin	Nasal drops	100%	2
27.2.4	Sodium chloride	Solution (nasal drops)	0.90%	2
27.2.5	Xylometazoline[480]	Nasal spray	0.05%	4
27.3 Medicines for the Throat and Mouth				
27.3.1	Chlorhexidine[481]	Solution (mouthwash)	0.2% (as gluconate/digluconate)	2
27.3.2	Lignocaine[482]	Spray	10mg/metered dose (actuation)	4

[476] Use in management of Vertigo
[477] Use for inflammatory conditions of the external auditory canal and for removal of ear wax. This 3% strength is also expressed as '10-volume'. If unavailable, use other available forms & strengths and dilute as required to 3% for use as ear drops
[478] Use in management of inflammation in otitis externa
[479] Use in management of allergic rhinitis
[480] Short-term anti-decongestant. For acute use only due to potential for rebound congestion. **Restriction:** Not for use in not in children aged < 3 months
[481] Use for supportive care of immune compromised patients
[482] Use in throat examination

#	Medicine Name	Dose-form	Strength / Size	LoU
28. MEDICINES used in JOINT DISEASES				
28.1 Medicines used to treat Gout				
28.1.1	Allopurinol	Tablet	100mg	4
			300mg	4
28.1.2	Colchicine[483]	Tablet	500 micrograms	4
28.1.3	Febuxostat[484]	Tablet	40mg	5
28.1.4	Probenecid[485]	Tablet	250mg	5
28.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)				
28.2.1 Synthetic DMARDs				
28.2.1.1	Azathioprine	Tablet	50mg	4
28.2.1.2	Hydroxychloroquine (HCQ)[486]	Tablet	200mg (as sulphate)	4
28.2.1.3	Leflunomide[487]	Tablet	20mg	6

[483] Use in management of acute gout
[484] Use in patients with hypersensitivity to Allopurinol, or not achieving uric acid target with Allopurinol. Avoid in patients at risk of heart disease/ with cardiac conditions
[485] **RESTRICTED.** Use only in patients with hypersensitivity to Allopurinol. Monitor for uric acid excretion in urine because of risk of urate stones
[486] **RESTRICTED.** Do not use beyond 5mg/kg body weight. Requires annual eye checkup
[487] Use with **CAUTION** in women of child-bearing potential. Use only when methotrexate and sulfasalazine cannot be used

#	Medicine Name	Dose-form	Strength / Size	LoU
28.2.1.4	Methotrexate (MTX)[488]	Tablet	2.5mg (as sodium salt)	4
		Injection (prefilled syringe)[489]	10mg/mL (0.4mL)	4
			25mg/mL (0.4mL)	4
28.2.1.5	Sulfasalazine (SSZ)	Tablet	500mg	4
28.2.2 Biologic DMARDs Need to screen for TB, HIV and Hepatitis viruses. Where possible, vaccinate prior to use. Biologic DMARDs require cold chain storage and transport				
28.2.2.1	Abatacept[490]	PFI (IV)	250mg	6
28.2.2.2	Etanercept[491]	Injection	25mg vial[492]	6
			50mg vial[493]	6
28.2.2.3	Golimumab[494]	Injection (solution) (SC)	50mg	6
28.2.2.4	Infliximab[495]	PFI	100mg	6
28.2.2.5	Rituximab[496]	Injection (IV)	10mg/mL (10mL vial)	6
			10mg/mL (50mL vial)	6

[488] Use with **CAUTION** in women of child-bearing potential
[489] Use in patients not able to tolerate oral form (due to S/E) or to improve efficacy at higher doses
[490] Use for children with rheumatoid arthritis and juvenile idiopathic arthritis
[491] Use in management of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and juvenile idiopathic arthritis
[492] Use in management of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and juvenile idiopathic arthritis. Paediatric strength
[493] Use in management of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and juvenile idiopathic arthritis. Adult strength
[494] Use in management of rheumatoid arthritis, psoriatic arthritis, axial spondyloarthritis, juvenile idiopathic arthritis
[495] Use in management of rheumatoid arthritis, Crohn's disease, vasculitis, psoriatic arthritis, axial spondyloarthritis
[496] Use in management of rheumatoid arthritis, Lupus, vasculitis, myositis

#	Medicine Name	Dose-form	Strength / Size	LoU
28.2.2.6	Tocilizumab[497]	Injection (solution for IV infusion)	20mg/mL (4mL vial)	6
28.3 Medicines for Juvenile joint diseases				
28.3.1	Acetylsalicylic acid (Aspirin)[498]	Tablet (scored)	300mg	4
28.3.2	Adalimumab[499]	Injection	40mg/0.4mL	6
28.3.3	Etanercept[499]	Injection	25mg vial	6
		Injection	50mg vial	6
28.3.4	Methotrexate (MTX)[500]	Tablet	2.5mg (as sodium salt)	4
		Injection (prefilled syringe)[501]	10mg/mL (0.4mL)	4
			25mg/mL (0.4mL)	4
28.3.5	Tocilizumab[499]	Injection (solution for IV infusion)	20mg/mL (4mL vial)	6
29. MEDICINES for OSTEOPOROSIS				
29.1	Alendronic acid	Tablet	10mg	4
			70mg	4
29.2	Zoledronic acid	Injection	5mg (in 100mL)	5
30. MEDICINES for WOUND CARE				
30.1	B-Sitosterol[502]	Ointment	0.25% w/w (30gm)	2

[497] Use in management of rheumatoid arthritis, giant cell arthritis
[498] Use in treatment of acute or chronic rheumatic fever, juvenile arthritis, Kawasaki disease
[499] Need to screen for TB, HIV and Hepatitis viruses. Where possible, vaccinate prior to use
[500] Use with **CAUTION** in women of child-bearing potential
[501] Use in patients not able to tolerate oral form (due to S/E) or to improve efficacy at higher doses
[502] Management of burns and other superficial wounds e.g. skin ulcers

#	Medicine Name	Dose-form	Strength / Size	LoU
30.2	Collagenase clostridiopeptidase A + Proteases[503]	Ointment	1.2 units + 0.24 units (15g)	2
30.3	Distilled water[504]	Liquid	500mL	2
30.4	Human Epidermal growth factor (recombinant)[505]	Gel (water-based)	60 micrograms (15g)	4
30.5	Human Platelet derived growth factor (recombitant)[506]	Gel (water-based)	100 micrograms (15g)	4
30.6	Metronidazole[507]	Gel	0.75% or 0.80%	4
30.7	Papain + Urea (Papain-urea topical)[508]	Ointment	521,700 IU + 100mg (15g)	4
30.8	Silver ion[509]	Solution	0.01% (100mL)	4
			0.01% (250mL)	4
30.9	Silver sulphadiazine[510]	Cream	1% (50g)	2
			1% (250g)	2
30.10	Zinc Hyaluronate (zinc-hyaluronan)[511]	Gel (water-based)	15g	2

[503] Use for chemical debridement of wounds
[504] Use for cleaning of wounds
[505] Assists in epithelialisation of wounds and growth of epidermis
[506] Use in diabetic patients to granulate necrotic tissue
[507] Dressing of fungating wounds; minimises odour
[508] Use for enzymatic debridement of large burn wounds
[509] For advanced wound care
[510] Use only in patients aged > 2 months
[511] Assists in epithelialisation of wounds. Also known as Moist exposed burn ointment (Mebo)

#	Medicine Name	Dose-form	Strength / Size	LoU
31. MEDICINES for correcting WATER, ELECTROLYTE and ACID-BASE DISTURBANCES				
31.1 Oral				
31.1.1	Calcium carbonate[512]	Tablet	500mg	4
31.1.2	Magnesium chloride[513]	Tablet	71.5mg (containing Calcium as carbonate 119mg per tablet)	4
31.1.3	Oral rehydration salts (ORS)	PFOL (to make 500mL)	Sachet (WHO low-osmolarity formula)	1
31.1.4	Oral rehydration salts + Zinc sulphate	Co-pack (4 sachets + 10 tablets)	PFOL in sachet to make 500mL + 20mg tablet (dispersible) [c]	2
31.1.5	Potassium chloride[514]	Tablet (e/r)	600mg	4
31.1.6	Rehydration solution for malnutrition (ReSoMal)	PFOL (to make 1L)	Sachet (42g) (WHO formula)	4
31.1.7	Sevelamer[515]	Tablet	400mg	4
			800mg	4
31.1.8	Sodium acid phosphate[516]	Tablets (effervescent)	1.936g (equivalent to phosphorus 500mg)	4
31.1.9	Sodium citrate + Citric acid (Shohl's solution)[517]	Oral solution	500mg + 334mg/5mL (30mL)	5
31.1.10	Sodium chloride	Tablet	600g	4

[512] Oral electrolyte supplement
[513] Use for oral management of Hypomagnesaemia
[514] Use for oral management of Hypokalaemia
[515] Use for control of serum phosphorus in patients with chronic kidney disease (CKD) who are on dialysis
[516] Use for oral management of Hypophosphataemia
[517] Use for management of metabolic acidosis e.g. in paediatric patients with renal tubulopathy

#	Medicine Name	Dose-form	Strength / Size	LoU
31.1.11	Sodium polystyrene sulphonate[518]	Powder	450mg	4
31.1.12	Sodium hydrogen carbonate (Sodium bicarbonate)[519]	Tablet (scored)	600mg	5
			1g	5
31.1.13	Tolvaptan[520]	Tablet	15mg	5
31.2 Parenteral				
31.2.1	Calcium gluconate[521]	Injection	100mg/mL (10%) (10mL amp)	4
31.2.2	Glucose	Injectable solution	5% (isotonic) (500mL infusion pack)	2
			10% (hypertonic) (500mL infusion pack)	2
			50% (hypertonic) (50mL amp)[522]	4
31.2.3	Glucose + Sodium chloride[523]	Injectable solution	5% + 0.9% [c]	2
31.2.4	Potassium chloride[524]	Injectable solution for dilution	15% (10mL amp) [c]	4

[518] Use to correct water and electrolyte imbalance for hyperkalaemia
[519] Use for oral management of Hyperkalaemia
[520] Use for oral management of Hyponatraemia
[521] Use for management of Hyperkalaemia
[522] **RESTRICTED.** Use only in dialysis, ICU and other central line fluids enhancement
[523] Use when patient is dehydrated and not able to eat. **RESTRICTED.** Only for use in children
[524] Equivalent to K+ and Cl- 2 mmol/mL

#	Medicine Name	Dose-form	Strength / Size	LoU
31.2.5	Sodium chloride	Injectable solution (infusion)	0.45% (hypotonic) (500mL) [in collapsible bottle or Euro cap][525]	4
			0.9% (isotonic) (500mL)[526]	2
		Injectable solution	3% (hypertonic) (10mL amp) [c][527]	5
31.2.6	Sodium hydrogen carbonate (bicarbonate)[528]	Injectable solution	8.4% (10mL amp)	2
31.2.7	Sodium lactate compound (Hartmanns / Ringers lactate)[529]	Injectable solution (infusion)	BP formula (500mL)	2
31.2.8	Water for injection	Injection	10 mL amp	2
32. VITAMINS and MINERALS				
32.1	Ascorbic acid (Vit C)[530]	Tablet	50mg	2
32.2	Calcitriol (Vit D3)[531]	Capsule	250 micrograms	4
		Injection	1 microgram/mL (1 mL)	4
32.3	Calcium carbonate[532]	Tablet (chewable)	1.25g	4
32.4	Calcium gluconate	Injection	100mg/mL (10%) (10mL amp)	4

[525] Use for HSS (hypo-osmolar hyperglycaemic state)
[526] Equivalent to Na+ and Cl- 154 mmol/L
[527] Equivalent to Na+ and Cl- 513 mmol/L. Use in bronchiolitis and in hyponatremia in renal conditions in children
[528] Equivalent to Na+ and HCO3- 1,000 mmol/L
[529] Equivalent to Na+ 131, K+ 5, Ca2+ 2, Cl- 111, HCO3- (as lactate) 29 mmol/L
[530] Management of patients with bleeding gums. Also useful for wound healing, immunity, iron absorption
[531] Use for management of Hypocalcaemia in CKD patients undergoing chronic renal dialysis
[532] Equivalent to calcium (elemental) 500mg (Ca2+ 12.5 mmol)

#	Medicine Name	Dose-form	Strength / Size	LoU
32.5	Cholecalciferol (Vit D3)	Oral liquid (drops)[533]	400 IU/mL [c]	4
		Injection (IM/Oral)[534]	300,000 IU/1mL amp	4
32.6	Ergocalciferol (Vit D2)[535]	Oral liquid	250 micrograms (10,000 IU)/mL	4
		Tablet / Capsule	250 micrograms (10,000 IU)	4
			1.25mg (50,000 IU)	4
32.7	Niacinamide[536]	Tablet	500mg	3
32.8	Omega 3 fatty acids[537]	Tablet / Capsule[538]	1g	2
		Liquid[539]	250mg to 500mg/100mL (100 to 200mL)	2
32.9	Pyridoxine (Vit B6)[540]	Tablet	25mg (as HCl)[541]	2
		Tablet (scored)	50mg (as HCl)	2

[533] For management of Rickets in children. Equivalent to 10 micrograms/mL
[534] Use for treatment of rickets. Can be prepared for oral use
[535] Treatment of hypoparathyroidism, refractory rickets (also known as Vitamin D resistant rickets), and familial hypophosphatemia
[536] **RESTRICTED.** Use only for management of Pellagra
[537] Use for treatment of inflammatory conditions. Intake should not exceed 3 g/day of EPA plus DHA with no more than 2 g/day from dietary supplementation. Use under physician's supervision
[538] Use for treatment of inflammatory conditions. Containing 900mg combined ethyl esters of EPA and DHA per 1g. Intake should not exceed 3 g/day of EPA plus DHA with no more than 2 g/day from dietary supplementation. Use under physician's supervision
[539] Use for treatment of inflammatory conditions. Containing 250mg to 500mg combinedethyl esters of EPA and DHA per 100mL. Intake should not exceed 3 g/day of EPA plus DHA with no more than 2 g/day from dietary supplementation. Use under physician's supervision
[540] **RESTRICTED.** Only use in patients with TB for management of Isoniazid-induced neuropathy
[541] For Paediatric use

#	Medicine Name	Dose-form	Strength / Size	LoU
32.10	Retinol (Vit A)	Capsule	50,000 IU (as palmitate)	2
			100,000 IU (as palmitate)	2
			200,000 IU (as palmitate)	2
32.11	Thiamine (Vit B1)[542]	Tablet	50mg (as HCl)	4
32.12	Vitamins & Minerals mix[543]	Powder	1g sachet [c]	2
32.13	Vitamin B12 (Cobalamin)[544]	Tablet	500 micrograms	3
32.14	Zinc sulphate[545]	Tablet (dispersible)	20mg	2
33. PREPARATIONS for CLINICAL MANAGEMENT of NUTRITION				
33.1 Feeds for Special medical purposes				
33.1.1 Parenteral feeds				
33.1.1.1	2-chamber bag for central administration[546]	Solution for IV infusion	1 litre	5
33.1.1.2	3-chamber bag for peripheral administration	Solution for IV infusion	1 litre[547]	4
		Solution for IV infusion	1.5 litre[548]	4

