



MINISTRY OF HEALTH MALAYSIA  
PHARMACEUTICAL SERVICES PROGRAMME

# NATIONAL ESSENTIAL MEDICINES LIST

7<sup>th</sup> Edition



2025

# **NATIONAL ESSENTIAL MEDICINES LIST**

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## **Pharmaceutical Services Programme**

### **Ministry of Health (MOH) Malaysia**

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# THE NATIONAL ESSENTIAL MEDICINES LIST (NEML)

## Background

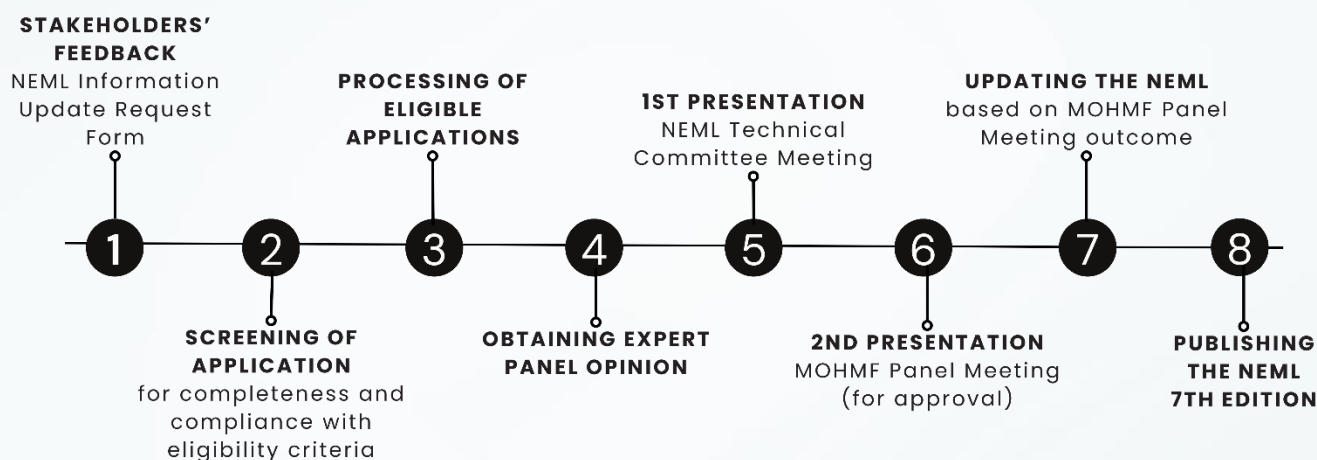
The Malaysian National Essential Medicines List (NEML) was initially approved by the Ministry of Health (MOH) in January 2000. Since its inception, and in alignment with the Malaysian National Medicines Policy aimed at ensuring universal access to medicines, the NEML is revised every two to three years, based on updates to the World Health Organization Model List of Essential Medicines (WHO EML). This list comprises essential medicines that address the primary healthcare needs of the majority of the population. These medicines, in suitable dosage forms, should be accessible to individuals and communities in adequate quantities, with guaranteed quality and at a reasonable cost.

The overarching goal is to ensure that essential medicines remain available and affordable for the Malaysian population. Furthermore, it strives to promote efficient medicine procurement processes and encourage the rational use of medicines. It is also designed to serve as a standardised reference for public and private healthcare facilities, enabling them to create tailored essential medicine lists that meet their specific needs.

## Review Process

The NEML undergoes regular review and updates to ensure the population's access to medicines that are available, affordable, of high quality, and accessible. The review process incorporates input from healthcare professionals, including consultants, specialists, doctors, and pharmacists, representing the Ministry of Health, other government ministries, and the private sector.

The full process of reviewing and updating the 7th NEML is illustrated in Figure 1.



MOHMF: Ministry of Health Medicines Formulary

Figure 1. Review and Update Process of NEML

## Listing Criteria

The inclusion of medicines in the NEML follows a rigorous and evidence-based evaluation process to ensure that the selected medicines address the healthcare needs of the population effectively. To uphold this standard, only medicines that meet specific criteria are considered for inclusion. These criteria include being registered with the Drug Control Authority (DCA) Malaysia and being listed in either the 23rd World Health Organization Essential Medicines List (WHO EML, 2023) or the Ministry of Health Medicines Formulary (MOHMF). The reliance on these established references ensures that the medicines proposed for the NEML have undergone comprehensive assessments by expert committees and panels, taking into account factors such as disease prevalence, clinical efficacy, safety, and cost-effectiveness.

These criteria help ensure that the NEML remains a dynamic, evidence-based tool for guiding healthcare decision-making and improving population health outcomes.

## How To Use The National Essential Medicines List

NEML 7<sup>th</sup> edition comprises 492 chemical entities and categorises the medicines into two lists:

- **Core list:** Minimum medicine needs for a basic health care system, listing the most efficacious, safe and cost-effective medicines for priority conditions<sup>1</sup>.
- **Complementary list:** Essential medicines for which specialised diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training are needed<sup>1</sup>.

Medicines and dosage forms are listed in alphabetical order within each section, and there is no implication of preference for one form over another. Standard treatment guidelines should be consulted for information on appropriate dosage forms.

Dosage forms for each chemical entity listed are defined as below:

Term	Definition
Oral	All forms of tablet: immediate release and modified release preparation, uncoated or coated, unscored and scored, chewable, dispersible, soluble, crushable, sublingual or others; All forms of capsule: hard or soft capsule, modified release preparation, capsule-shaped tablet or caplet or others; All forms of granules; Oral powder: powder to be taken in or with water or another suitable liquid or others;

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<sup>1</sup> World Health Organization Model List of Essential Medicines, 23<sup>rd</sup> List, 2023.

Term	Definition
	Oral liquid: oral solution, syrup, suspension, emulsion and oral drop or others
Injection	All forms of injection: solution, suspension, emulsion including those constituted from powder or solution or others
Topical	All forms of topical: cream, ointment, lotion, paint or others
Eye preparation	All forms of eye preparation: drop, ointment or others
Ear preparation	All forms of ear preparation: drop, ointment or others
Inhalation	All forms of inhalation
Miscellaneous*	Other forms: enema, implant, intrauterine device, irrigation, transdermal patch, suppository, parenteral solution, pessary or others

\*The specific dosage form will be stated in the list.

The **[a]** symbol indicates that there is an age or weight restriction on the use of the medicine.

The therapeutic alternatives classified under the 4th level of the Anatomical Therapeutic Chemical (ATC) classification are those listed in the Ministry of Health Medicines Formulary (MOHMF) that correspond to the respective subgroup.