[542] For use only in patients in alcohol withdrawal and properly diagnosed vitamin B deficiency
[543] For Paediatric use. Also known as Multiple micronutrient powder (MNP). Sachet should contain, at minimum, iron (elemental) 12.5mg (as coated ferrous fumarate), zinc (elemental) 5mg, Vitamin A 300 micrograms, with or without other micronutrients at recommended daily values
[544] Use only in patients who require oral supplementation (e.g. vegetarians) and cannot tolerate injections
[545] Use for wound management
[546] Containing carbohydrates and protein, with electrolytes; fat free. For use in management of pancreatic failure and hepatic disease in both adults and children
[547] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients on short term parenteral nutrition support
[548] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients with increased nutrient needs on short term parenteral nutrition support

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.1.3	3-chamber bag for peripheral administration for Medum chain Triglycerides (MCT) / Long chain Triglycerides (LCT)	Solution for IV infusion	1 litre[549]	4
			1.5 litre[549]	4
33.1.1.4	3-chamber bag for central administration	Solution for IV infusion	1 litre[550]	5
			2 litres[551]	5
33.1.1.5	3-chamber bag for central administration for Medum chain Triglycerides (MCT) / Long chain Triglycerides (LCT)	Solution for IV infusion	1 litre[552]	5
			2 litres[553]	5
33.1.1.6	Adult trace elements[554]	Solution for IV infusion	10mL	4

[549] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients on short term parenteral nutrition support

[550] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients on long term parenteral nutrition support

[551] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients with increased nutrient needs on long term parenteral nutrition support

[552] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients on long term parenteral nutrition support

[553] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients on long term parenteral nutrition support

[554] Containing zinc, selenium, copper, chromium, fluoride, manganese essential for normal physiological functioning in adults

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.1.7	Amino acids	Solution for IV infusion	21g amino acid + 12g glutamine per 100mL bottle[555]	4
			5-6% with glucose (100ml bottle) [c][556]	4
			7% (500ml bottle)[557]	4
			8% (500ml bottle)[558]	4
			10% with electrolytes (500ml bottle)[559]	4
33.1.1.8	Fat (lipid)	Infusion (emulsion) (IV)	20% (100mL) [c][560]	4
			20% (500mL)[561]	4
33.1.1.9	Fat-soluble vitamins (for infants and children)	Solution for IV infusion	10mL [c][562]	5
	Fat-soluble vitamins (for adults)		10mL[563]	4

[555] Containing glutamine essential in gut resuscitation for adult and paediatric patients awaiting transition from TPN
[556] For specialised use in children. Containing amino acids and glucose. For use in management of pancreatic failure and hepatic disease in infants
[557] For specialised use. Containing amino acids only. For use in management of renal failure/ disease in adults and children
[558] For specialised use. Containing amino acids only. For use in management of hepatic failure/disease in adults and children
[559] For specialised use. Containing amino acids only. For short term use in management of adult and paediatric patients with increased protein needs
[560] Containing fat only. For short term use in management of patients with increased energy needs. For use in infants
[561] Containing fat only. For short term use in management of adult and paediatric patients with increased energy needs
[562] Contains vitamins A, D, E and K. For use in infants and children
[563] Contains vitamins A, D, E and K. For use in adults

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.1.10	Paediatric trace elements[564]	Solution for IV infusion	10mL [c]	5
33.1.1.11	Total parenteral nutrition (TPN) with Medum chain Triglycerides (MCT) / Long chain Triglycerides (LCT)	Solution for IV infusion	625mL bag[565]	5
		Solution for IV infusion	1,250mL bag[566]	5
33.1.1.12	Water-soluble vitamins[567]	Solution for IV infusion	10mL	5
33.1.2 Enteral feeds - liquid formulations				
33.1.2.1	High energy, high protein oral sip feed[568]	Liquid	200mL	4
33.1.2.2	Hypocaloric sip feed with fibre[569]	Liquid	200mL	4
33.1.2.3	Nutritionally complete liquid diet, isocaloric[570]	Liquid	1000mL	4
33.1.2.4	Nutritionally complete, hydrolysed diet with fibre	Liquid	1000mL	4

[564] Containing zinc, selenium, copper, chromium, fluoride, manganese essential for normal physiological functioning in children

[565] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients with restricted fluid intake on long term parenteral nutrition support

[566] Containing carbohydrates, fat and protein, with electrolytes. For use in management of adult and paediatric patients with restricted fluid intake on long term parenteral nutrition support, requiring increased nutrient intake

[567] Containing Vitamins C and B-complex. For use in children and adults

[568] For use in management of fluid restricted conditions e.g. renal insufficiency / impaired kidney function

[569] For use in adult and paediatric patients with hyperglycemia/impaired glucose management

[570] Containing protein. For use in management of severe multiple trauma, major abdominal surgery, burns. For tube feeding. Requires a gravity set for administration or a pump set where a feeding pump is available

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.2.5	Nutritionally complete, normal caloric diet for diabetes tube feed, with fibre[571]	Liquid	200mL	4
			500mL	4
33.1.2.6	Nutritionally complete with Medium Chain Triglyceride peptide diet[572]	Liquid	500mL	4
33.1.2.7	Nutritionally complete high protein energy sip feed[573]	Liquid	200mL	4
33.1.2.8	Nutritionally complete Sip feed[574]	Liquid	200mL	4
33.1.2.9	Nutritionally complete Iso-caloric paediatric tube feed[575]	Liquid	500mL	4
33.1.2.10	Nutritionally complete diet, fibre-free for tube feeding[576]	Liquid	500mL	4
			1000mL	4

[571] For management of adult and paediatric patients with hyperglycemia/glucose intolerance/ metabolic syndrome. Contains fibre, protein and mono unsaturated fatty acids. Requires a gravity set for administration or a pump set where a feeding pump is available

[572] For management of adult and paediatric patients with malabsorption / short bowel syndrome, hepatic or pancreatic failure. Contains protein and fat. Requires a gravity set for administration or a pump set where a feeding pump is available

[573] For management of adult and paediatric patients with burns, HIV, pulmonary TB or cancers. Contains protein, carbohydrate and fat

[574] For management of patients with anorexia, GIT obstructions or renal failure. Contains protein, carbohydrate and fat

[575] For management of patients with high catabolism. Contains protein. Requires a gravity set for administration or a pump set where a feeding pump is available

[576] For management of adult and paediatric patients on nasogastric tube (NGT) feed withcontrolled fluid intake requiring fibre modification or NGT patients with diarrhoea. Contains protein. Requires a gravity set for administration or a pump set where a feeding pump is available

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.2.11	Nutritionally complete formula with fibre for tube feeding[577]	Liquid	500mL	4
			1000mL	4
33.1.2.12	Nutritionally complete liquid low sodium formula[578]	Liquid	500mL	4
33.1.2.13	Nutritionally complete glutamine-enriched liquid formula[579]	Liquid	500mL	4
33.1.2.14	Specialized hepatic liquid formula[580]	Liquid	500mL	4
33.1.2.15	Specialized hepatic sip feed[581]	Liquid	200mL	4
33.1.2.16	Specialized high energy protein drink (with hydrolyzed protein, fat free, lactose free and gluten free)[582]	Liquid	200mL	4

[577] For management of adult and paediatric patients on nasogastric tube (NGT) feed with controlled fluid intake requiring no nutrient modification or NGT patients with constipation. Contains protein and fibre. Requires a gravity set for administration or a pump set where a feeding pump is available

[578] For management of adult and paediatric patients with renal disease, chronic cardiac failure, congestive heart disease. Contains protein, fibre, Medium chain Triglycerides (MCT). Requires a gravity set for administration or a pump set where a feeding pump is available

[579] For management of adult and paediatric patients with burns, TB, RVD, cancers, severe head injury, cachexia. Contains protein, glutamine enriched. Requires a gravity set for administration or a pump set where a feeding pump is available.

[580] For management of adult and paediatric patients with hepatic disease. Requires a gravity set for administration or a pump set where a feeding pump is available.

[581] For management of adult and paediatric patients with hepatic disease. Contains protein, carbohydrates, Medium chain Triglycerides (MCT).

[582] For management of adult and paediatric patients with pancreatic and hepatic disease, malabsorption, short bowel syndrome (SBS). Contains hydrolyzed protein.

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.2.17	Specialized hypercaloric liquid formula feed[583]	Liquid	500mL	4
33.1.2.18	Semi elemental peptide based formula for tube feed[584]	Liquid	500mL	4
33.1.3 Enteral feeds - powder formulations				
33.1.3.1	Adult nutritionally complete isocaloric formula[585]	Powder	400g	4
33.1.3.2	Adult nutritionally complete peptide based formula[586]	Powder	20 to 30g sachet	4
33.1.3.3	Amino acids and Vitamin granules[587]	Powder	5 to 10g sachet	4
33.1.3.4	High calorie, high protein formula	Powder[588]	200g	4
		Diskettes[589]	200g	4
33.1.3.5	Low fat formula[590]	Powder	200g to 500g	4

[583] For management of adult and paediatric patients with burns, TB, HIV, cancers, severe head injury. Requires a gravity set for administration or a pump set where a feeding pump is available.
[584] For management of adult and paediatric patients with malabsorption, short bowel syndrome, pancreatic failure. Requires a gravity set for administration or a pump set where a feeding pump is available.
[585] For management of adult patients with lactose or glutein sensitivity, or those on convalescence. Contains protein, fats, carbohydrates
[586] For management of adult patients with malabsorption, short bowel syndrome, pancreatic failure
[587] For adult and paediatric patients with burns, TB, HIV disease, cancers. Contains branched chain amino acids
[588] For adult and paediatric patients on full liquid diet, with dysphagia
[589] For adult and paediatric patients with high calorie or high protein needs
[590] For management of patients with liver disease. Containing low fat, high biological value (HBV) proteins, branch chain amino acids

#	Medicine Name	Dose-form	Strength / Size	LoU
33.1.3.6	Nutritionally complete low glycemic index formula	Powder	400g sachet	4
33.1.3.7	Paediatric nutritionally complete isocaloric formula[591]	Powder	400g [c]	4
33.1.3.8	Paediatric nutritionally complete peptide based formula[592]	Powder	400g [c]	4
33.1.3.9	Specialized Hepatic formula[593]	Powder	Sachet	4
33.1.3.10	Specialized Renal formula[594]	Powder	400g	4
33.1.3.11	Specialized Semi-elemental peptide formula[595]	Powder	400g	4
33.2 Nutrition Feeds for managing Severe acute malnutrition (SAM) and Moderate acute malnutrition (MAM)				

[591] For management of paediatric patients on convalescence or picky eaters. Contains protein, fats, carbohydrates
[592] For management of paediatric patients with lactose intolerance or needing growth catch-up
[593] For management of adult and paediatric patients with liver disease. Fat free
[594] For management of adult and paediatric patients with renal disease
[595] For management of adult and paediatric patients with hepatic and pancreatic failure, GIT disorders

#	Medicine Name	Dose-form	Strength / Size	LoU
33.2.1	Fortified Blended Food (FBF)	Flour	415kcal/100g (Sachet)[596]	2
			435kcal/100g (Sachet)[597]	2
			450kcal/100g (Sachet)[598]	2
			1,000 kcal/250g (Bag or Sachet)[599]	2
33.2.2	Point of use Water treatment[600]	Solution	1.2% Sodium hypochlorite [NaOCl] (150mL)	2
33.2.3	Ready to use supplemental food (RUSF)	Oral paste / bar / liquid / powder	Standard formula (minimum 350 Kcal/100g)[601]	2
			Standard formula (minimum 510 Kcal/100g)[602]	2
33.2.4	Ready to use therapeutic food (RUTF)[603]	Oral paste / bar / liquid / powder	Standard formula (minimum 500 Kcal/100g)	2

[596] For supplementation in children aged 6 months to 9 years as per criteria in Nutrition & HIV guidelines
[597] For supplementation in adults and adolescents (age 10-17 years) as per criteria in Nutrition & HIV guidelines
[598] For supplementation in pregnant women and post-partum mothers as per criteria in Nutrition & HIV guidelines
[599] For use in supplementary feeding programmes for children and lactating mothers as per criteria in Nutrition guidelines
[600] Use to provide safe water for drinking during treatment of malnutrition
[601] For oral intake for clinical management of inadequate nutrient intake from normal diet due to disease symptoms and/or other related conditions
[602] For management of Moderate Acute Malnutrition (MAM)
[603] For management of Severe Acute Malnutrition (SAM)

Kenya Essential Medicines List 2019

Appendices

Appendix 1:
List of Additions to KEML 2019

#	Item Added	Indication/Notes
1.1.1.6	Sevoflurane liquid, 250mL	Preferred inhalational anaesthesia for critically ill geriatric, paediatric and cardiovascular patients
1.1.2.1	Dexmedetomidine injection 100 micrograms/mL (2mL)	Neurosurgery anaesthesia and sedation in theatre/ICU ***only***
1.1.2.3	Midazolam injection 1mg (as HCl)/mL (5mL amp)	Use as induction agent for anaesthesia
1.1.2.5	Remifentanyl PFI 2mg/2mL	Use in ICU and Theatre for critically ill patients
1.2.3	Lignocaine injection (preservative-free), 1% (as HCl) (vial)	Epidural anaesthesia only
1.2.4	Lignocaine + Epinephrine (Adrenaline) injection, 2% (HCl or sulphate) + 1:200,000 in vial	Suturing of minor cuts; eye surgeries under local anaesthesia
1.2.5	Phenylephrine injection 10mg/mL	Intractable hypotension after epidural / spinal anaesthesia
1.3.2	Dexmedetomidine injection 100 micrograms/mL (2mL)	Short-term procedures for sedation/anaesthesia
1.3.4	Ketamine 50mg (as HCl)/mL (10mL vial)	
1.3.7	Propofol injection 10mg/mL (20mL vial)	
1.3.8	Remifentanyl PFI 2mg/2mL	
1.4.1	Oxygen inhalation	Management of hypoxaemia
2.3	Dantrolene injection 20mg	Management of malignant hyperthermia and neuroleptic malignant syndrome due to drug-induced muscular hyperactivity
2.4	Glycopyrronium injection 200 micrograms (as bromide)/mL	Neuromuscular blockade reversal, or intraoperative reduction of cholinergic effects in surgery

#	Item Added	Indication/Notes
2.6	Pyridostigmine tablet 60mg (as bromide)	Myasthenia gravis
3.1.2	Celecoxib tablet 200mg	Use for long-term pain management in patients with history of dyspepsia or GI bleeding
3.1.3	Dexketoprofen tablet 25mg	More potent than Ibuprofen; less respiratory side-effects so useful in patients with asthma
3.1.5	Ketorolac injection (IM/IV) 30mg/mL	Acute pain management for duration ≤ 5 days. Can be used from Level 2 and above health facilities
3.2.1	Dihydrocodeine phosphate tablet 30mg	Replaces Codeine phosphate for treatment of moderate to severe chronic pain
3.2.2	Fentanyl Transdermal patch, 25 micrograms/hr	Management of cancer pain
	Fentanyl Transdermal patch, 50 micrograms/hr	
3.2.3	Morphine Injection (for Infusion), 30mg/mL	Use for patients with chronic pain who are feeding poorly. Only for use with Morphine pump.
3.3.3	Dexamethasone tablet 500 micrograms	For paediatric use and for tapering off. Replaces 2mg tablet
	Dexamethasone tablet 4mg	For adult use. Replaces 2mg tablet
3.3.7	Hyoscine butylbromide tablet 10mg	For use in patients with cancer only in management of small stomach syndrome and smooth muscle pain
3.3.11	Prednisolone oral liquid 15mg/5mL [c]	More available and affordable than Dexamethasone
	Prednisolone tablet 5mg	
3.3.12	Ondansetron oral liquid 4mg base/5mL [c]	Available, more palatable and flexible to use for dosing based on body surface area
4.1	Chlorpheniramine oral liquid 2mg (as maleate)/5mL	Replaces Cetirizine oral liquid
4.5	Loratadine tablet 10mg	Non-sedating antihistamine. Replaces Cetirizine tablet 10mg

#	Item Added	Indication/Notes
5.2.3	Benztropine injection 2mg/2mL	Management of acute dystonia (oculogyric crisis) in patents taking Antipsychotic medicines and Metoclopramide
5.2.4	Calcium folinate injection 10mg/mL (5mL vial)	Management of Methanol poisoning
5.2.5	Calcium gluconate	Management of hyperkalaemia
5.2.6	Dantrolene injection 20mg	Management of spasticity associated with upper motor neuron disorders (e.g. spinal cord injury, stroke, cerebral palsy, or multiple sclerosis). Also used for management of hyperthermia and rhabdomyolysis due to drug-induced muscular hyperactivity; sepsis patients with rhabdomyolysis
5.2.13	Lipid emulsion injection 20% (200 to 500mL)	Antidote for systemic local anaesthesia toxicity
5.2.16	Phytomenadione (Vit K1)	Antidote for Warfarin
5.2.19	Sodium hydrogen carbonate (Sodium bicarbonate) injectable solution, 8.4% (10mL amp)	Management of Methanol poisoning and for alkalinisation of urine in management of majority of drug overdose poisoning cases
5.2.23	Thiamine (Vit B1) tablet 50mg (as HCl)	Empirical treatment to prevent Wernicke korsakoff syndrome in alcoholics and patients with altered mental status of unknown aetiology; properly diagnosed vitamin B deficiency
6.5	Levetiracetam injection (IV) 500mg	Partial or generalised seizures as an alternative to Phenytoin. Alternative for patients when oral administration is temporarily not feasible
	Levetiracetam tablet (scored) 500mg	Partial or generalised seizures as an alternative to Phenytoin. For use in adolescents and pregnant women

#	Item Added	Indication/Notes
6.8	Midazolam injection 1mg (as HCl)/mL (5mL amp)	Management of status epilepticus for seizures refractory to second line treatment
	Midazolam injection 10mg/mL	
	Midazolam oromucosal solution 5mg/mL	Management of status epilepticus for seizures refractory to second line treatment. For buccal administration when solution for oromucosal administration is not available
	Midazolam oromucosal solution 10mg/mL	
6.10	Phenytoin sodium tablet / capsule 50mg	Allows for dosage adjustment
6.11	Valproic acid (Sodium Valproate) Injection 100mg/mL in 4mL amp	Treatment of epileptic patients normally be maintained on oral sodium valproate, and for whom oral therapy is temporarily not possible
	Valproic acid (Sodium Valproate) Injection 100mg/mL in 10mL amp	
7.1.1.1	Albendazole suspension 100mg/5mL	For use in children aged 1 to 2 years
7.1.1.2	Mebendazole tablet (chewable, dispersible) 500mg	Restricted to use only in the program 'Breaking Transmission strategy'. Not to be procured
7.1.2.3	Ivermectin tablet (scored) 3mg	Management of lymphatic filiariasis using triple therapy regimen comprising Albendazole + Diethylcarbamazine dihydrogen citrate + Ivermectin
7.2.1.1	Amikacin injection 50mg (as sulphate) /mL in 2ml vial [c]	For paediatric use in treatment of urinary tract infection (complicated pyelonephritis), hospital acquired sepsis
	Amikacin injection 250mg (as sulphate)/mL in 2ml vial	Treatment of urinary tract infection (complicated pyelonephritis), hospital acquired sepsis
7.2.1.3	Amoxicillin + clavulanic acid PFI 500mg + 100mg	Treatment of community-acquired pneumonia (CAP) in adults, exacerbations of chronic obstructive pulmonary disease (COPD), and febrile neutropaenia (high/low risk)
	Amoxicillin + clavulanic acid PFI 1g + 200mg	

#	Item Added	Indication/Notes
	Amoxicillin + clavulanic acid Tablet (dispersible, scored) 250mg + 62.5mg (i.e. 312.5mg)	Replaced 200mg + 28.5mg (i.e. 228.5mg) tablet
7.2.1.4	Ampicillin PFI 500mg vial	Restricted to treatment of Listeria, for intra-partum prophylaxis
7.2.1.5	Azithromycin tablet (scored) 500mg (anhydrous)	Treatment of community-acquired pneumonia (CAP) in children and adults (inpatient), especially in patients hypersensitive to penicillins; management of selected STIs; cholera (children)
7.2.1.7	Benzylpenicillin PFI 3g (5MU) (as sodium or potassium salt) vial	For use in children with Gentamicin in treatment of severe community acquired pneumonia (CAP); also treatment of cellulitis (severe); neonatal sepsis, children with severe acute malnutrition
7.2.1.9	Cefazolin PFI 1g (as sodium salt) in vial	For use in children with acute osteomyelitis, including in patients with sickle cell anaemia
7.2.1.14	Metronidazole tablet (f/c, scored) 400mg	Treatment of complicated intra-abdominal infections, management of severe acute malnutrition (children)
7.2.1.15	Nitrofurantoin oral liquid 25mg/5mL [c]	Treatment of urinary tract infection (uncomplicated/cystitis)
7.2.1.16	Phenoxymethylpenicilllin (Penicillin V)	Treatment of cellulitis (moderate, (in confirmed Strep. infections). Use in children with sickle cell anaemia.
7.2.2.2	Ciprofloxacin tablet (scored) 500mg (as HCl)	Replaced 250mg tablet. Treatment of urinary tract infection (complicated) pyelonephritis; febrile neutropaenia (Low risk); complicated intra-abdominal infections

#	Item Added	Indication/Notes
7.2.2.5	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) tablet (scored) 800+160mg	For use in older children and adults. Replaces 480mg tablet
7.2.2.6	Piperacillin + Tazobactam PFI 4g (as sodium salt) + 500mg (as sodium salt)	Treatment of Ventilator-associated pneumonia (VAP)
7.2.3.1	Colistin PFI 1MU (as colistimethate sodium) vial	Reserve medicine for treatment of Ventilator-associated pneumonia (VAP)
7.2.3.2	Ertapenem PFI 1g	Reserve medicine. For treatment of Pseudomonas infections and hospital acquired sepsis.
7.2.3.3	Fosfomycin granules for oral suspension 3g sachet	Reserve medicine. For second choice treatment of urinary tract infection (uncomplicated/cystitis).
	Fosfomycin PFI 3g (as sodium) vial	Reserve medicine. Treatment of urinary tract infection (due to E. coli)
7.2.3.4	Linezolid injection (IV) 2mg/mL in 300mL bag	Reserve medicine. Treatment of severe cellulitis, acute osteomyelitis including in patients with sickle cell anaemia
	Linezolid tablet 600mg	
7.2.3.5	Meropenem PFI 500mg (as trihydrate)	Reserve medicine. Treatment of ventilator acquired pneumonia (VAP); hospital acquired sepsis; hospital acquired pneumonia (HAP); complicated intra-abdominal infections
7.2.3.6	Polymyxin B PFI 500,000 IU vial	Reserve medicine. Treatment of ventilator-associated pneumonia (VAP)
7.2.3.7	Teicoplanin injection 200mg	Reserve medicine. Prophylaxis and treatment of serious infections caused by Gram-positive bacteria, including methicillin-resistant Staphylococcus aureus (MRSA) and Enterococcus faecalis
7.2.3.8	Tigecycline PFI 50mg vial	Reserve medicine. Treatment of complicated intra-abdominal or

#	Item Added	Indication/Notes
		skin infections especially in critically ill patients
7.2.3.9	Vancomycin PFI 500mg vial (as HCl)	Reserve medicine. Treatment of serious infections caused by Pseudomonas and methicillin-resistant Staphylococcus aureus (MRSA). Replaced 250mg vial
7.2.4.2	Dapsone tablet 100mg	Replaced 25mg tablet. For use in national recommended treatment regimen for leprosy
7.2.5.1.2	Isoniazid (H) tablet (scored) 50mg	Replaced 50mg/5mL oral liquid
7.2.5.1.3	Pyrazinamide (Z) tablet 500mg	Required for updated TB management regimens
	Pyrazinamide (Z) tablet (dispersible) 150mg	
	Pyrazinamide (Z) tablet (scored) 150mg	
7.2.5.1.6	Rifapentine tablet 150mg	For treatment of latent TB infection (LTBI) only
7.2.5.3.1	Amikacin (Am) PFI 1g (as sulphate) vial	Replaced 500mg vial
7.2.5.3.2	Amoxicillin + clavulanic acid (Co-Amoxiclav) tablet 875mg + 125mg (1g)	Required for updated TB management regimens. For specialist use in management of MDR-TB
7.2.5.3.4	Clofazimine (Cfx) capsule 50mg	
	Clofazimine (Cfx) capsule 100mg	
7.2.5.3.5	Cycloserine (Cs) tablet 125mg [c]	
	Cycloserine (Cs) tablet 250mg	
7.2.5.3.6	Delamanid (Dlm) tablet 50mg	
7.2.5.3.7	Imipenem + Cilastatin PFI 250mg + 250mg vial	
	Imipenem + Cilastatin PFI 500mg + 500mg vial	
7.2.5.3.8	Levofloxacin (Lfx) tablet (dispersible) 100mg [c]	
	Levofloxacin (Lfx) tablet 250mg	
	Levofloxacin (Lfx) tablet 750mg	

#	Item Added	Indication/Notes
7.2.5.3.9	Linezolid (Lzd) tablet (dispersible) 150mg [c]	
7.2.5.3.10	Moxifloxacin (Mfx) tablet (dispersible) 100mg [c]	
7.2.5.3.13	Terizidone (Trd) tablet 300mg	
7.3.3	Fluconazole tablet / capsule 150mg	Treatment of relevant STIs
7.3.4	Flucytosine capsule 250mg	Preferred 1st line for treatment for Cryptococcal Meningitis (CM)
7.3.5	Griseofulvin tablet 500mg	Treatment of fungal infections
7.3.6	Itraconazole capsule 150mg	Treatment of chronic pulmonary aspergillosis, histoplasmosis, sporotrichosis, paracoccidiodomycosis, mycoses caused by T. marneffei and chromoblastomycosis; and prophylaxis of histoplasmosis and infections caused by T. marneffei in AIDS patients
7.3.8	Terbinafine tablet 125mg	Treatment of fungal infections
7.3.9	Voriconazole PFI 200mg vial	Treatment of acute invasive aspergillosis
7.4.1.1	Acyclovir tablet (scored) 400mg	Treatment of Herpes simplex and Herpes zoster infections. Replaced 200mg tablet
7.4.2.2.2	Etravirine (ETV) tablet 200mg	Required for updated HIV management regimens
7.4.2.2.3	Nevirapine (NVP) tablet (dispersible) 50mg	
7.4.2.3.1	Atazanavir (ATV) capsule 100mg (as sulphate)	
7.4.2.3.3	Darunavir (DRV) tablet 75mg	
	Darunavir (DRV) tablet 75mg	
	Darunavir (DRV) oral liquid 10mg/mL (200mL)	
7.4.2.3.4	Lopinavir + ritonavir (LPV/r) tablet (heat-stable) 100mg + 25mg	
	Lopinavir + ritonavir (LPV/r) oral pellets (capsule) 40mg + 10mg	

#	Item Added	Indication/Notes
7.4.2.3.5	Ritonavir (RTV) oral liquid 400mg/5mL	
	Ritonavir (RTV) oral powder 100mg sachet	
7.4.2.4.1	Dolutegravir (DTG) tablet 100mg	
7.4.2.4.2	Raltegravir (RAL) granules for oral suspension 100mg sachet	
7.4.2.5.1	Abacavir + Lamivudine (ABC/3TC) tablet (dispersible, scored) 120mg (as sulphate) + 60mg	
	Abacavir + Lamivudine (ABC/3TC) tablet 600mg (as sulphate) + 300mg	
7.4.2.5.2	Abacavir + Lamivudine + Lopinavir + ritonavir (ABC/3TC/LPV/r) granules for oral suspension 30mg (as sulphate) + 15mg + 40mg + 10mg	
7.4.2.5.5	Tenofovir + Lamivudine + Dolutegravir (TDF/3TC/DTG) tablet 300mg + 300mg + 50mg	
7.4.2.6.1	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) Oral liquid 240mg/5mL [c]	Medicines for prevention of HIV-related opportunistic infections
	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) tablet 800 + 160mg	
7.4.2.6.2	Dapsone tablet 25mg	
	Dapsone tablet 100mg	
7.4.3.2	Oseltamivir oral powder 12mg/mL	Severe illness due to confirmed or suspected Influenza virus infection in critically ill hospitalized patients
7.4.3.3	Ribavirin injection (IV) 800mg in 10mL phosphate buffer solution	Treatment of viral haemorrhagic fevers
7.4.3.4	Valgancyclovir tablet 450mg	Management of Cytomegalovirus (CMV) retinitis
7.4.4.1.1.1	Entecavir oral liquid 0.05mg/mL	Treatment of Hepatitis B
	Entecavir tablet 0.5mg	
7.4.4.1.1.2	Lamivudine (3TC) tablet 150mg	

#	Item Added	Indication/Notes
	Lamivudine (3TC)oral liquid 50mg/5mL	
7.4.4.1.1.3	Tenofovir disoproxil fumarate (TDF) tablet 300mg	
7.4.4.2.2.1	Ledipasvir + Sofosbuvir 90mg + 400mg	Treatment of Hepatitis C
7.5.1.2	Diloxanide furoate + Metronidazole oral liquid 250mg + 200mg	Combination required for clearance of cysts
	Diloxanide furoate + Metronidazole tablet 500mg + 400mg	
7.5.2.1	Amphotericin B PFI (Liposomal) 50mg vial	Restricted use as the recommended second-line treatment of visceral Leishmaniasis. Amphotericin B Liposomal has a better safety profile than Amphotericin B (as sodium deoxycholate)
7.5.3.1.1	Artemether Injection (oily, IM) 80mg/mL in 1mL amp	Management of severe malaria
7.5.3.1.2	Artemether + lumefantrine (AL) tablet (dispersible) 20mg + 120mg [c]	Paediatric formulation
7.5.3.1.4	Artesunate + Pyronaridine tetraphosphate tablet (f/c), 60mg + 180mg	Treatment of uncomplicated malaria (Plasmodium falciparum and P. vivax) in adults and children weighing => 5kg
	Artesunate + Pyronaridine tetraphosphate, granules for oral suspension, 20mg + 60mg [c]	Paediatric formulation
7.5.3.1.5	Dihydroartemisinin + Piperaquine (DHA-PPQ) tablet 20mg + 160mg	Second line treatment for uncomplicated P. falciparum malaria
7.5.3.1.6	Doxycycline capsule 100mg (as HCl or hyclate)	Given in combination with oral Quinine to complete a total of 7 days treatment
7.5.3.1.7	Primaquine tablet 15mg (as diphosphate)	Use to achieve radical cure of P. vivax and P. ovale infections, given for 14 days
7.5.3.2.1	Atovaquone + Proguanil tablet (f/c) 62.5mg (as HCl) + 25mg	