## 1. Anaesthetics, Preoperative Medicines and Medical Gases

Chemical Entity	Dosage Form	Notes
<b>I.1. General anaesthetics and oxygen</b>		
<b>I.1.1 Inhalational medicines</b>		
Nitrous oxide	Inhalation	
Sevoflurane	Inhalation	
<b>I.1.2 Injectable medicines</b>		
Ketamine	Injection	
Propofol Therapeutic alternative(s): – Thiopental*	Injection	* May be used as an alternative depending on availability and cost
<b>I.2 Local anaesthetics</b>		
Bupivacaine	Injection	
Lignocaine	Injection	
Lidocaine + epinephrine	Injection	
<b>Complementary list</b>		
<i>Ephedrine</i>	<i>Injection</i>	
<b>I.3 Preoperative medications and sedation for short-term procedures</b>		
Atropine	Injection	
Midazolam	Injection Oral	
Morphine	Injection	
<b>I.4 Medical Gases</b>		
Oxygen*	Inhalation	* No more than 30% oxygen should be used to initiate resuscitation of neonates less than or equal to 32 weeks of gestation



## 2. Medicines for Pain and Palliative Care

Chemical Entity	Dosage Form	Notes
<b>2.1 Non-opioids and non-steroidal anti-inflammatory medicines</b>		
Acetylsalicylic acid	Oral	
Ibuprofen <b>[a]</b>	Oral	<b>[a]</b> > 3 months
Paracetamol	Oral Suppository	
<b>2.2 Opioid analgesics</b>		
Dihydrocodeine tartrate	Oral	
Fentanyl	Transdermal patch	
Morphine Therapeutic alternative(s): - Oxycodone	Injection Oral	
Tramadol <b>[a]</b>	Injection Oral	<b>[a]</b> > 12 years
<b>2.3 Medicines for other common symptoms in palliative care</b>		
Amitriptyline	Oral	
Dexamethasone	Injection Oral	
Diazepam	Injection Oral Rectal solution	
Fluoxetine	Oral	
Gabapentin	Oral	
Haloperidol	Injection Oral	
Hyoscine butylbromide	Injection	
Lactulose	Oral	
Loperamide	Oral	
Lorazepam	Oral	
Metoclopramide <b>[a]</b>	Injection Oral	<b>[a]</b> Not for neonates
Midazolam	Injection Oral	
Ondansetron <b>[a]</b> Therapeutic alternative(s): - Granisetron	Injection Oral	<b>[a]</b> > 1 month

### 3. Antiallergics and Medicines Used in Anaphylaxis

Chemical Entity	Dosage Form	Notes
Chlorpheniramine [a]	Injection Oral	[a] > 2 years
Dexamethasone	Injection	
Epinephrine (Adrenaline)	Injection	
Hydrocortisone	Injection	
Loratadine Therapeutic alternative(s): - Cetirizine	Oral	
Prednisolone	Oral	

### 4. Antidotes and Other Substances Used in Poisonings

Chemical Entity	Dosage Form	Notes
<b>4.1 Non-specific</b>		
Charcoal, activated	Oral	
<b>4.2 Specific</b>		
Acetylcysteine	Injection	
Atropine	Injection	
Calcium gluconate	Injection	
Flumazenil	Injection	
Methylthioninium chloride (Methylene blue)	Injection	
Naloxone	Injection	
Penicillamine	Oral	
Pralidoxime	Injection	
Sodium nitrite	Injection	
Sodium thiosulfate	Injection	
<b>Complementary list</b>		
<i>Desferrioxamine (Deferoxamine)</i>	<i>Injection</i>	
<i>Dimercaprol</i>	<i>Injection</i>	

## 5. Medicines for Diseases of The Nervous System

Chemical Entity	Dosage Form	Notes
<b>5.1 Antiseizure medicines</b>		
Carbamazepine	Oral	
Clonazepam	Oral	
Diazepam	Injection Rectal solution	
Lamotrigine	Oral	
Levetiracetam	Injection Oral	
Magnesium sulphate	Injection	
Midazolam	Injection	
Phenobarbital	Injection Oral	
Phenytoin	Injection Oral	
Valproic acid * (sodium valproate)	Oral	* Avoid use in pregnancy and in women and girls of child-bearing potential, unless alternative treatments are ineffective or not tolerated because of the high risk of birth defects and developmental disorders in children exposed to valproate in the womb.
<b>Complementary list</b>		
<i>Valproic acid * (sodium valproate)</i>	<i>Injection</i>	<i>* Avoid use in pregnancy and in women and girls of child-bearing potential, unless alternative treatments are ineffective or not tolerated because of the high risk of birth defects and developmental disorders in children exposed to valproate in the womb.</i>
<b>5.2 Medicines for parkinsonism</b>		
Entacapone	Oral	
Levodopa + carbidopa Therapeutic alternative(s): – Benserazide (for carbidopa)	Oral	
Pramipexole	Oral	
Ropinirole	Oral	
Trihexyphenidyl (Benzhexol)	Oral	
<b>5.3 Medicines for Alzheimer's disease</b>		
Donepezil	Oral	
Rivastigmine	Patch	

## 6. Anti-Infective Medicines

Chemical Entity	Dosage Form	Notes
<b>6.1 Anthelmintics</b>		
<b>6.1.1 Intestinal anthelmintics</b>		
Albendazole	Oral	
Pyrantel	Oral	
<b>6.1.2 Anti-filarials</b>		
Diethylcarbamazine	Oral	
<b>6.2 Anti-bacterials</b>		
<p>Antibiotics are divided into three different categories namely <b>ACCESS, WATCH and RESERVE groups</b> to facilitate the development of tools for antibiotic stewardship at local and national levels and to reduce antimicrobial resistance. These groups were made to emphasize the importance of their proper use.</p> <p><b>ACCESS GROUP ANTIBIOTICS:</b></p> <ul style="list-style-type: none"> <li>Antibiotics that have activity against a wide range of commonly encountered susceptible pathogens</li> <li>Antibiotics that also show lower resistance potential than antibiotics in the other groups</li> </ul> <p>These are essential antibiotics that should be widely available in Malaysian health facilities.</p> <p><b>WATCH GROUP ANTIBIOTICS:</b></p> <ul style="list-style-type: none"> <li>Antibiotics with higher resistance potential when compared with the Access group which includes antibiotics such as third generation cephalosporins, fluoroquinolones and carbapenems</li> <li>These antibiotics should be prescribed only for specific indications</li> </ul> <p>These medicines should be prioritised as key targets of stewardship programs and monitoring.</p> <p><b>RESERVE GROUP ANTIBIOTICS</b></p> <ul style="list-style-type: none"> <li>Antibiotic classes that should be reserved for treatment of confirmed or suspected infections due to multi-drug-resistant organisms</li> </ul> <p>These antibiotics should be treated as “last resort” options</p>		
<b>6.2.1 Access group antibiotics</b>		
Amikacin	Injection	
Amoxicillin	Injection Oral	
Amoxicillin + clavulanic acid	Injection Oral	
Ampicillin	Injection	
Benzathine benzylpenicillin	Injection	
Benzylpenicillin	Injection	
Cefazolin [a]	Injection	[a] > 1 month
Cephalexin	Oral	
Clindamycin	Injection Oral	
Cloxacillin	Injection Oral	