#	Item Added	Indication/Notes
	Atovaquone + Proguanil tablet (f/c) 250mg (as HCl) + 100mg	Chemoprophylaxis for non-immune persons visiting a malarious area
7.5.3.2.3	Mefloquine tablet 250mg (as HCl)	
7.5.4.1	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) tablet 800 + 160mg	Replaced 480mg tablet
7.5.4.2	Pyrimethamine tablet 25mg	Combination of Pyrimethamine + Sulfadiazine used in management of Toxoplasmosis
7.5.4.3	Sulfadiazine tablet 500mg	
7.6.1	Ivermectin tablet 3mg	Medicine for ectoparasitic infections
9.1.1	Antithymocyte globulin (ATG) (rabbit) PFI 25mg vial	Premedication prior to transplants to prevent organ rejection (lymphocyte-depleting). May also be used in treatment of organ rejection
9.1.3	Basiliximab PFI 20mg	Premedication prior to transplants to prevent organ rejection (non-lymphocyte-depleting)
9.1.5	Cyclophosphamide PFI 500mg vial	Immunosuppressant. Use in treatment of severe lupus, rheumatoid arthritis (RA), inflammatory muscle disease
	Cyclophosphamide PFI 1g vial	
9.1.6	Everolimus tablet 500 micrograms (or 0.5mg)	Maintenance immunosuppression following transplantation
9.1.9	Mycophenolate mofetil tablet 250mg	Newer drug and has less gastrointestinal side effects compared to Mycophenolate sodium.
	Mycophenolate mofetil tablet 500mg	
9.1.10	Prednisolone tablet 20mg	Added to supplement 5mg tablet; to reduce pill burden for patients requiring higher dosage
9.1.11	Rituximab injection (IV) 10mg/mL (10mL vial)	Use for desensitization and treatment of antibody mediated rejection; management of juvenile idiopathic arthritis and RA, systemic vasculitis, inflammatory muscle disease
	Rituximab injection (IV) 10mg/mL (50mL vial)	
9.2.1.1	Arsenic trioxide concentrate solution for infusion 1mg/mL	*See list entry for indications*

#	Item Added	Indication/Notes
9.2.1.3	Bendamustine injection 100mg/20mL vial	
9.2.1.5	Calcium folinate injection 10mg/mL (30mL vial)	Higher dose vial compared to 10mg/mL (5mL vial). *See list entry for indications*
9.2.1.10	Cyclophosphamide PFI 1g vial	*See list entry for indications*
	Cyclophosphamide tablet 50mg	
9.2.1.11	Cytarabine PFI 1g vial	
9.2.1.14	Daunorubicin PFI 50mg (as HCl) vial	
9.2.1.17	Etoposide capsule 50mg	
	Etoposide capsule 100mg	
9.2.1.21	Ifosfamide + Mesna injection 1g + 600mg	
	Ifosfamide + Mesna injection 2g + 1200mg	
9.2.1.24	Liposomal Doxorubicin Solution for Injection 20mg vial	
9.2.1.25	Melphalan tablet 2mg	
	Melphalan PFI 50mg vial	
9.2.1.27	Methotrexate tablet 10mg	
9.2.1.29	Paclitaxel concentrate (for IV infusion) 6mg/mL (50mL vial)	
9.2.1.31	Tioguanine SODF 40mg [c]	
9.2.1.33	Vincristine PFI 1mg (as sulphate) vial	
9.2.2.1	All-trans retinoid acid (ATRA) capsule 10mg	
9.2.2.2	Bortezomib PFI 3.5mg vial	
9.2.2.3	Gefitinib tablet 250mg	Alternative to Erlotinib for EGFR mutation-positive advanced non-small cell lung cancer
9.2.2.4	Imatinib tablet 100mg (as mesylate)	For paediatric use. *See list entry for indications*
9.2.2.5	Nilotinib capsule 200mg	Treatment of Imatinib-resistant chronic myeloid leukaemia
9.2.2.8	Topotecan injection 2.5mg	*See list entry for indications*

#	Item Added	Indication/Notes
9.2.3.2	Lenalidomide capsule 5mg	
	Lenalidomide capsule 25mg	
9.2.3.3	Pembrolizumab injection 100mg/4mL	
9.2.4.1	Abiraterone tablet 250mg	
9.2.4.4	Capecitabine tablet 150mg	
	Capecitabine tablet 500mg	
9.2.4.5	Dexamethasone tablet (scored) 4mg	To reduce pill burden for patients requiring higher dosage
9.2.4.10	Prednisolone oral liquid 15mg/5mL [c]	*See list entry for indications*
9.2.5.1.1	Dimercaptosuccinic acid (DMSA)	*Use in Single photon emission computed tomography (SPECT)*
9.2.5.1.2	Hepatobiliary iminodiacetic acid (HIDA)	
9.2.5.1.3	Hexamethylpropyleneamineoxime (HMPAO)	
9.2.5.1.4	Iminodiacetic acid	
9.2.5.1.5	Iodine 123	
9.2.5.1.6	Iodine 131	
9.2.5.1.7	Mercaptoacetyltriglycine (MAG)	
9.2.5.1.8	Methylene diphosphonate (MDP)	
9.2.5.1.9	Sesta methoxyisobutylisonitrile (Sestamibi)	
9.2.5.1.10	Technetium-99m generator	
9.2.5.2.1	Fluorodeoxyglucose (FDG)	Use in Positron emission tomography (PET)
9.2.5.2.2	Copper 64 (Cu 64)	
9.2.5.2.3	Lutetium-177 dotatate	
9.2.5.2.4	Gallium-68 dotatate	
9.2.6.2	Mesna injection 100mg/mL (4mL amp)	Alternative to 100mg/mL (2mL amp)
	Mesna tablet 400mg	*See list entry for indications*
9.2.6.3	Rasburicase injection 7.5mg/vial	

#	Item Added	Indication/Notes
9.2.6.4	Zoledronic acid concentrate solution for Infusion, 800 micrograms/mL (in 5mL vial)	
11.1	Donepezil tablet 5mg	Management of Alzheimer's disease and Dementia
	Donepezil tablet 10mg	
11.2	Memantine tablet 5mg	
12.1.1	Erythropoetin (alpha or beta) stimulating agents injection (prefilled syringe), 2,000 IU/0.5mL	Antianaemic medicine
12.1.6	Iron sucrose injection 100mg	Use in dialysis patients where oral absorption of Iron is poor and to correct iron deficiency anaemia
12.2.2.3	Rivaroxaban tablet 10mg	Use in patients with atrial fibrillation and pulmonary embolism
	Rivaroxaban tablet 15mg	
	Rivaroxaban tablet 20mg	
12.2.2.4	Tranexamic acid tablet 500mg	Works very fast to stop bleeding
12.3.3	Hydroxycarbamide (Hydroxyurea) SODF 100mg/45mL	For extemporaneous preparation of paediatric strength (which is not commercially available) using powder
13.2.1.2	Anti-Hepatitis B immunoglobulin (HBIG) injection 100 IU/mL	Use for sexual assault survivors and children born to Hepatitis B+ mother
13.2.2.1	Coagulation factor VIII PFI (Extended half-life) 250 IU vial	Blood coagulation factors; different strengths to allow flexibility
	Coagulation factor VIII PFI (Extended half-life) 1,000 IU vial	
13.2.2.2	Coagulation factor IX PFI (Extended half-life) 250 IU vial	
	Coagulation factor IX PFI (Extended half-life) 1,000 IU vial	
13.3.1	Human albumin infusion solution 5%	Protein supplementation for patients with burn and other chronic wounds
	Human albumin infusion solution 20%	
13.3.2	Hydroxyethyl starch solution for Infusion 6%	Plasma expander

#	Item Added	Indication/Notes
13.3.3	Gelatin-based colloid solution for Infusion 4%	Plasma expander. Alternative in patients with renal insufficiency and intolerance to starch plasma expanders
14.1.1	Bisoprolol tablet 1.25mg	Alternative to Carvedilol
	Bisoprolol tablet 5mg	
14.1.5	Trimetazidine tablet (m/r) 35mg	Required by some patients
14.2.1	Adenosine injection 6mg/2mL	Management of supraventricular tachycardia in Critical care units
14.2.2	Amiodarone tablet 100mg (as HCl)	Reserved for use in exceptional cases when other therapy for Arrhythmias associated with structural and congenital heart disease has failed. Tablet form enables conversion from IV to oral administration
14.2.2	Amiodarone tablet 200mg (as HCl)	
14.2.3	Bisoprolol tablet 1.25mg	Alternative to Carvedilol as Antiarrhythmic medicine
	Bisoprolol tablet 5mg	
14.2.6	Verapamil tablet 40mg (as HCl)	Replaces 80mg as a lower strength has less side effects and easier to manage in case given by mistake
14.3.1.1	Enalapril tablet 10mg (as hydrogen maleate)	Dosing flexibility - some patients require dose of up to 20mg
14.3.2.2	Telmisartan tablet 40mg	Convenience of 24-hour action
14.3.3.1	Bisoprolol tablet 1.25mg	Alternative to Carvedilol as Antihypertensive medicine
	Bisoprolol tablet 5mg	
14.3.3.3	Labetalol injection 5mg/mL (20mL amp)	Use in Critical Care units for hypertensive emergencies and for management of hypertension in pregnancy
14.3.4.3	Nifedipine tablet (s/r) 40mg	Management of hypertension in pregnancy
14.3.4.3	Verapamil tablet (s/r) 240mg (as HCl)	Sustained release form for management of hypertension
14.3.6.1.2	Phenoxybenzamine capsule 10mg	Management of Phaechromocytoma

#	Item Added	Indication/Notes
14.3.6.2.1	Spironolactone tablet (scored) 25mg	Use in patients needing enhanced diuretic effect
14.3.6.3.1	Torasemide tablet (scored) 20mg	
14.3.6.4.1	Hydralazine tablet 50mg (as HCl)	Management of severe pregnancy-induced hypertension
14.3.6.5.1	Doxazosin tablet 2mg	Management of resistant hypertension
14.3.6.5.2	Prazosin capsule 1mg	
	Prazosin capsule 5mg	
14.3.6.6.1	Sildenafil tablet 25mg	Management of pulmonary hypertension
14.3.7.1	Amlodipine + Hydrochlorothiazide tablet 5mg + 12.5mg	Fixed dose combination (FDC) drugs are recommended as they minimize toxicity and therefore side effects as well as improve adherence to treatment
14.3.7.2	Losartan + Hydrochlorothiazide tablet 50mg + 12.5mg	
14.3.7.3	Lisinopril + Hydrochlorothiazide tablet 20mg + 12.5mg	
14.3.7.4	Telmisartan + Amlodipine tablet 40mg + 5mg	
14.3.7.5	Telmisartan + Hydrochlorothiazide tablet 40mg + 12.5mg	
14.3.7.5	Telmisartan + Hydrochlorothiazide tablet 80mg + 12.5mg	
14.4.1	Bisoprolol tablet 1.25mg	Medicines for management of Heart failure
	Bisoprolol tablet 5mg	
14.4.2	Carvedilol tablet 12.5mg	
14.4.3	Digoxin tablet 125 micrograms	Easier to manage than 250 micrograms
14.4.6	Enalapril tablet (scored) 5mg (as hydrogen maleate)	Medicines for management of Heart failure
14.4.8	Hydralazine tablet 25mg (as HCl)	Medicines for management of Heart failure
	Hydralazine tablet 50mg (as HCl)	
14.4.9	Isosorbide dinitrate tablet 20mg	
14.4.10	Ivabradine tablet (scored) 5mg	
	Ivabradine tablet 7.5mg	
14.4.11	Losartan tablet (scored) 50mg	

#	Item Added	Indication/Notes
14.4.12	Metolazone tablet 5mg	Management of oedema in people with congestive heart failure
14.4.13	Milrinone injection (solution) 1mg/mL (10mL)	Use for patients with pulmonary Hypertension especially post-operative open heart surgery
14.4.14	Nitroglycerin (NTG) injection 2.5mg/mL (10mL) amp	Medicines for management of Heart failure
14.4.15	Norepinephrine (Noradrenaline) injection 1mg/mL	Management of protracted hypotension
14.4.16	Sacubitril + Valsartan tablet (f/c) 24mg + 26mg	First line treatment for heart failure
14.4.18	Torasemide tablet (scored) 20mg	Use in patients needing enhanced diuretic effect
14.5.2..1	Tenecteplase injection (graduated prefilled syringe) 50mg (10mL)	Prefilled syringe enables ease of administration, allowing weight-matched dosing; being more fibrin-specific, it has fewer side effects
14.6.1	Atorvastatin tablet 40mg	Allows for higher dosage
15.1.2	Miconazole cream 2% (as nitrate)	Alternative to Clotrimazole which is facing a lot of resistance
15.2.3	Silver sulphadiazine cream 1% (50g)	Alternative for patients not requiring 250g jar
15.3.1	Betamethasone cream 0.1% (as valerate)	Use for early management of the skin condition
15.3.2	Calamine lotion 15%	Affordable and easily available alternative to Crotamiton
15.3.3	Clobetasone propionate ointment 0.05%	Stronger steroid than the butyrate formulation of the same drug
15.3.5	Hydrocortisone cream 1% (as acetate)	Use for management of pruritus associated with insect stings or bites and minor allergic dermatitis. Since it is a mild topical steroid, is useful for children
15.4.2	Dithranol paste 2%	Management of Psoriasis
15.4.4	Salicylic acid ointment 3%	Replaces Coal tar + Salicylic acid ointment which is not available.

#	Item Added	Indication/Notes
		Use for management of dermatitis, scabies, psoriasis
15.5.2	Calamine lotion 15%	Affordable and easily available alternative to Crotamiton
15.5.3	Crotamiton cream 10% (30g)	Management of pruritus (especially after scabies)
15.5.4	Ivermectin tablet (scored) 3mg	Management of scabies (3mg used, not 6mg)
16.1	Tropicamide + Phenylephrine eye drops 0.8% + 5% w/v	Use in cataract surgery and eye examinations. Replaced Tropicamide eye drops 1% being more effective when in combination with Phenylephrine
16.2.1	Amidotrizoate solution (oral and rectal use) 370-420mg iodine/mL (as sodium or meglumine salt) (100mL)	For non-injectable use. Restrict to areas that will not be in contact with intravascular compartments. Replaced Amidotrizoate injection (solution for IV infusion) 140-420mg iodine/mL (as sodium or meglumine salt)
16.2.2	Barium sulphate Suspension (aq) 95% w/w concentration (1 litre)	Replaced Barium sulphate suspension (aq) 20-200%
	Barium sulphate paste (for oral or rectal use) 92% w/w concentration	Used as enema
16.2.3	Iso-osmolar contrast media, solution for IV injection/infusion, 320mg iodine/mL (100mL)	Use for patients with high risk profile with dehydration and needing urgent contrast examinations; also for intra-arterial injection
16.2.4	Non-ionic low osmolar water-soluble iodinated contrast media, injection	
	300mg iodine/mL (50mL) [c]	For use in children.
	300mg iodine/mL (100mL) [c]	For use in children.
	300mg iodine/mL (50mL) [For intrathecal, oral, intra-cavitary and intravenous use] [c]	For use in children. For intrathecal, oral, intra-cavitary and intravenous use.

#	Item Added	Indication/Notes
	300mg iodine/mL (100mL) [For intrathecal, oral, intra-cavitary and intravenous use] [c]	For use in children. For intrathecal, oral, intra-cavitary and intravenous use.
	Non-ionic low osmolar water-soluble iodinated contrast media, injection	
	350mg iodine/mL (50mL)	For use in adults. Low osmolar water soluble iodinated contrast media with specific manufacturer recommendations for use in the listed anatomical regions
	350mg iodine/mL (100mL)	For use in adults
	350mg iodine/mL (50mL) [For oral, intra-cavitary and intravenous use]	For use in adults. For oral, intra-cavitary and intravenous use.
	350mg iodine/mL (100mL) [For oral, intra-cavitary and intravenous use]	For use in adults. For oral, intra-cavitary and intravenous use.
16.3.1	Gadobutrol Injection (solution) (IV) 1mmol/mL	Replaced the 1mmol/mL formulation in former Specialist List without specified volumes. Addition of 7.5mL and 15mL volumes
	(7.5mL)	
	(15mL)	
16.3.3	Gadopentate dimeglumine injection (solution) (IV) 0.5mmol/mL	Addition of 10mL and 15mL volumes
	(10mL)	
	(15mL)	
18.2	Furosemide oral liquid 20mg/5mL [c]	Diuretic for paediatric use. Can also be used for management of Hypertension in patients with renal failure
18.5	Spironolactone tablet (scored) 100mg	Diuretic for use in older patients
18.6	Vasopressin injection 20 units/mL	Management of diuresis after neurotrauma
19.1	Dexamethasone tablet (scored) 4mg	To reduce pill burden for patients requiring higher dosage
19.2.3	Fosaprepitant injection 150mg	Use in combination with other antiemetic medicines for management of stubborn emesis

#	Item Added	Indication/Notes
		(e.g. chemotherapy that has high risk of vomiting)
19.2.5	Olanzapine tablet 5mg	Control of emesis and stimulation of appetite
19.2.6	Ondansetron oral liquid 4mg base/5mL [c]	For paediatric use
19.4.1	Bisacodyl suppository 5mg	Replaces 10mg so as to enable use in children also
19.4.2	Lactulose Oral liquid 3.1-3.7g/5mL	Preferred for use in elderly patients
19.6.1	Terlipressin injection 1mg (as acetate) in 8.5ml solution	Management of variceal bleeding and hepatorenal syndrome
19.7.1	Vasopressin injection 20 units/mL	Management of ascites and GI bleeding
20.1.2	Hydrocortisone tablet 20mg	To reduce pill burden for patients requiring higher dosage
20.2.1	Testosterone Injection (oily) 250mg (as enanthate)/1mL amp	Management of delayed puberty
20.3.1	Conjugated Estrogens, cream (vaginal) 0.625mg/g (30g)	Hormone Replacement Therapy (HRT); also management of labial fusion or urethrocele in women or young girls
20.3.2	Estradiol transdermal patch 0.1mg/day	Management of all cases of delayed puberty including Turner's syndrome
20.5.1.1	Insulin, Ultra short-acting (Rapid) (Human) injection 100 IU/mL (10mL vial)	Detailed classification of Insulin types
20.5.1.4	Insulin, Premixed (Short acting + Intermediate acting) (Human) injection 100 IU/mL (10mL vial)	
20.5.1.5	Insulin, Premixed (Ultra short acting + Intermediate acting) (Human) injection 100 IU/mL (10mL vial)	
20.5.1.6	Insulin, Long-acting (basal) (human) [Glargine] injection 100 IU/mL (10mL vial)	
20.5.2.1.1	Gliclazide tablet (m/r) 30mg	

#	Item Added	Indication/Notes
20.5.2.3.1	Pioglitazone tablet 15mg	Oral hypoglycaemic agents disaggregated by class
20.5.2.4.1	Sitagliptin tablet 50mg	
20.5.2.5.1	Empagliflozin tablet 10mg	
20.6.1	Diazoxide suspension 50mg/mL	Management of hypoglycaemia in new-borns
20.7.3	Lugol's Iodine solution, PFOL, ~130mg total iodine/mL	Management of thyroid conditions and protection of thyroid gland after radiation exposure or radioactive iodine treatment
20.7.4	Propranolol tablet (scored) 40mg	Management of hyperthyroidism
20.8.1	Carbergoline tablet 0.5mg	Replaced Bromocriptine. Management of hyperprolactinemia / suppression of lactation
21.2.1	Anti Snake venom immunoglobulin, injection (for IV infusion), Monovalent serum (for Boomslang (Dyspholidus typus, African) bites), vial	Immunoglobulin against snake venom specific to Boomslang (Dyspholidus typus, African) bites
21.3.3	Hepatitis B vaccine injection (suspension), multi dose vial	Addition of multi dose vial
21.3.12	Tetanus + Diphtheria (Td) vaccine, injection, 10mL vial (20 doses)	Use to reinforce immunization of adults, adolescents and children aged over 10 years
21.3.13	Tetanus + Diphtheria + Pertussis (Tdap) vaccine, injection, 0.5mL (single dose)	
21.3.16	Hepatitis A vaccine injection, 80 units (Paed)	Use for vaccination in adolescents and adults living with HIV
	Hepatitis A vaccine injection, 160 units (Adult)	
21.3.17	Malaria vaccine, injection, 1mL vial (2 doses)	Prevention of malaria in young children (pilot program)
21.3.21	Influenza vaccine (inactivated), injection, 0.5mL vial (single dose)	Use in special populations e.g. geriatric patients (age ≥ 65 years), adults and adolescents living with HIV

#	Item Added	Indication/Notes
22.1.3	Erythromycin eye ointment 0.5% [c]	Treatment of infections due to Chlamydia trachomatis or Neisseria gonorrhoea
22.1.5	Gentamicin + Dexamethasone eye drops 0.3% + 0.1%	For use by patients post-cataract surgery
22.1.6	Natamycin eye drops 5%	Better antifungal medicine for fungi common to Kenya. Replaces Econazole eye drops 1%
22.1.7	Ofloxacin eye drops 0.3% (as sulphate)	Replaces Ciprofloxacin. Has better coverage, also does not leave irritant deposits on cornea
22.2.1	Fluoromethalone eye drops 0.1%	Use for treating mild allergies when a stronger steroid e.g. Prednisolone is not necessary
22.4.4	Pilocarpine solution (eye drops) 4% (as HCl or nitrate)	Use for angle-closure glaucoma and when preparing patients for glaucoma surgery
22.5.1	Atropine eye drops 0.1% (as sulphate) [c]	For use in infants
22.5.2	Tropicamide + Phenylephrine eye drops 0.8% + 5% w/v	Use in cataract surgery and eye examinations. Replaced Tropicamide eye drops 1% being more effective when in combination with Phenylephrine
22.7.1	Azelastine eye drops 0.05%	Use for mild allergies
22.8.1	Hypertonic saline eye drops 3%	Management of corneal oedema
22.8.2	Methyl cellulose eye drops 0.3 - 1%	Eye lubrication (Artificial tears)
23.1.1.2	Ethinylestradiol + Norethisterone tablet 35 micrograms + 1mg	Required as per updated FP guidelines
23.1.1.3	Levonorgestrel tablet 30 micrograms	
	Levonorgestrel tablet 1.5mg	
23.2.2	Human chorionic gonadotropin (HCG) injection 5,000 IU/vial	New section. Ovulation inducers
23.2.3	Human menopausal gonadotropin (HMG) injection 75 IU	
23.2.4	Letrozole tablets 2.5mg	
23.3.1	Danazol capsule 50mg	

#	Item Added	Indication/Notes
23.3.2	Dienogest tablet 2mg	New section. Treatment of Endometriosis
23.3.3	Goserelin injection (depot, SC) 3.6mg (as acetate)	
23.3.4	Levonorgestrel (LNG)-releasing Intrauterine system (LNG-IUS), reservoir with 52mg	
23.4.1	Goserelin injection (depot, SC) 3.6mg (as acetate)	New section. Treatment of Fibroids
23.4.2	Leuprorelin (Leuprolide) injection (depot, SC) 3.75mg (as acetate)	
23.5.1	Norethisterone tablet 5mg	New section. Treatment of Abnormal uterine bleeding
23.6.1.1	Carbetocin injection (heat stable) 100mcg/mL	Treatment of postpartum haemorrhage (PPH) together with Misoprostol and Oxytocin, especially in high-risk pregnancies
23.6.1.2	Ergometrine injection 500 micrograms (as hydrogen maleate)/1mL amp	Replaces 200 micrograms/1mL amp. 500mcg is the locally available strength
23.7.1	Salbutamol injection 500 micrograms (as sulphate)/mL (5mL amp)	Restricted to management of threatened abortion
23.8.1	Dexamethasone injection 4mg (as disodium phosphate)/mL	Management of pre-term labour
23.8.2	Tranexamic acid injection 100mg/mL (10mL amp)	Beneficial in reducing maternal mortality in pregnant women with PPH
23.9.4	Prostaglandin E2 injection solution 1mg/mL [c]	Management of infants with ductus-dependent cyanotic congenital heart disease
23.9.5	Sildenafil PFOL 10mg/mL	Management of pulmonary hypertension in the newborn
25.1.1	Aripiprazole tablet 15mg	Antipsychotic effective for managing psychosis in diabetic patients
25.1.6	Haloperidol injection (oily) 50mg/1mL amp	Treatment of schizophrenia when prolonged parenteral therapy required
25.1.7	Midazolam injection (IM) 5mg/mL (3mL amp)	Only for management of agitation in acute psychosis

#	Item Added	Indication/Notes
25.1.9	Paliperidone palmitate injection 75mg/mL	Management of schizophrenia
	Paliperidone palmitate injection 100mg/mL	
	Paliperidone palmitate injection 150mg/mL	
25.1.10	Quetiapine tablet (i/r, scored) 100mg	Management of psychotic disorders. Provision of different immediate and extended release formulations
	Quetiapine tablet (e/r) 300mg	
	Quetiapine tablet (i/r, scored) 300mg	
25.1.12	Zuclopenthixol injection (oily) 100mg/mL (as acetate) (2mL amp)	Replaces the 50mg/mL (as acetate) (2mL amp) which allows more affordable treatment
	Zuclopenthixol oral drops 20mg/mL (20mL)	Treatment of acute schizophrenia and other acute psychoses; severe acute states of agitation; mania in those who are compliant with oral medication. For use in children as well as adults not compliant with injectable form
25.2.1.2	Escitalopram tablet 10mg	Management of major depressive disorder and generalized anxiety disorder. Has less side effects
25.2.1.4	Mirtazapine tablet 15mg	Management of depression complicated by anxiety or trouble sleeping. No effect on libido so less stigma
25.2.2.2	Divalproex sodium tablet 500mg	Replaced Valproic acid (sodium valproate). Has similar efficacy but less side effects
	Divalproex sodium tablet 750mg	Replaced Valproic acid (sodium valproate). Has similar efficacy but less side effects
25.2.2.3	Lithium carbonate tablet (scored) 400mg	Management of bipolar disorders. Restricted to use by specialists with close patient blood level monitoring at Level 6 hospitals
	Lithium carbonate tablet (m/r) 400mg	

#	Item Added	Indication/Notes
25.2.2.4	Quetiapine tablet (i/r, scored) 100mg	Management of bipolar disorders. Provision of different immediate and extended release formulations
	Quetiapine tablet (e/r) 300mg	
	Quetiapine tablet (i/r, scored) 300mg	
25.3.2	Escitalopram tablet 10mg	New section. Management of Anxiety disorders
25.3.3	Mirtazapine tablet 15mg	
25.5.2	Buprenorphine Tablet (sublingual) 2mg (as HCl)	Restricted for use in Medically assisted therapy (MAT) clinics for People who use drugs (PWUDs)
	Buprenorphine Tablet (sublingual) 8mg (as HCl)	
25.5.4	Bupropion tablet 150mg	Smoking cessation aid. Administered together with the Nicotine patch
25.5.6	Naltrexone injection (IM, suspension for extended release) 380mg (as HCl)	Prevention of relapse in Alcohol use disorders
	Naltrexone implant 765mg (as HCl)	Restricted access via fee for service for insurance reimbursement (special request only). Use only in alcohol rehabilitation treatment
25.5.7	Nicotine (NRT) transdermal patch 7-21mg/24 hours	Smoking cessation aid
25.6.1	Methylphenidate tablet (e/r) 18mg	Management of attention deficit hyperactivity disorder (ADHD)
25.7.1	Melatonin tablet (soluble) 4mg	New section. Medicines for sleep disorders
25.7.2	Zolpidem tablet 10mg	
26.1.1	Budesonide inhalation (aerosol) 100 micrograms/dose (200 dose)	Replaced Beclomethasone inhalation (aerosol) 100 micrograms/metered dose. Management of mild to moderate asthma
	Budesonide inhalation (aerosol) 200 micrograms/dose (200 dose)	
26.1.2	Budesonide + Formoterol dry powder inhaler, 100 micrograms + 6mg/metered dose (120 dose)	Alternative strength to 200 micrograms + 6mg/metered dose formulation. Management of asthma and chronic obstructive pulmonary disease

#	Item Added	Indication/Notes
26.1.4	Ipratropium bromide nebuliser solution 500 micrograms/2mL unit dose vial (isotonic)	Replaced the Ipratropium bromide nebuliser solution 250 micrograms/1mL unit dose vial (isotonic)
26.1.5	Montelukast tablet (chewable) 5mg (as sodium salt)	Management of allergic rhinitis, exercise-induced asthma in children of age > 2 years.
		Replaced Montelukast granules 4mg (as sodium salt) sachet
26.1.7	Salbutamol + Beclomethasone inhalation (aerosol), 100 micrograms + 50 micrograms	Management of exacerbation of asthma. Replaced Salbutamol inhalation (aerosol) 100 micrograms (as sulphate)/metered dose since Salbutamol inhalation is no longer recommended for single use, but in combination with other medicines
26.1.8	Salbutamol + Ipratropium nebuliser solution, 200 micrograms (as sulphate) + 1mg (as bromide) per 1mL (2.5mL amp)	Management of chronic obstructive pulmonary disease (COPD)
26.1.9	Tiotropium powder for inhalation in a capsule, 18 micrograms/capsule	
27.1.2	Ciprofloxacin + Dexamethasone solution (ear drops) 0.3% (as HCl) + 0.1%	Combined anti-infective and anti-inflammatory action. Replaced Ciprofloxacin + Betamethasone solution (ear drops) 0.3% (as HCl) + 0.1% (as sodium)
27.1.4	Cinnarizine tablet 25mg	Management of vertigo
27.1.6	Neomycin + Betamethasone solution (ear & nasal drops) 0.5% (as sulphate) + (0.1% as sodium phosphate)	Management of inflammation in otitis externa
27.2.2	Fluticasone nasal spray 27.5 micrograms (as propionate or furoate)	Gold standard in management of allergic rhinitis
27.2.5	Xylometazoline nasal spray 0.05%	Short-term anti-decongestant (due to potential for rebound congestion)