Chemical Entity	Dosage Form	Notes
Doxycycline [a]	Oral	[a] Use in children < 8 years only for life-threatening infections when no alternative exists
Erythromycin	Oral	
Gentamicin	Injection	
Metronidazole	Injection Oral Suppository	
Nitrofurantoin	Oral	
Phenoxymethylpenicillin	Oral	
Procaine benzylpenicillin	Injection	
Sulfamethoxazole + trimethoprim	Injection Oral	
Trimethoprim	Oral	
<b>6.2.2 Watch group antibiotics</b>		
Azithromycin	Injection Oral	
Cefotaxime	Injection	
Ceftriaxone [a]	Injection	[a] >41 weeks corrected gestational age
Cefuroxime	Injection	
Ciprofloxacin	Injection Oral	
Clarithromycin Therapeutic alternative(s): – Erythromycin	Injection Oral	
Piperacillin + tazobactam	Injection	
<b>Complementary list</b>		
Cefepime	Injection	
Ceftazidime	Injection	
Linezolid	Injection Oral	
Meropenem [a] Therapeutic alternative(s): – Imipenem + cilastatin	Injection	[a] > 3 months
Vancomycin	Injection	
<b>6.2.3 Reserve group antibiotics</b>		
<b>Complementary list</b>		
Ceftazidime + Avibactam	Injection	
Ceftolozane + Tazobactam	Injection	
Colistin	Injection	
Polymyxin B	Injection	
<b>6.2.4 Anti-leprosy medicines</b>		
Medicines used in the treatment of leprosy should never be used except in combination. Combination therapy is essential to prevent the emergence of drug resistance.		
Clofazimine	Oral	
Dapsone	Oral	
Rifampicin	Oral	

Chemical Entity	Dosage Form	Notes
<b>6.2.5 Anti-tuberculosis medicines</b>		
Ethambutol	Oral	
Ethambutol + isoniazid + pyrazinamide + rifampicin	Oral	
Isoniazid	Oral	
Isoniazid + rifampicin	Oral	
Pyrazinamide	Oral	
Rifampicin	Oral	
<b>Complementary list</b>		
<i>Amikacin</i>	<i>Injection</i>	
<i>Amoxicillin + clavulanic acid</i>	<i>Oral</i>	
<i>Bedaquiline</i>	<i>Oral</i>	
<i>Clofazimine</i>	<i>Oral</i>	
<i>Cycloserine</i>	<i>Oral</i>	
<i>Ethionamide</i>	<i>Oral</i>	
<i>Kanamycin</i>	<i>Injection</i>	
<i>Levofloxacin</i>	<i>Oral</i>	
<i>Linezolid</i>	<i>Injection</i>	
<i>Meropenem</i> <i>Therapeutic alternative(s):</i> <i>Imipenem + cilastatin</i>	<i>Injection</i>	
<i>Moxifloxacin</i>	<i>Oral</i>	
<i>Streptomycin</i>	<i>Injection</i>	
<b>6.3 Antifungal medicines</b>		
Amphotericin B	Injection	
Clotrimazole	Pessary	
Fluconazole	Injection Oral	
Flucytosine	Injection Oral	
Griseofulvin	Oral	
Itraconazole	Oral	
Nystatin	Oral	
Voriconazole	Injection Oral	
<b>Complementary list</b>		
<i>Micafungin</i> <i>Therapeutic alternatives:</i> – <i>Anidulafungin</i> – <i>Caspofungin</i>	<i>Injection</i>	

Chemical Entity	Dosage Form	Notes
<b>6.4 Antiviral medicines</b>		
<b>6.4.1 Antiherpes medicines</b>		
Acyclovir	Injection Oral	
<b>6.4.2 Antiretrovirals</b>		
<b>6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors</b>		
Abacavir	Oral	
Lamivudine	Oral	
Tenofovir disoproxil fumarate	Oral	
Zidovudine	Injection Oral	
<b>6.4.2.2 Non-nucleoside reverse transcriptase inhibitors</b>		
Efavirenz	Oral	
Nevirapine [a]	Oral	[a] > 6 weeks
<b>6.4.2.3 Protease inhibitors</b>		
Atazanavir	Oral	
Darunavir [a]	Oral	[a] > 3 years
Lopinavir + ritonavir	Oral	
Ritonavir	Oral	
<b>6.4.2.4 Integrase inhibitors</b>		
Dolutegravir [a]	Oral	[a] ≥25kg
<b>6.4.2.5 Fixed-dose combinations of antiretroviral medicines</b>		
Abacavir + lamivudine	Oral	
Dolutegravir + lamivudine + tenofovir	Oral	
Efavirenz + emtricitabine + tenofovir	Oral	
Efavirenz + lamivudine + tenofovir	Oral	
Emtricitabine + tenofovir	Oral	
Lamivudine + zidovudine	Oral	
<b>6.4.3 Other antivirals</b>		
Ribavirin	Oral	
Valganciclovir	Oral	
<b>Complementary list</b>		
<i>Osetamivir</i>	<i>Oral</i>	
<i>Valganciclovir</i>	<i>Oral</i>	
<b>6.4.4 Antihepatitis medicines</b>		
<b>6.4.4.1 Medicines for hepatitis B</b>		
<b>6.4.4.1.1 Nucleoside/Nucleotide reverse transcriptase inhibitors</b>		
Entecavir	Oral	
Tenofovir disoproxil fumarate	Oral	

Chemical Entity	Dosage Form	Notes
<b>6.4.4.2 Medicines for hepatitis C</b>		
<b>6.4.4.2.1 Pangenotypic direct-acting antiviral combinations</b>		
Daclatasvir*	Oral	* Pangenotypic when used in combination with sofosbuvir
Ravidasvir	Oral	* Pangenotypic when used in combination with sofosbuvir
Sofosbuvir*	Oral	* Pangenotypic when used in combination with daclatasvir
Sofosbuvir + velpatasvir	Oral	
<b>6.4.4.2.2 Other antivirals for Hepatitis C</b>		
Ribavirin	Oral	
<b>Complementary list</b>		
<i>Pegylated interferon alfa 2a or 2b</i>	<i>Injection</i>	
<b>6.5 Antiprotozoal medicines</b>		
<b>6.5.1 Antiamoebic and anti giardiasis medicines</b>		
Metronidazole	Injection Oral	
<b>6.5.2 Antileishmaniasis medicines</b>		
Amphotericin B	Injection	
<b>6.5.3 Antimalarial medicines</b>		
<b>6.5.3.1 For curative treatment</b>		
Artemether + lumefantrine*	Oral	* Not recommended in the first trimester of pregnancy or children < 5 kg.
Artesunate	Injection	
Artesunate + mefloquine	Oral	
Chloroquine	Oral	
Doxycycline	Oral	
Mefloquine	Oral	
Primaquine	Oral	
Quinine	Injection Oral	
<b>6.5.3.2 For chemoprevention</b>		
Chloroquine	Oral	
Doxycycline [a]	Oral	[a] > 8 years
<b>6.5.4 Antipneumocystosis and anti-toxoplasmosis medicines</b>		
Sulfamethoxazole + trimethoprim	Oral	
<b>Complementary list</b>		
Pentamidine	Oral	
<b>6.6 Medicines for COVID-19</b>		
Effective and safe therapeutics for prevention and treatment of COVID-19 should be considered as essential medicines in the context of public health emergency. The national recommended selection of essential therapeutics for COVID-19 are revised and updated regularly in line with the updates at international level, taking latest evidence, epidemiology and national priorities into considerations.		



## 7. Antimigraine Medicines

Chemical Entity	Dosage Form	Notes
<b>7.1 For treatment of an acute attack</b>		
Ibuprofen	Oral	
Paracetamol	Oral	
Sumatriptan	Oral	
<b>7.2 For prophylaxis</b>		
Propranolol	Oral	

## 8. Immunomodulators and Antineoplastics

Chemical Entity	Dosage Form	Notes
<b>8.1 Immunomodulators for non-malignant disease</b>		
<b>Complementary list</b>		
Adalimumab* Therapeutic alternative(s)*: – Etanercept – Golimumab – Infliximab * including quality assured biosimilars	Injection	
Azathioprine	Oral	
Ciclosporin	Injection Oral	
Interferon beta 1a	Injection	
Interferon beta 1b	Injection	
Mycophenolate mofetil	Oral	
Secukinumab	Injection	
Tacrolimus	Injection Oral	
Teriflunomide	Oral	
Tocilizumab	Injection	
<b>8.2 Antineoplastics and supportive medicines</b>		
<b>8.2.1 Cytotoxic medicines</b>		
<b>Complementary list</b>		
Arsenic trioxide	Injection	
Asparaginase	Injection	
Bendamustine	Injection	
Bleomycin	Injection	
Calcium folinate	Injection Oral	
Capecitabine	Oral	
Carboplatin	Injection	

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Chemical Entity	Dosage Form	Notes
Chlorambucil	Oral	
Cisplatin	Injection	
Cyclophosphamide	Injection Oral	
Cytarabine	Injection	
Dacarbazine	Injection	
Dactinomycin Actinomycin D	Injection	
Daunorubicin	Injection	
Docetaxel	Injection	
Doxorubicin	Injection	
Etoposide	Injection Oral	
Fludarabine	Injection Oral	
Fluorouracil	Injection	
Gemcitabine	Injection	
Hydroxyurea	Injection	
Ifosfamide	Injection	
Irinotecan	Injection	
Melphalan	Injection Oral	
Mercaptopurine	Oral	
Methotrexate	Injection Oral	
Oxaliplatin	Injection	
Paclitaxel	Injection	
Pegaspargase * including quality assured biosimilars	Injection	
Procarbazine	Oral	
Tioguanine	Oral	
Vinblastine	Injection	
Vincristine	Injection	
Vinorelbine	Injection	
<b>8.2.2 Targeted therapies</b>		
<b>Complementary list</b>		
All-trans retinoid acid (ATRA)	Oral	
Bortezomib	Injection	
Gefitinib Therapeutic alternative(s): - Afatinib	Oral	
Everolimus	Oral	
Ibrutinib	Oral	
Imatinib	Oral	
Nilotinib	Oral	

Chemical Entity	Dosage Form	Notes
Ribociclib	Oral	
Rituximab* * Including quality assured biosimilars	Injection	
Ruxolitinib	Oral	
Trastuzumab* * Including quality assured biosimilars	Injection	
<b>8.2.3 Immunomodulators</b>		
<b>Complementary list</b>		
Filgrastim* * Including quality assured biosimilars	Injection	
Lenalidomide	Oral	
Pembrolizumab* * Including quality assured biosimilars	Injection	
Thalidomide	Oral	
<b>8.2.4 Hormones and antihormones</b>		
<b>Complementary list</b>		
Abiraterone Therapeutic alternative(s): – Enzalutamide	Oral	
Anastrozole Therapeutic alternative(s): – 4th level ATC chemical subgroup (L02BG Aromatase inhibitors)	Oral	
Bicalutamide	Oral	
Dexamethasone	Injection Oral	
Hydrocortisone	Injection	
Leuprorelin Therapeutic alternative(s): – Goserelin – Triptorelin	Injection	
Methylprednisolone	Injection	
Prednisolone	Oral	
Tamoxifen	Oral	
<b>8.2.5 Supportive medicines</b>		
<b>Complementary list</b>		
Allopurinol	Oral	
Mesna	Injection Oral	
Zoledronic acid	Injection	