#	Item Added	Indication/Notes
27.3.1	Chlorhexidine solution (mouthwash) 0.2% (as gluconate/digluconate)	New section. Medicines for the Throat and Mouth. For supportive care for immunocompromised patients (e.g. with cancer)
27.3.2	Lignocaine spray 10mg/metered dose (actuation)	New section. Medicines for the Throat and Mouth. Use in throat examination
28.1.1	Allopurinol tablet 100mg	Strength for starting dose
28.1.2	Colchicine tablet 500 micrograms	Management of acute gout
28.1.3	Febuxostat tablet 40mg	Prophylaxis and treatment of hyperuricaemia in gout
28.1.3	Probenecid tablet 250mg	Management of gout in patients with hypersensitivity to Allopurinol
28.2.1.2	Hydroxychloroquine (HCQ) tablet 200mg (as sulphate)	Management of rheumatoid disorders in adults and children. Replaced Chloroquine tablet 150mg (as phosphate or sulphate)
28.2.1.4	Methotrexate (MTX) injection (prefilled syringe) 10mg/mL (0.4mL)	Use in patients not able to tolerate oral form (due to S/E) or to improve efficacy at higher doses
	Methotrexate (MTX) injection (prefilled syringe) 25mg/mL (0.4mL)	
28.2.2.1	Abatacept PFI (IV) 250mg	Management of rheumatoid arthritis and juvenile idiopathic arthritis in children
28.2.2.2	Etanercept injection 25mg vial	Management of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and juvenile idiopathic arthritis. Paediatric strength
	Etanercept injection 50mg vial	As above. Adult strength
28.2.2.3	Golimumab injection (solution) (SC) 50mg	Management of rheumatoid arthritis, psoriatic arthritis, axial spondyloarthritis, juvenile idiopathic arthritis
28.2.2.4	Infliximab PFI 100mg	Management of rheumatoid arthritis, Crohn's disease,

#	Item Added	Indication/Notes
		vasculitis, psoriatic arthritis, axial spondyloarthritis
28.2.2.5	Rituximab injection (IV) 10mg/mL (10mL vial)	Management of rheumatoid arthritis, Lupus, vasculitis, myositis
	Rituximab injection (IV) 10mg/mL (50mL vial)	
28.2.2.6	Tocilizumab injection (solution for IV infusion) 20mg/mL (4mL vial)	Management of rheumatoid arthritis, giant cell arthritis
28.3.2	Adalimumab injection 40mg/0.4mL	Management of Juvenile joint diseases
28.3.3	Etanercept injection 25mg vial	
	Etanercept injection 50mg vial	
28.3.4	Methotrexate (MTX) tablet 2.5mg (as sodium salt)	
	Methotrexate (MTX) injection (prefilled syringe) 10mg/mL (0.4mL)	
	Methotrexate (MTX) injection (prefilled syringe) 25mg/mL (0.4mL)	
28.3.5	Tocilizumab injection (solution for IV infusion) 20mg/mL (4mL vial)	
29.1	Alendronic acid tablet 10mg	New section. Medicines for management of Osteoporosis
	Alendronic acid tablet 70mg	
29.2	Zoledronic acid Injection 5mg (in 100mL)	
30.1	B-Sitosterol ointment 0.25% w/w (30gm)	New section – Medicines for Wound care.
		Management of burns and other superficial wounds e.g. skin ulcers
30.2	Collagenase clostridiopeptidase A + Proteases ointment 1.2 units + 0.24 units (15g)	For chemical debridement of wounds
30.3	Distilled water, liquid 500mL	For cleaning of wounds
30.4	Human Epidermal growth factor (recombinant), gel (water-based), 60 micrograms (15g)	Assists in epithelialisation of wounds and growth of epidermis

#	Item Added	Indication/Notes
30.5	Human Platelet derived growth factor (recombinant), gel (water-based), 100 micrograms (15g)	For use in diabetic patients to granulate necrotic tissue
30.6	Metronidazole gel 0.75% or 0.80%	Dressing of fungating wounds; minimises odour
30.7	Papain + Urea (Papain-urea topical) ointment 521,700 IU + 100mg (15g)	Use for enzymatic debridement of large burn wounds
30.8	Silver ion solution 0.01% (100mL)	For advanced wound care - healing chronic wounds such as diabetic foot ulcers, venous stasis ulcers, pressure ulcers, burns and post-surgical wounds
	Silver ion solution 0.01% (250mL)	
30.9	Silver sulphadiazine cream 1% (50g)	Management of burns
	Silver sulphadiazine cream 1% (250g)	
30.1	Zinc hyaluronate (zinc-hyaluronan) gel (water-based) 15g	Assists in epithelialisation of wounds
31.1.1	Calcium carbonate tablet 500mg	Oral electrolyte supplement; also used to hypophosphataemia in patients with chronic kidney disease
31.1.2	Magnesium chloride tablet 71.5mg (containing Calcium as carbonate 119mg per tablet)	Oral management of Hypomagnesaemia
31.1.5	Potassium chloride tablet (e/r) 600mg	Oral management of Hypokalaemia
31.1.7	Sevelamer tablet 400mg	Control of serum phosphorus in patients with chronic kidney disease (CKD) who are on dialysis
	Sevelamer tablet 800mg	
31.1.8	Sodium citrate + Citric acid (Shohl's solution) Oral solution, 500mg + 334mg/5mL (30mL)	Management of metabolic acidosis, e.g. in paediatric patients with renal tubulopathy
31.1.9	Sodium acid phosphate tablets (effervescent) 1.936g (equiv. to phosphorus 500mg)	Oral management of Hypophosphataemia
31.1.10	Sodium chloride tablet 600mg	Oral management of Hyponatraemia
31.1.11	Sodium polystyrene sulphonate powder 450g	Correction of water and electrolyte imbalance for hyperkalaemia

#	Item Added	Indication/Notes
31.1.12	Sodium hydrogen carbonate (Sodium bicarbonate) tablet (scored) 600mg	Oral management of Hyperkalaemia
	Sodium hydrogen carbonate (Sodium bicarbonate) tablet (scored) 1g	
31.1.13	Tolvaptan tablet 15mg	Oral management of Hyponatraemia
31.2.1	Calcium gluconate injection 100mg/mL (10%) (10mL amp)	Management of Hyperkalaemia
31.2.3	Glucose + Sodium chloride injectable solution 5% + 0.9% [c]	Use when patient is dehydrated and unable to eat. Paediatric use
31.2.5	Sodium chloride injectable solution (infusion) 0.45% (hypotonic) (500mL) [in collapsible bottle or Euro cap]	Management of hypo-osmolar hyperglycaemic state (HSS)
32.1	Ascorbic acid (Vit C) tablet 50mg	Management of patients with bleeding gums. Also useful for wound healing, immunity, iron absorption
32.2	Calcitriol (Vit D3) capsule 250 micrograms	Management of Hypocalcaemia in CKD patients undergoing chronic renal dialysis
32.6	Ergocalciferol (Vit D2) oral liquid 250 micrograms (10,000 IU)/mL	Treatment of hypoparathyroidism, refractory rickets (also known as Vitamin D resistant rickets), and familial hypophosphatemia
	Ergocalciferol (Vit D2) tablet / capsule 250 micrograms (10,000 IU)	
32.7	Niacinamide tablet 500mg	Restricted to management of Pellagra
32.8	Omega 3 fatty acids tablet / capsule 1g	Treatment of inflammatory conditions, e.g. in coronary heart disease (CHD), Rheumatoid arthritis (RA), Acute respiratory distress syndrome (ARDS)
	Omega 3 fatty acids liquid 250mg to 500mg/100mL (100 to 200mL)	
32.9	Pyridoxine (Vit B6) tablet 25mg (as HCl)	Management of Isoniazid-induced neuropathy in patients with TB. For paediatric use
32.1	Retinol (Vit A) capsule 50,000 IU (as palmitate)	Additional strength for use in supplementation

#	Item Added	Indication/Notes
32.12	Vitamins & Minerals mix powder, 1g sachet [c]	Micronutrient supplementation. For Paediatric use. Also known as Multiple micronutrient powder (MNP)
32.13	Vitamin B12 (Cobalamin) tablet 500 micrograms	Restricted to patients who require oral supplementation (e.g. vegetarians) and cannot tolerate injections
32.14	Zinc sulphate tablet (dispersible) 20mg	Use for wound management
33.1.1.1	2-chamber bag for central administration, solution for IV infusion, 1 litre	New section.
		Parenteral products for clinical management of Nutrition.
		See list entry for indications
33.1.1.2	3-chamber bag for peripheral administration, solution for IV infusion, 1 litre	For use in management of adults and paediatric patients on short term parenteral nutrition support
	3-chamber bag for peripheral administration, solution for IV infusion, 1.5 litre	For use in management of adult and paediatric patients with increased nutrient needs on short term parenteral nutrition support
33.1.1.3	3-chamber bag for peripheral administration for Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 1 litre	For use in management of adult and paediatric patients on short term parenteral nutrition support
	3-chamber bag for peripheral administration for Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 1.5 litre	
33.1.1.4	3-chamber bag for central administration, solution for IV infusion, 1 litre	For use in management of adult and paediatric patients with increased nutrient needs on short term parenteral nutrition support
	3-chamber bag for central administration, solution for IV infusion, 2 litres	For use in management of adult and paediatric patients with increased nutrient needs on long term parenteral nutrition support

#	Item Added	Indication/Notes
33.1.1.5	3-chamber bag for central administration for Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 1 litre	For use in management of adult and paediatric patients on long term parenteral nutrition support
	3-chamber bag for central administration for Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 2 litres	For use in management of adult and paediatric patients on long term parenteral nutrition support
33.1.1.6	Adult trace elements, solution for IV infusion, 10mL	Containing zinc, selenium, copper, chromium, fluoride, manganese essential for normal physiological functioning in adults
33.1.1.7	Amino acids, solution for IV infusion, 21g amino acid + 12g glutamine per 100mL bottle	For adult and paediatric patients awaiting transition from TPN
33.1.1.9	Fat-soluble vitamins (for infants and children), solution for IV infusion, 10mL [c]	For use in infants and children
	Fat-soluble vitamins (for adults), solution for IV infusion, 10mL	For use in adults
33.1.1.10	Paediatric trace elements, solution for IV infusion, 10mL [c]	For normal physiological functioning in children
33.1.1.11	Total parenteral nutrition (TPN) with Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 625mL bag	For use in management of adult and paediatric patients with restricted fluid intake on long term parenteral nutrition support
	Total parenteral nutrition with Medium chain Triglycerides (MCT) / Long chain Triglycerides (LCT), solution for IV infusion, 1,250mL bag	For use in management of adult and paediatric patients with restricted fluid intake on long term parenteral nutrition support, requiring increased nutrient intake
33.1.1.12	Water-soluble vitamins, solution for IV infusion, 10mL	For use in children and adults
33.1.2.1	High energy, high protein oral sip feed, liquid, 200mL	For use in management of fluid restricted conditions

#	Item Added	Indication/Notes
33.1.2.2	Hypocaloric sip feed with fibre, liquid, 200mL	Enteral feeds - liquid formulation products for clinical management of Nutrition.
33.1.2.3	Nutritionally complete liquid diet, isocaloric, liquid, 1000mL	For use in management of severe multiple trauma, major abdominal surgery, burns. For tube feeding. Requires a gravity set for administration or a pump set where a feeding pump is available
33.1.2.4	Nutritionally complete, hydrolysed diet with fibre, liquid, 1000mL	
33.1.2.5	Nutritionally complete, normal caloric diet for diabetes tube feed, with fibre, liquid, 200mL Nutritionally complete, normal caloric diet for diabetes tube feed, with fibre, liquid, 500mL	For management of adult and paediatric patients with hyperglycemia/glucose intolerance/ metabolic syndrome
33.1.2.6	Nutritionally complete with Medium Chain Triglyceride peptide diet, liquid, 500mL	For management of adult and paediatric patients with malabsorption / short bowel syndrome, hepatic or pancreatic failure
33.1.2.7	Nutritionally complete high protein energy sip feed, liquid, 200mL	For management of adult and paediatric patients with burns, HIV, pulmonary TB or cancers
33.1.2.8	Nutritionally complete Sip feed, liquid, 200mL	For management of patients with anorexia, GIT obstructions or renal failure. Contains protein, carbohydrate and fat
33.1.2.9	Nutritionally complete iso-caloric paediatric tube feed, liquid, 500mL	For management of patients with high catabolism
33.1.2.10	Nutritionally complete diet, fibre-free for tube feeding, liquid, 500mL Nutritionally complete diet, fibre-free for tube feeding, liquid, 1000mL	For management of adult and paediatric patients on nasogastric tube (NGT) feed withcontrolled fluid intake requiring fibre modification or NGT patients with diarrhoea

#	Item Added	Indication/Notes
33.1.2.11	Nutritionally complete formula with fibre for tube feeding, liquid, 500mL	For management of adult and paediatric patients on nasogastric tube (NGT) feed with controlled fluid intake requiring no nutrient modification or NGT patients with constipation
	Nutritionally complete formula with fibre for tube feeding, liquid, 1000mL	
33.1.2.12	Nutritionally complete liquid, low sodium formula, liquid, 500mL	For management of adult and paediatric patients with renal disease, chronic cardiac failure, congestive heart disease
33.1.2.13	Nutritionally complete glutamine-enriched liquid formula, liquid, 500mL	For management of adult and paediatric patients with burns, TB, RVD, cancers, severe head injury, cachexia
33.1.2.14	Specialized hepatic liquid formula, liquid, 500mL	For management of adult and paediatric patients with hepatic disease
33.1.2.15	Specialized hepatic sip feed, liquid, 200mL	For management of adult and paediatric patients with hepatic disease
33.1.2.16	Specialized high energy protein drink (with hydrolysed protein, fat free, lactose free and gluten free), liquid, 200mL	For management of adult and paediatric patients with pancreatic and hepatic disease, malabsorption, short bowel syndrome
33.1.2.17	Specialized hypercaloric liquid formula feed, liquid, 500mL	For management of adult and paediatric patients with burns, TB, HIV, cancers, severe head injury
33.1.2.18	Semi elemental peptide based formula for tube feed, liquid, 500mL	For management of adult and paediatric patients with malabsorption, short bowel syndrome, pancreatic failure
33.1.3.1	Adult nutritionally complete iso-caloric formula, powder, 400g	For management of adult patients with lactose or glutein sensitivity, or those on convalescence
33.1.3.2	Adult nutritionally complete peptide based formula, powder, 20 to 30g sachet	Enteral feeds - powder formulation products for clinical management of Nutrition.