## 9. Medicines Affecting The Blood

Chemical Entity	Dosage Form	Notes
<b>9.1 Antianaemia medicines</b>		
Ferrous salt	Oral Injection	
Ferrous salt + folic acid	Oral	
Folic acid	Oral	
<b>Complementary list</b>		
Erythropoiesis-stimulating agents* Therapeutic alternative(s): <ul style="list-style-type: none"> <li>- epoetin alfa</li> <li>- epoetin beta</li> <li>- epoetin theta</li> <li>- darbepoetin alfa</li> <li>- methoxy polyethylene glycol-epoetin beta</li> </ul> *Including quality assured biosimilars	Injection	
<b>9.2 Medicines affecting coagulation</b>		
Dabigatran Therapeutic alternative(s): <ul style="list-style-type: none"> <li>- Apixaban</li> <li>- Edoxaban</li> <li>- Rivaroxaban</li> </ul>	Oral	
Enoxaparin	Injection	
Heparin sodium	Injection	
Phytomenadione	Injection	
Protamine sulfate	Injection	
Tranexamic acid	Injection Oral	
Warfarin	Oral	
<b>Complementary list</b>		
Desmopressin	Injection	
<b>9.3 Other medicines for haemoglobinopathies</b>		
<b>Complementary list</b>		
Emicizumab	Injection	
Desferrioxamine (Deferoxamine) Therapeutic alternative(s): <ul style="list-style-type: none"> <li>- Deferasirox (oral)*</li> <li>- Deferiprone (oral)*</li> </ul>	Injection	* May be used as an alternative depending on availability and cost

## 10. Blood Products of Human Origin and Plasma Substitutes

Chemical Entity	Dosage Form	Notes
<b>10.1 Blood and blood components</b>		
Fresh frozen plasma	Transfusion bag	
Platelets	Transfusion bag	
Red blood cells	Transfusion bag	
Whole blood	Transfusion bag	
<b>10.2 Plasma-derived medicines</b>		
<b>10.2.1 Human immunoglobulins</b>		
Anti-D immunoglobulin	Injection	
Anti-rabies immunoglobulin	Injection	
Anti-tetanus immunoglobulin	Injection	
<b>Complementary list</b>		
<i>Normal immunoglobulin</i>	<i>Injection</i>	
<b>10.2.2 Blood coagulation factors</b>		
<b>Complementary list</b>		
<i>Coagulation factor VIII</i>	<i>Injection</i>	
<i>Coagulation factor IX</i>	<i>Injection</i>	
<b>10.3 Plasma substitutes</b>		
Human Albumin	Injection	
Modified fluid gelatin	Injection	

## 11. Cardiovascular Medicines

Chemical Entity	Dosage Form	Notes
<b>11.1 Antianginal medicines</b>		
Bisoprolol Therapeutic alternative(s): – Metoprolol – Carvedilol	Oral	
Diltiazem Hydrochloride	Oral	
Glyceryl trinitrate	Oral	
Isosorbide dinitrate	Oral	
Verapamil	Oral	
<b>Complementary list</b>		
Adenosine	Injection	
<b>11.2 Antiarrhythmic medicines</b>		
Bisoprolol Therapeutic alternative(s): – Carvedilol – Metoprolol – Propranolol (Injection)	Oral	
Digoxin	Injection Oral	
Epinephrine (Adrenaline)	Injection	
Lignocaine	Injection	
Verapamil	Injection Oral	
<b>Complementary list</b>		
Amiodarone	Injection Oral	
Norepinephrine (Noradrenaline)	Injection	
<b>11.3 Antihypertensive medicines</b>		
Amlodipine	Oral	
Bisoprolol Therapeutic alternative(s): – Atenolol* – Carvedilol – Metoprolol	Oral	*Atenolol should not be used as a first-line agent in uncomplicated hypertension in patients > 60 years.
Enalapril Therapeutic alternative(s): – 4th level ATC chemical subgroup (C09AA ACE inhibitors, plain)	Oral	
Esmolol	Injection	
Hydralazine	Injection	*Use only in the acute management of severe pregnancy-induced hypertension.
Hydrochlorothiazide	Oral	
Losartan	Oral	

Chemical Entity	Dosage Form	Notes
Labetalol	*Oral **Injection	* for pregnancy ** for hypertension crisis
Methyldopa*	Oral	* Use only in the management of pregnancy-induced hypertension.
<b>11.4 Medicines used in heart failure</b>		
Bisoprolol Therapeutic alternative(s): – Carvedilol – Metoprolol	Oral	
Digoxin	Injection Oral	
Enalapril Therapeutic alternative(s): – 4th level ATC chemical subgroup (C09AA ACE inhibitors, plain)	Oral	
Furosemide Therapeutic alternative(s): – Bumetanide	Injection Oral	
Losartan	Oral	
Sacubitril + Valsartan	Oral	
Spirolactone	Oral	
<b>Complementary list</b>		
<i>Dobutamine</i>	<i>Injection</i>	
<i>Dopamine</i>	<i>Injection</i>	
<b>11.5 Antithrombotic medicines</b>		
<b>11.5.1 Anti-platelet medicines</b>		
Acetylsalicylic acid	Oral	
Clopidogrel	Oral	
<b>11.5.2 Thrombolytic medicines</b>		
<b>Complementary list</b>		
<i>Alteplase</i>	<i>Injection</i>	
<i>Streptokinase</i>	<i>Injection</i>	
<b>11.6 Lipid-lowering agents</b>		
Gemfibrozil	Oral	
Simvastatin* Therapeutic alternative(s): – Atorvastatin – Pravastatin	Oral	* For use in high-risk patients
Fenofibrate	Oral	

## 12. Dermatological Medicines

Chemical Entity	Dosage Form	Notes
<b>12.1 Antifungal medicines</b>		
Miconazole Therapeutic alternative(s): – 4th level ATC chemical subgroup (D01AC Imidazole and triazole derivatives) excluding combinations	Topical	
Selenium sulfide	Topical	
Terbinafine	Topical	
<b>12.2 Anti-infective medicines</b>		
Fusidic Acid	Topical	
Neomycin	Topical	
Potassium permanganate	Miscellaneous	
Silver sulfadiazine [a]	Topical	[a] > 2 months
<b>12.3 Anti-inflammatory and antipruritic medicines</b>		
Betamethasone [a] Therapeutic alternative(s): – 4th level ATC chemical subgroup (D07AC Corticosteroids, potent (group III))	Topical	[a] not preferred in neonates
Calamine	Topical	
Hydrocortisone*	Topical	*preferred in neonates
<b>12.4 Medicines affecting skin differentiation and proliferation</b>		
Aqueous cream	Topical	
Benzoyl peroxide	Topical	
Calcipotriol	Topical	
Coal tar	Topical	
Salicylic acid	Topical	
<b>12.5 Scabicides and pediculicides</b>		
Benzyl benzoate [a]	Topical	[a] > 2 years
Permethrin	Topical	



### 13. Diagnostic Agents

Chemical Entity	Dosage Form	Notes
<b>13.1 Ophthalmic medicines</b>		
Fluorescein	Miscellaneous	
Tropicamide Therapeutic alternative(s): – Atropine – Cyclopentolate	Eye Preparation	
<b>13.2 Radiocontrast media</b>		
Barium sulfate	Oral	
Iohexol	Injection	

### 14. Antiseptics and Disinfectants

Chemical Entity	Dosage Form	Notes
<b>14.1 Antiseptics</b>		
Acriflavine	Topical	
Alcohol	Topical	
Chlorhexidine	Topical	
Povidone iodine	Topical	
<b>14.2 Disinfectants</b>		
Alcohol-based hand rub	Topical	
Chlorine-based compound	Miscellaneous	

### 15. Diuretics

Chemical Entity	Dosage Form	Notes
Furosemide Therapeutic alternative(s): – Bumetanide	Injection Oral	
Hydrochlorothiazide	Oral	
Mannitol	Injection	
Spirolactone	Oral	
<b>Complementary list</b>		
<i>Mannitol</i>	<i>Injection</i>	

## 16. Gastrointestinal Medicines

Chemical Entity	Dosage Form	Notes
<b>Complementary list</b>		
<i>Pancreatic enzymes</i>	<i>Age-appropriate formulations and doses including lipase, protease and amylase.</i>	
<b>16.1 Antiulcer medicines and Antacid</b>		
Omeprazole Therapeutic alternative(s): – 4th level ATC chemical subgroup (A02BC Proton pump inhibitors) excluding combinations	Injection Oral	
Famotidine	Oral	
Magnesium trisilicate	Oral	
<b>16.2 Antiemetic medicines</b>		
Dexamethasone	Injection Oral	
Metoclopramide [a]	Injection Oral	[a] not in neonates
Ondansetron [a] Therapeutic alternative(s): – Granisetron	Injection Oral	[a] > 1 month
<b>Complementary list</b>		
<i>Aprepitant</i>	<i>Oral</i>	
<b>16.3 Anti-inflammatory medicines</b>		
Sulfasalazine Therapeutic alternatives: - – Mesalazine	Oral Enema Suppository	
<b>16.4 Laxatives</b>		
Bisacodyl	Oral Suppository	
Glycerin 25% and Sodium Chloride 15% Enema	Enema	
Lactulose	Oral	
<b>16.5 Medicines used in diarrhoea</b>		
Oral rehydration salts	Oral	
<b>16.6 Antispasmodic Medicines</b>		
Hyoscine butylbromide	Injection Oral	

## 17. Medicines for Endocrine Disorders

Chemical Entity	Dosage Form	Notes
<b>17.1 Adrenal hormones and synthetic substitutes</b>		
Dexamethasone	Injection Oral	
Fludrocortisone	Oral	
Hydrocortisone	Oral	
<b>17.2 Androgens</b>		
<b>Complementary list</b>		
<i>Testosterone</i>	<i>Injection</i>	
<b>17.3 Estrogens</b>		
<b>17.4 Progestogens</b>		
Medroxyprogesterone acetate	Oral	
<b>17.5 Medicines for diabetes</b>		
<b>17.5.1 Insulins*</b>		
*including quality-assured biosimilars		
Insulins and analogues: fast-acting – Human insulin – Insulin aspart	Injection	
Insulins and analogues: intermediate-acting – Human insulin	Injection	
Insulins and analogues: long-acting – Insulin detemir – Insulin glargine	Injection	
Insulins and analogues for injection, intermediate- or long-acting combined with fast-acting: – Insulin aspart 30% and protaminated insulin aspart 70% – Insulin degludec/ insulin aspart 70/30	Injection	
<b>17.5.2 Oral hypoglycaemic agents</b>		
Empagliflozin Therapeutic alternative(s): – Dapagliflozin	Oral	
Gliclazide	Oral	
Metformin	Oral	
Vildagliptin	Oral	
<b>Complementary list</b>		
<i>Metformin</i>	<i>Oral</i>	

Chemical Entity	Dosage Form	Notes
<b>17.6 Thyroid hormones and antithyroid medicines</b>		
Carbimazole	Oral	
Cinacalcet	Oral	
Levothyroxine	Oral	
Lugol's solution	Oral	
Propranolol	Injection	
Propylthiouracil	Oral	
<b>17.7 Medicines for disorders of the pituitary hormone system</b>		
<b>Complementary list</b>		
Octreotide	Injection (modified-release)	

## 18. Immunologicals

Chemical Entity	Dosage Form	Notes
<b>18.1 Diagnostic agents</b>		
Tuberculin, purified protein derivative (PPD)	Injection	
<b>18.2 Sera and immunoglobulins</b>		
Antirabies Immunoglobulin (Human)	Injection	
Antithymocyte immunoglobulin (rabbit)	Injection	
Antivenene Cobra	Injection	
Antivenene Pit Viper	Injection	
Antivenene Serum (Sea snake)	Injection	
Diphtheria antitoxin	Injection	
Hemato Polyvalent Snake Antivenene	Injection	
Hepatitis B Immunoglobulin	Injection	
Neuro Polyvalent Snake Antivenene	Injection	
<b>18.3 Vaccines</b>		
National Immunisation Policy recommendations are determined by MOH Malaysia. Immunisation schedule is updated periodically and be accessed <a href="http://www.myhealth.gov.my/jadual-imunisasi/">www.myhealth.gov.my/jadual-imunisasi/</a> . The following list of vaccines is in accordance with immunisation schedule 2019. All vaccines should comply to MOH requirements.		
BCG vaccine	Injection	
Cholera vaccine*	Injection	* For high-risk population
Diphtheria + Tetanus vaccine	Injection	
Diphtheria, Tetanus, Acellular Pertussis, Inactivated Polio Virus, Haemophilus Influenza Type B Vaccine [DTaP-IPV- Hib]	Injection	
Haemophilus influenzae type b vaccine	Injection	
Hepatitis A vaccine	Injection	* For high-risk population
Hepatitis B vaccine	Injection	
Human Papillomavirus (HPV) vaccine	Injection	
Influenza vaccine (seasonal)	Injection	
Japanese encephalitis vaccine*	Injection	* Only applicable for Sarawak
Measles vaccine	Injection	
Measles, Mumps & Rubella Vaccine (Live)	Injection	
Meningococcal meningitis vaccine*	Injection	* For high-risk population
Pneumococcal vaccine	Injection	
Poliomyelitis vaccine	Injection	
Rabies vaccine	Injection	* For high-risk population

Chemical Entity	Dosage Form	Notes
Rubella vaccine	Injection	
Tetanus vaccine	Injection	
Typhoid vaccine	Injection	* For high-risk population
Varicella vaccine	Injection	