#	Item Added	Indication/Notes
33.1.3.3	Amino acids and Vitamin granules, powder, 5 to 10g sachet	For adult and paediatric patients with burns, TB, HIV disease, cancers
33.1.3.4	High calorie, high protein formula, powder, 200g	For adult and paediatric patients on full liquid diet, with dysphagia
	High calorie, high protein formula, diskettes, 200g	For adult and paediatric patients with high calorie or high protein needs
33.1.3.5	Low fat formula, powder, 200g to 500g	For management of patients with liver disease
33.1.3.6	Nutritionally complete low glycaemic index formula, powder, 400g sachet	
33.1.3.7	Paediatric nutritionally complete iso-caloric formula, powder, 400g [c]	For management of paediatric patients on convalescence or picky eaters
33.1.3.8	Paediatric nutritionally complete peptide based formula, powder, 400g [c]	For management of paediatric patients with lactose intolerance or needing growth catch-up
33.1.3.9	Specialized Hepatic formula, powder, sachet	For management of adult and paediatric patients with liver disease. Fat free
33.1.3.10	Specialized Renal formula, powder, 400g	For management of adult and paediatric patients with renal disease
33.1.3.11	Specialized Semi-elemental peptide formula, powder, 400g	For management of adult and paediatric patients with hepatic and pancreatic failure, GIT disorders
33.2.1	Fortified Blended Food (FBF), flour, 415kcal/100g (Sachet)	For supplementation in children aged 6 months to 9 years as per criteria in Nutrition & HIV guidelines
	Fortified Blended Food (FBF), flour, 435kcal/100g (Sachet)	For supplementation in adults and adolescents (age 10-17 years) as per criteria in Nutrition & HIV guidelines
	Fortified Blended Food (FBF), flour, 450kcal/100g (Sachet)	For supplementation in pregnant women and post-partum mothers as per criteria in Nutrition & HIV guidelines

#	Item Added	Indication/Notes
	Fortified Blended Food (FBF), flour, 1,000 kcal/250g (Bag or Sachet)	For use in supplementary feeding programmes for children and lactating mothers as per criteria in Nutrition guidelines
33.2.2	Point of use Water treatment, solution, 1.2% Sodium hypochlorite [NaOCl] (150mL)	Use to provide safe water for drinking during treatment of malnutrition
33.2.3	Ready to use supplemental food (RUSF), oral paste / bar / liquid / powder, standard formula (minimum 350 Kcal/100g)	For oral intake for clinical management of inadequate nutrient intake from normal diet due to disease symptoms and/or other related conditions
	Ready to use supplemental food (RUSF), oral paste / bar / liquid / powder, standard formula (minimum 510 Kcal/100g)	Management of Moderate Acute Malnutrition (MAM)
33.2.5	Therapeutic diet feed (F-75), PFOL, standard formula (400g tin)	Management of Severe Acute Malnutrition (SAM)
33.2.6	Therapeutic diet feed (F-100), PFOL, standard formula (400g tin)	

Appendix 2: List of Deletions from KEML 2016[606]

Section	Item Deleted	Reason/Notes
1.3	Chlorpheniramine injection 10mg (as maleate)/1mL amp	Removed from this section 1.3 (Pre- and intra-operative medication and sedation for short-term procedures), transferred to section 4 (Antiallergics and Medicines used in Anaphylaxis)
	Midazolam oral liquid 2mg (as HCl)/mL [c]	The injection can be used to create an oral form for use in children; also this product is not easily available
	Midazolam tablet 7.5mg (as maleate)	Oral form not required by patients prior to surgical procedures
2	Glycopyrronium + Neostigmine injection 500 micrograms (as bromide) + 2.5mg (as metilsulfate) /1mL amp	Medicine combination more risky, e.g. in patient having cardiac events. Replaced by the separate individual medicines
3.2	Codeine phosphate tablet 30mg	Replaced by Dihydrocodeine phosphate tablet 30mg. Low local availability of Codeine tablets. Also, since analgesic effects of codeine rely on its conversion to morphine, there is variable response (inadequate analgesia) in some patients with genetic variations in metabolic enzymes required in its conversion
3.3	Bisacodyl suppository 10mg	Not required
	Dexamethasone tablet 2mg [c]	Not locally registered. Replaced by Dexamethasone tablet 4mg
	Diazepam oral liquid 2mg/5mL	
	Diazepam gel or rectal solution 5mg/mL (0.5mL tube)	Not locally registered. Also Diazepam tablets (scored) and Injection (administered rectally by syringe) are preferred for use in children
	Metoclopramide oral liquid 5mg/5mL	Side effects so caution required when used in children. Replaced by Ondansetron oral liquid 4mg base/5mL [c]

[606] Note that deletion of a medicine is specific to a particular section/use and not necessarily the whole list (e.g. Chlorpheniramine injection has been deleted from section 1.3 but added to section 4)

Section	Item Deleted	Reason/Notes
	Midazolam injection 1mg/5mL	Midazolam is short-acting and can be replaced by Diazepam and Amitriptyline
	Midazolam injection 5mg/5mL	
	Midazolam oral liquid 2mg (as HCl)/mL [c]	
	Midazolam tablet 7.5mg (as maleate)	
4	Cetirizine oral liquid 5mg (as HCl)/5mL	Replaced by Chlorpheniramine oral liquid 2mg (as maleate)/5mL. Cetirizine can only be used from age of 2 years compared to Chlorpheniramine which can be used from age 1 year
	Cetirizine tablet 10mg (as HCl)	Has some sedating effect. Replaced by Loratadine tablet 10mg which is non-sedating
5.2	Deferasirox tablet 400mg	Not required. 100mg tablet can be used by both adults and children
	Dimercaprol injection (in oil) 50mg/mL (2mL amp)	Not required. Penicillamine tablet 250mg has same use
6	Phenytoin sodium tablet (f/c) 25mg	Not required. Phenytoin sodium oral liquid 30mg/5mL is adequate
7.2.1	Azithromycin tablet (scored) 250mg (anhydrous)	Replaced by 500mg scored tablet
	Metronidazole tablet (f/c) 200mg	Not required. Replaced by Metronidazole tablet (f/c, scored) 400mg. Metronidazole oral liquid 200mg/5mL (as benzoate) also available
	Amoxicillin + clavulanic acid Tablet (dispersible, scored) 200mg + 28.5mg	Replaced by 312.5mg DT. The 200mg strength of Amoxicillin in the 228.5mg formulation is too low
7.2.2	Ciprofloxacin oral liquid 250mg/5mL (anhydrous) [c]	Concerns for safety have limited fluoroquinolone use in children. 500mg tablet (scored) can be used if required.
	Ciprofloxacin tablet 250mg (as HCl)	Replaced by 500mg tablet (scored)
	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) tablet 480mg	Replaced by 800+160mg tablet (scored)

Section	Item Deleted	Reason/Notes
	Imipenem + Cilastatin PFI 250mg + 250mg vial	Deleted in this section. Replaced by Meropenem and Ertapenem (under Reserve section)
	Imipenem + Cilastatin PFI 500mg + 500mg vial	
7.2.5.1	Isoniazid (H) oral liquid 50mg/5mL [c]	Not required in updated treatment protocols
	Pyrazinamide (Z) tablet 400mg	Replaced by Pyrazinamide (Z) tablet 500mg
7.2.5.2	Isoniazid + Ethambutol (HE) tablet 150mg + 400mg	Not required in updated treatment protocols
	Rifampicin + Isoniazid + Ethambutol (RHE) tablet 150mg + 75mg + 275mg	
	Rifampicin + Isoniazid + Pyrazinamide (RHZ) tablet 150mg + 75mg + 400mg	
7.2.5.3	Amikacin (Am) PFI 500mg (as sulphate) vial	Replaced by 1g vial
	Capreomycin (Cm) PFI 1g vial (as sulphate)	Not required in updated treatment protocols
	Kanamycin (Km) PFI 1g vial (as sulphate)	
7.3	Fluconazole capsule 50mg	Not required. Young patients can use Fluconazole oral liquid 50mg/5mL. For treatment of STIs, Fluconazole tablet / capsule 150mg has been added and tablet / capsule 200mg also available
7.4.1	Acyclovir tablet (scored) 200mg	Replaced by tablet (scored) 400mg
7.4.2.1	Lamivudine (3TC) tablet 150mg	Not required in updated treatment protocols
	Stavudine (d4T) tablet 30mg	
	Tenofovir disoproxil fumarate (TDF) tablet 150mg	
	Tenofovir disoproxil fumarate (TDF) tablet 200mg	
7.4.2.2	Efavirenz (EFV) tablet 400mg	
	Efavirenz (EFV) tablet 600mg	

Section	Item Deleted	Reason/Notes
	Nevirapine (NVP) tablet 200mg	
7.4.2.5	Abacavir + Lamivudine (ABC/3TC) tablet 60mg (as sulphate) + 30mg	Replaced by tablet (dispersible, scored) 120mg (as sulphate) + 60mg
	Tenofovir + Lamivudine + Efavirenz (TDF/3TC/EFV) tablet 300mg + 300mg + 600mg	Not required in updated treatment protocols
	Zidovudine + Lamivudine + Nevirapine (AZT/3TC/NVP) tablet 60mg + 30mg + 50mg [c]	
	Zidovudine + Lamivudine + Nevirapine (AZT/3TC/NVP) tablet 300mg + 150mg + 200mg	
7.4.4.1.1	Pegylated interferon alfa-2a injection (vial or prefilled syringe) 180mcg	Not required. Replaced by oral formulation regimens
7.5.3.1	Artesunate rectal capsule 100mg	Not required. Safety concerns
7.5.4	Cotrimoxazole (Sulfamethoxazole + Trimethoprim) tablet 480mg	Replaced by 800+160mg tablet (scored)
	Sulfadoxine + Pyrimethamine tablet 500mg + 25mg	Replaced by treatment regimen of Pyrimethamine + Sulfadiazine (single medicines)
8.1	Paracetamol oral liquid 125mg/5mL [c]	Not required. Paracetamol tablet (scored) 500mg available
9.2.1	Ifosfamide PFI 1g vial	Not used as single drug but at same time as Mesna. Replaced by co-Pack of Ifosfamide + Mesna injection 1g + 600mg
	Ifosfamide PFI 2g vial	Not used as single drug but at same time as Mesna. Replaced by co-Pack of Ifosfamide + Mesna injection 2g + 1200mg
9.2.4	Dexamethasone tablet 500 micrograms	Replaced by Dexamethasone tablet (scored) 4mg to reduce pill burden

Section	Item Deleted	Reason/Notes
9.2.6	Alendronic acid tablet 70mg	Not used for cancer patients. Mostly used for Osteoporosis. Replaced by Zoledronic acid concentrate solution for Infusion, 800 micrograms/mL (in 5mL vial)
	Zoledronic acid injection 800 micrograms/mL (5mL vial)	Replaced by concentrate solution for Infusion, 800 micrograms/mL (in 5mL vial)
12.2.2	Heparin sodium injection 5,000 IU/mL (5mL vial) [c]	Product formerly in the Specialist list for use in children. In this edition, the product itself has been tagged with a footnote that it can be used in both adults and children
	Protamine injection 10mg/mL (as sulphate) (5mL amp)	Deleted in this section. Retained under section 5.2 Antidotes and Other Substances used in Poisonings (Specific)
	Protamine injection 10mg/mL (as sulphate) (5mL amp) [c]	
14.2	Digoxin tablet 62.5 micrograms	Not required
	Epinephrine (Adrenaline) injection 100mcg/mL (as acid tartrate or HCl) (10mL amp)	Not required in this section. Also Epinephrine (adrenaline) injection 1mg (as sodium phosphate)/1mL amp is already listed under section 4 (Antiallergics and Medicines used in Anaphylaxis), so adding a different strength would cause confusion
	Lidocaine (Lignocaine) injection 20mg (as HCl)/mL (5mL amp)	Not required in this section
15.2	Aciclovir (Acyclovir) cream 5% (5g)	Not required. 5g size too little to be useful; also patients mostly come for treatment when the cold sore has become a wound at which point antibiotics are required instead
15.3	Clobetasone butyrate ointment 0.05% (30g)	Replaced by the propionate salt which makes it a stronger steroid than the butyrate salt of the same medicine
15.4	Coal tar + Salicylic acid ointment 2% + 2% (100g)	Low availability. Replaced by Salicylic acid ointment 3%

Section	Item Deleted	Reason/Notes
16.1	Tropicamide eye drops 1%	More effective when in combination formulation with Phenylephrine. Replaced by Tropicamide + Phenylephrine eye drops 0.8% + 5% w/v
16.2	Amidotrizoate injection (solution for IV infusion) 140-420mg iodine/mL (as sodium or meglumine salt)	Has many adverse and sometimes fatal effects. Replaced by Amidotrizoate solution (oral and rectal use) 370-420mg iodine/mL (as sodium or meglumine salt) (100mL)
	Barium sulphate suspension (aq) 20-200%	Replaced by Barium sulphate Suspension (aq) 95% w/w concentration (1 litre)
	Iohexol injection 140-350mg iodine/mL	Replaced by Non-ionic low osmolar water-soluble iodinated contrast media, injection
	Iopromide injection (solution for IV infusion) 150-370mg iodine/mL	
	Meglumine iotroxate solution 5-8g iodine in 100-250mL	Not required. Only useful for biliary contrast which is too restrictive
16.3	Gadobutrol IV injection (solution) 1 mmol/mL	2016 KEML entry had no volume attached. Replaced by entries with specific volumes of 7.5mL (for children) and 15mL (for adults) volumes
18	Hydrochlorothiazide (HCTZ) Tablet (scored) 25mg [c]	In KEML 2016, product was in the Specialist list for use in children. This [c] entry not required as covered by the same product entry that enables use in both adults and children
	Mannitol injectable solution 20% [c]	
	Spironolactone tablet (cross-scored) 25mg [c]	
19.2	Dexamethasone injection 4mg (as disodium phosphate)/mL	Deleted in this section. Retained in more appropriate sections (3.3 Medicines for other common symptoms in palliative care; 4. Antiallergics and Medicines used in Anaphylaxis; 9.2.4 Hormones and antihormones)
	Dexamethasone tablet 500 micrograms	Replaced by Dexamethasone tablet (scored) 4mg to reduce pill burden
19.4	Bisacodyl suppository 10mg	Replaced by 5mg strength so as to enable use in both adults and children
19.5	Zinc sulphate Tablet (dispersible) 20mg	This product comes as Co-pack of ORS + Zinc sulphate which is already listed

Section	Item Deleted	Reason/Notes
20.5.1	Insulin, rapid acting injection 100 IU/mL (10mL vial)	Replaced by more detailed classification of Insulin types
20.5.2.1	Glibenclamide tablet 5mg	Glibenclamide (also referred to as Glyburide) has been associated with an increased risk for hypoglycaemia and long-term cardiovascular mortality. Replaced by one of the short-acting sulphonylureas i.e. Gliclazide 30mg and 40mg tablets
20.7	Propylthiouracil tablet 50mg [c]	No longer recommended for children due to risk of hepatotoxicity
20.8	Bromocriptine tablet (scored) 2.5mg (as mesilate)	Replaced by Carbergoline tablet 0.5mg. Bromocriptine has worse side effects and a more difficult dosing regimen
22.1	Econazole eye drops 1%	Replaced by Natamycin eye drops 5% which has wider spectrum of action
	Ciprofloxacin eye drops 0.3% (as HCl)	Tends to leave irritant deposits on cornea. Replaced by Ofloxacin eye drops 0.3% (as sulphate)
22.2	Prednisolone eye drops 0.5% (as sodium phosphate)	Replaced by milder steroid Fluoromethalone eye drops 0.1% for Level 4 and above. Prednisolone eye drops 1% (as acetate) retained for Level 5 and above
	Prednisolone tablet 5mg	Not required in this section
22.5	Tropicamide eye drops 1%	Not as effective as when in combination formulation with Phenylephrine. Replaced by Tropicamide + Phenylephrine eye drops 0.8% + 5% w/v
23.1.2	Estradiol cypionate + Medroxyprogesterone acetate injection 5mg + 25mg	Provides contraceptive cover for only 1 month so inconvenient compared to longer acting medicines such as Medroxyprogesterone acetate (DMPA)
23.1	Female Condom (FC)	Barrier methods. Not products having direct pharmacological effect hence to be transferred to the next update of the Kenya Essential Medical Supplies List (KEMSL)
	Male Condom (MC)	
	Progesterone-releasing vaginal ring 2.074g (micronized)	Not commonly used, and overtaken by more user-friendly methods

Section	Item Deleted	Reason/Notes
23.6.1	Ergometrine Injection 200 micrograms (as hydrogen maleate)/1mL amp	Not locally available. Replaced by 500 micrograms (as hydrogen maleate)/1mL amp
25.1	Chlorpromazine injection 25mg/mL (as HCl) (2mL amp) [c]	No longer recommended for use in children due to side effects
	Clozapine tablet (scored) 25mg	Not required. 100mg (scored) tablet retained.
	Haloperidol oral liquid 2mg/mL	No longer recommended for use in children due to side effects (extrapyramidal symptoms)
	Haloperidol injection 5mg/1mL amp [c]	In KEML 2016, product was in the Specialist list for use in children. This [c] entry not required as covered by the same product entry that enables use in both adults and children
	Haloperidol tablet (scored) 5mg [c]	
	Zuclopenthixol injection (oily) 50mg/mL (as acetate) (2mL amp)	Replaced by 100mg/mL (as acetate) (2mL amp) which makes treatment more affordable
25.2.1	Fluoxetine tablet (scored) 20mg (as HCl) [c]	No longer recommended for use in children due to side effects (e.g. mania (very common in children) according to BNF)
	Venlafaxine capsule 75mg (as HCl)	Not required when Fluoxetine and Amitriptyline are available
25.2.2	Valproic acid (sodium valproate) tablet (e/c) 200mg	Replaced by Divalproex sodium tablet 500mg and 750mg which has similar efficacy but less side effects
	Valproic acid (sodium valproate) tablet (e/c) 500mg	
25.5	B vitamins, high potency injection (IM) 7mL (in 2 amps)	Not available
	Diazepam tablet 5mg	Not required in this section
26.1	Beclomethasone inhalation (aerosol) 100 micrograms (as diproprionate)/metered dose	Replaced by Budesonide inhalation (aerosol) 100 micrograms/dose (200 dose) [c] and Budesonide inhalation (aerosol) 200 micrograms/dose (200 dose) [c]
	Ipratropium bromide nebuliser solution 250	Replaced by 500 micrograms/2mL size

Section	Item Deleted	Reason/Notes
	micrograms/1mL unit dose vial (isotonic)	
	Montelukast granules 4mg (as sodium salt) sachet	Replaced by Montelukast tablet (chewable) 5mg (as sodium salt) for use in children
	Salbutamol inhalation (aerosol) 100 micrograms (as sulphate)/metered dose	Salbutamol inhalation is no longer recommended for single use, but in combination with other medicines. Replaced by Salbutamol + Beclomethasone inhalation (aerosol), 100 micrograms + 50 micrograms
	Salbutamol injection 50 micrograms (as sulphate)/mL (5mL amp)	Not routinely used for management of respiratory conditions. Restricted to management of threatened abortion (see section 23.7)
27.1	Ciprofloxacin + Betamethasone solution (ear drops) 0.3% (as HCl) + 0.1% (as sodium)	Replaced by Ciprofloxacin + Dexamethasone solution (ear drops) 0.3% (as HCl) + 0.1%
28.2.1	Chloroquine tablet 150mg (as phosphate or sulphate)	Replaced by Hydroxychloroquine (HCQ) tablet 200mg (as sulphate)
30.2	Potassium chloride injectable solution 11.2% (20mL amp)	Not available
33.1.1	Fat (lipid) infusion (emulsion) 10% (500mL)	Not required
	Total parenteral nutrition (TPN) (amino acids + lipids + glucose + electrolytes) infusion (emulsion) (triple-chamber). Composition & size according to specialist requirements	Not appropriate – more detail required. Has been replaced by other parenteral preparations
33	Levamisole tablet 50mg (as HCl)	Had been listed in KEML 2016 section 33 for use in treatment of nephrotic syndrome. Not required for this indication.

Appendix 3:
Contributors to KEML 2019 Review

Following is a list of those who contributed to the various stages of KEML 2019 development indicating their position or area of expertise and place of work.

The National Medicines and Therapeutics Committee (NMTC 2019)

Name	Title/Position	Organization
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Dr. Evelyne Wesangula	Head, AMR & patient safety	MoH
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Dr. Pamela Nambwa	Pharmacist	PPB
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Dr Cecilia Muiva	Consultant	USAID MTaPS Program

The Technical Working Group on KEML Review and Update

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Appendix 4: References

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Appendix 5: KEML Amendment Proposal Form

Please complete each of the sections and submit the Form together with the hard and/or soft copies of supporting evidence and any other relevant documentation to:

The Chief Pharmacist
Afya House, Cathedral Road
Box 30016-00100, Nairobi, Kenya
Email: pharmacyhpt2019@gmail.com

Name of Proposer:

Designation:

Work Place:

Contact:
Tel: Email:

---

1. **Type of Amendment proposed** (*please tick*)
   a) Addition [ ]
   b) Deletion [ ]
   c) Change of dosage form [ ]
   d) Other [ ]

2. **Details of proposal:**

3. **Supporting arguments/evidence base**

4. **Supporting references/relevant documentation**

Signature: **Date:**

Appendix 6: Terms of Reference for the KEML Review TWG

(i) Make selection of medicines for listing in the next edition of the Kenya Essential Medicines List (KEML) 2019
(ii) Apply the essential medicines concept and principles of rational selection, affordable pricing and sustainable financing in the review and update process
(iii) Make reference to the Kenya government policy, legal and strategic documents, including the Constitution of Kenya 2010, Vision 2030, the Health Act 2017, Kenya Health Policy 2014-2030, Sessional Paper No.4 of 2012 on the National Pharmaceutical Policy (NPP), and the National Policy for the Prevention and Containment of Antimicrobial Resistance 2017-2022
(iv) Make reference to the World Health Organization (WHO) Model List of Essential Medicines (EML) for adults and for children, and with particular reference to the editions for 2019 which also cover the WHO AWaRe classification for Antibiotics; Operational guidelines for implementing Universal Health Coverage (UHC) interventions in Kenya 2018–2022; all the updated clinical guidelines and treatment protocols from 2016 onwards – local and global, where relevant; the British National Formulary (BNF), and any other relevant documents in the review process
(v) Adhere to the standard operating procedures (SOP) adopted by the NMTC for the review process including those for managing conflict of interests
(vi) Engage/consult/collaborate with all the relevant experts and stakeholders in the review process

Appendix 7: Terms of Reference for the National Medicines & Therapeutics Committee (2019)

Membership[607]:

1. Representative of Director General (Chair)
2. Head, Division of Health Products and Technologies (Secretary)
3. Head, Nursing Services
4. Head, Medical Laboratory Services
5. Head, Oral Health Services
6. Head, Strategic National Health Programs
7. Head, General Clinical Services
8. Head, Health Policy, Research, Monitoring and Evaluation
9. Head, Non-Communicable diseases
10. Representative, Pharmacy and Poisons Board (PPB)
11. Representative, Kenya Medical Supplies Authority (KEMSA)
12. Focal person, Antimicrobial Resistance in the Ministry of Health
13. Clinical Microbiologist

Terms of Reference:

1. Coordination of the development and review of policies on clinical governance and rational use of Essential Medicines and other essential Health Products and Technologies (EHPT)
2. Develop standards, including guidelines and standard operating procedures (SOPs) as applicable on:
   - Establishment and operations of Medicines and Therapeutics Committees (MTCs) at various levels (national, county and institutional)
   - Good Pharmaceutical Procurement Practices (GPPP), Good Prescribing Practices (GPP) and Good Dispensing Practices (GDP)
   - Cost-effective use of medicines and other EHPTs
   - Adverse reactions/event monitoring and reporting, quality assurance and monitoring/surveillance for antimicrobial resistance (AMR)
   - Clinical audits and medicines use evaluation studies
3. Develop/review and update all the relevant appropriate use guidelines, including:
   - National Clinical Management and Referral Guidelines
   - National Formulary

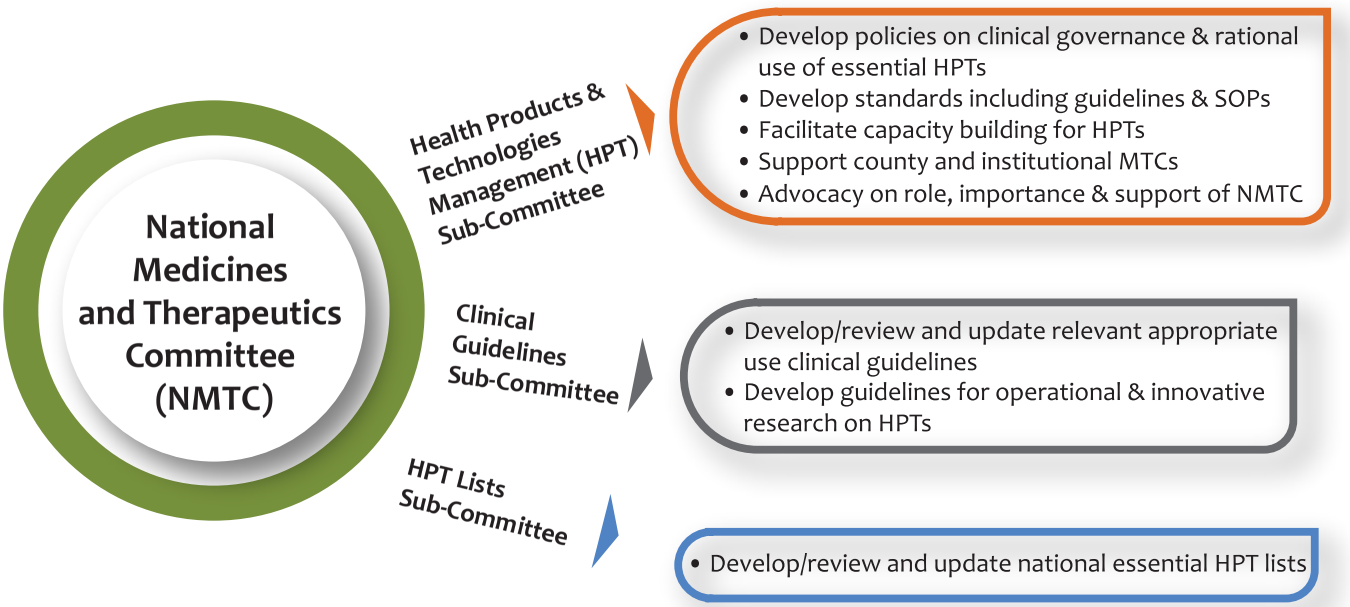
[607] All MoH officers

- National Essential HPT lists such as the Kenya Essential Medicines List (KEML), Kenya Essential Medical Supplies List (KEMSL) and Kenya Essential Medical Laboratory commodities List (KEMCL)
- and other specific/specialized treatment guidelines and protocols.

4. Collaborate with relevant Departments/Divisions/Units involved in the introduction of disease-based or vertical programs in which selection and use of medicines and other EHPT is a significant component
5. Facilitate medicines and other EHPTs education regarding appropriate use and safety for health workers, consumers, relevant County and National Agencies
6. Support County and Hospital MTCs through development and dissemination of guidelines, training materials and capacity building
7. Actively participate in the development, review and revision as necessary of:
   - Pre-service health professional programs in management and appropriate medicines use and therapeutics
   - In-service training and Continuous Professional Development (CPD) courses in management and use of medicines and therapeutics
8. Review relevant research findings and recommend appropriate interventions
9. Advise and advocate to the relevant National and County level authorities appropriate mitigation measures for implementation in the event of emergency disease outbreaks or health threats
10. Co-opt to the NMTC any other member(s) on need basis or as may be necessary
11. Undertake advocacy for the role, importance and support for NMTC including sustainable mode of funding
12. Submit quarterly performance reports to the appointing authority, i.e. the Principal Secretary, Ministry of Health.

See the next page for the **NMTC Organisational Structure**

Organizational Structure of the NMTC 2019



Appendix 8: AWaRe Classification of Antibiotics

Access group	Examples
This group includes antibiotics and antibiotic classes that have activity against a wide range of commonly encountered susceptible pathogens while showing lower resistance potential than antibiotics in Watch and Reserve groups. Access antibiotics should be widely available, affordable and quality-assured to improve access and promote appropriate use. Selected Access group antibiotics (shown here) are included on the WHO EML as essential first-choice or second-choice empirical treatment options for specific infectious syndromes.	Amikacin Amoxicillin Amoxicillin + Clavulanic acid Ampicillin Azithromycin Benzathine penicillin Benzyl penicillin Cefazolin Cefixime Ceftriaxone Doxycycline Flucloxacillin Gentamicin Metronidazole Nitrofurantoin Phenoxymethylpenicillin Tinidazole
Watch group	**Examples**
This group includes antibiotics and antibiotic classes that have higher resistance potential and includes most of the highest priority agents among the Critically Important Antimicrobials (CIA) for Human Medicine and/or antibiotics that are at relatively high risk of selection of bacterial resistance. Watch group antibiotics should be prioritized as key targets of national and local stewardship programmes and monitoring. Selected Watch group antibiotics (shown here) are included on the WHO EML as essential first-choice or second-choice empirical treatment options for a limited number of specific infectious syndromes.	Ceftazidime Ciprofloxacin Clarithromycin Clindamycin Cotrimoxazole (Sulfamethoxazole + Trimethoprim) Piperacillin +tazobactam
Reserve group	**Examples**
This group includes antibiotics and antibiotic classes that should be reserved for treatment of confirmed or suspected infections due to	Colistin Ertapenem Fosfomycin

multi drug-resistant organisms and treated as "last-resort" options. Their use should be tailored to highly specific patients and settings, when all alternatives have failed or are not suitable. They could be protected and prioritized as key targets of national and international stewardship programmes, involving monitoring and utilization reporting, to preserve their effectiveness. Selected Reserve group antibiotics (shown here) are included on the WHO EML when they have a favourable risk-benefit profile and proven activity against "Critical Priority" or "High Priority" pathogens identified by the WHO Priority Pathogens List, notably Carbapenem-resistant Enterobacteriaceae.	Linezolid Meropenem Polymyxin B Teicoplanin Tigecycline Vancomycin

Source: The above table has been adapated from the 2019 National Antimicrobial Stewardship: Guidelines for Health care settings.
Note that WHO recommends that each country adapt the antibiotic medicines listed as Access, Watch or Reserve to its settings.

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