## 19. Muscle Relaxants (Peripherally-Acting) and Cholinesterase Inhibitors

Chemical Entity	Dosage Form	Notes
Atracurium	Injection	
Neostigmine	Injection	
Rocuronium	Injection	
Suxamethonium	Injection	
<b>Complementary list</b>		
<i>Pyridostigmine</i>	<i>Oral</i>	

## 20. Ophthalmological Preparations

Chemical Entity	Dosage Form	Notes
<b>20.1 Anti-infective agents</b>		
Acyclovir	Eye Preparation	
Ciprofloxacin Therapeutic alternative(s): – 4th level ATC chemical subgroup (S01AE Fluoroquinolones)	Eye Preparation	
Chloramphenicol	Eye Preparation	
Gentamicin	Eye Preparation	
Natamycin	Eye Preparation	
<b>20.2 Anti-inflammatory agents</b>		
Prednisolone	Eye preparation	
<b>20.3 Local anaesthetics</b>		
Proparacaine	Eye preparation	
<b>20.4 Miotics and antiglaucoma medicines</b>		
Acetazolamide	Injection Oral	
Brimonidine	Eye Preparation	
Dorzolomide	Eye Preparation	
Latanoprost	Eye Preparation	
Pilocarpine	Eye Preparation	
Timolol	Eye Preparation	
<b>20.5 Mydriatics</b>		
Atropine [a]	Eye Preparation	[a] >3 months.
<b>Complementary lists</b>		
Phenylephrine	Eye Preparation	
<b>20.6 Ocular vascular disorder agents</b>		
<b>Complementary lists</b>		
Ranibizumab	Injection	

## 21. Medicines for Reproductive Health and Perinatal Care

Chemical Entity	Dosage Form	Notes
<b>21.1 Contraceptives</b>		
<b>21.1.1 Oral hormonal contraceptive</b>		
Ethinylestradiol + levonorgestrel	Oral	
Levonorgestrel	Oral	
Ulipristal	Oral	
<b>21.1.2 Injectable hormonal contraceptives</b>		
Medroxyprogesterone acetate	Injection	
Norethisterone enanthate	Injection	
<b>21.1.3 Intrauterine devices</b>		
Copper-containing device	Intrauterine Device	
Levonorgestrel-releasing intrauterine system	Intrauterine Device	
<b>21.1.4 Implantable contraceptive</b>		
Etonogestrel-releasing implant	Implant	
Levonogestrel-releasing implant	Implant	
<b>21.2 Ovulation inducers</b>		
<b>Complementary list</b>		
<i>Clomifene</i>	<i>Oral</i>	
<i>Letrozole</i>	<i>Oral</i>	
<b>21.3 Uterotonics</b>		
Misoprostol*	Pessary	* Only for use for induction of labour where appropriate facilities are available.
Oxytocin	Injection	
Oxytocin + Ergometrine maleate	Injection	
<b>21.4 Medicines administered to the mother</b>		
Dexamethasone	Injection	
Tranexamic acid	Injection	
<b>21.5 Medicines administered to the neonate</b>		
Chlorhexidine*	Topical Solution	* Chlorhexidine 2% in 70% alcohol for umbilical cord care
<b>Complementary list</b>		
<i>Ibuprofen</i>	<i>Injection</i>	
<i>Prostaglandin E1</i>	<i>Injection</i>	
<i>Surfactant</i>	<i>Injection</i>	



## 22. Peritoneal Dialysis Solution

Chemical Entity	Dosage Form	Notes
<b>Complementary list</b>		
<i>Intraperitoneal dialysis solution (of appropriate composition)</i>	<i>Parenteral solution</i>	

## 23. Medicines for Mental and Behavioral Disorders

Chemical Entity	Dosage Form	Notes
<b>23.1 Medicines used in psychotic disorders</b>		
Chlorpromazine	Oral	
Flupenthixol	Injection	
Fluphenazine	Injection	
Haloperidol	Injection Oral	
Risperidone	Oral	
Zuclopenthixol Decanoate	Injection	
<b>Complementary list</b>		
<i>Chlorpromazine</i>	<i>Oral</i>	
<i>Clozapine</i>	<i>Oral</i>	
<i>Haloperidol</i>	<i>Injection</i> <i>Oral</i>	
<i>Olanzapine</i>	<i>Oral</i>	
<b>23.2 Medicines used in mood disorders</b>		
<b>23.2.1 Medicines used in depressive disorders</b>		
Amitriptyline	Oral	
Fluoxetine Therapeutic alternative(s): – Escitalopram – Fluvoxamine	Oral	
Sertraline	Oral	
<b>Complementary list</b>		
<i>Fluoxetine</i>	<i>Oral</i>	
<b>23.2.2 Medicines used in bipolar disorders</b>		
Lithium carbonate	Oral	
Valproic acid (sodium valproate)	Oral	* Avoid use in pregnancy and in women and girls of child-bearing potential, unless alternative treatments are ineffective or not tolerated because of the high risk of birth defects and developmental disorders in children exposed to valproate in the womb.
<b>23.3 Medicines for anxiety disorders</b>		
Diazepam	Oral	
Clonazepam	Oral	

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Chemical Entity	Dosage Form	Notes
<b>23.4 Medicines used for obsessive-compulsive disorders</b>		
Clomipramine	Oral	
<b>23.5 Medicines for disorders due to psychoactive substance use</b>		
<b>23.5.1 Medicines for alcohol use disorders</b>		
Naltrexone	Oral	
<b>23.5.2 Medicines for nicotine use disorders</b>		
Nicotine replacement therapy (NRT)	Oral Patch	
Varenicline	Oral	
<b>23.5.3 Medicines for opioid use disorders</b>		
<b><i>Complementary list</i></b>		
<i>Methadone*</i>	<i>Oral</i>	<i>* The medicines should only be used within an established support programme.</i>

## 24. Medicines Acting on The Respiratory Tract

Chemical Entity	Dosage Form	Notes
<b>24.1 Anti-asthmatic and medicines for chronic obstructive pulmonary disease</b>		
Aminophylline	Injection	
Budesonide Therapeutic alternative(s): – Beclomethasone – Ciclesonide – Fluticasone	Inhalation	
Budesonide + formoterol Therapeutic alternative(s): – Beclomethasone + Formoterol – Fluticasone + Formoterol – Fluticasone Propionate + Salmeterol	Inhalation	
Epinephrine (Adrenaline)	Injection	
Ipratropium bromide	Inhalation	
Prednisolone	Oral	
Salbutamol Therapeutic alternative(s): – Terbutaline	Injection Inhalation	
Theophylline	Oral	
Tiotropium Therapeutic alternative(s): – Glycopyrronium	Inhalation	
Umeclidinium + vilanterol	Inhalation	
<b>24.2 Antitussives</b>		
Diphenhydramine	Oral	[a] > 2 years
<b>24.3 Mucolytics</b>		
Bromhexine	Oral	[a] > 2 years

## 25. Solutions Correcting Water, Electrolyte and Acid–Base Disturbances

Chemical Entity	Dosage Form	Notes
<b>25.1 Oral</b>		
Oral rehydration salts	Oral	
Potassium chloride	Oral	
<b>25.2 Parenteral</b>		
Glucose	Injection	
Glucose with sodium chloride	Injection	
Potassium chloride	Injection	
Sodium bicarbonate	Injection	
Sodium chloride	Injection	
Sodium lactate, compound solution	Solution	
<b>25.3 Miscellaneous</b>		
Water for injection	Injection Irrigation	

## 26. Vitamins and Minerals

Chemical Entity	Dosage Form	Notes
Ascorbic acid	Oral	
Calcium	Oral	
Cholecalciferol	Oral	
Multivitamin (multiple micronutrient supplement)	Oral	
Pyridoxine	Oral	
Retinol (Vitamin A)	Oral	
Thiamine	Oral	
<b>Complementary list</b>		
Calcium gluconate	Injection	

## 27. Ear, Nose and Throat Medicines

Chemical Entity	Dosage Form	Notes
Budesonide	Nasal spray	
Chloramphenicol	Ear drops	
Ofloxacin	Ear drops	
Oxymetazoline [a]	Nasal spray/nasal drops	[a] > 6 years
Polymyxin B + Neomycin + Hydrocortisone	Ear drops	

## 28. Medicines for Diseases of The Joints

Chemical Entity	Dosage Form	Notes
<b>28.1 Medicines used to treat gout</b>		
Allopurinol	Oral	
Colchicine	Oral	
Indomethacin	Oral	
<b>28.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)</b>		
Chloroquine	Oral	
<b>Complementary list</b>		
Azathioprine	Oral	
Hydroxychloroquine	Oral	
Methotrexate	Oral	
Sulfasalazine	Oral	
<b>28.3 Juvenile joint diseases</b>		
<b>Complementary list</b>		
Acetylsalicylic acid* (acute or chronic use)	Oral	*For use for rheumatic fever, juvenile arthritis, Kawasaki disease.

## 29. Dental Medicines and Preparations

Chemical Entity	Dosage Form	Notes
Fluoride	Gel Varnish Miscellaneous	
Glass Ionomer Cement	Miscellaneous	
Resin-Based Composite	Miscellaneous	

# APPENDIXES

## NEML Statistics

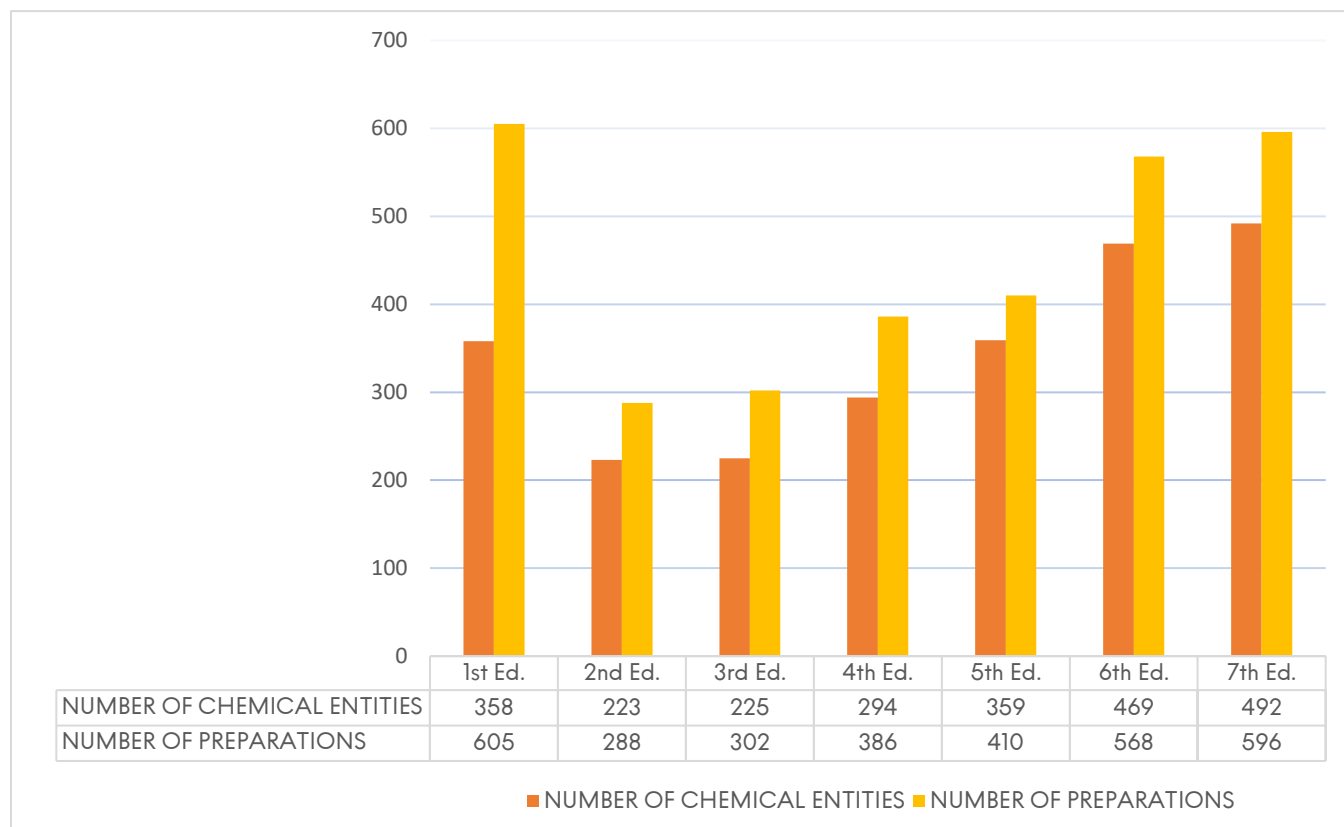


Figure 2: Number of chemical entities and number of preparations in NEML

Table 1: Number of chemical entities for each therapeutic group

<b>NO.</b>	<b>THERAPEUTIC GROUP</b>	<b>NO OF CHEMICAL ENTITIES</b>
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**\*Note: One chemical entity may be listed in more than one group.**

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