AUDA-NEPAD
AFRICAN UNION DEVELOPMENT AGENCY

2025

CONTINENTAL LIST OF HUMAN MEDICINAL PRODUCTS WITH POSITIVE OPINION

GREEN BOOK

1st Edition, March 2025

These medicinal products have been assessed and granted a **Positive Opinion** by the AMRH **Evaluation of Medicinal Products Technical Committees (EMP-TC),** leading to their **Continental Listing** by the **AMRH Steering Committee.**

Publication date: 25th March 2025

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Abbreviations and Acronyms

AMRH	African Medicines Regulatory Harmonisation
AMA	African Medicines Agency
CAPA	Corrective and Preventative Actions
EMP-TC	Evaluation of Medicinal Products -Technical Committee
FDA	Food and Drug Administration
GMP	Good Manufacturing Practice

Glossary of Terms:

For the purpose of this book, the following words or phrases are defined as follows.

African Medicines Regulatory Harmonisation (AMRH): An AU initiative established in 2009 under the AUDA-NEPAD framework serving as the foundation for the African Medicines Agency aimed at harmonizing and streamlining regulatory processes for medicinal products across African Union member states to ensure the safety, efficacy, and quality of medicines.

Assessment Outcome: The final decision or recommendation made by the Committees regarding the approval or rejection of a medicinal product or a manufacturing site.

Continental Listing: A mechanism for which priority medicinal products are issued with a positive opinion based on rigorous scientific assessment of quality, safety and efficacy under the AMRH continental framework.

Continental Procedure for Evaluation of Medicinal Products: A standardized process under the AMRH for evaluating and approving medicinal products at continental level and supporting translation across African Union member states.

Corrective and Preventive Actions (CAPA): A process used to identify, correct, and prevent the recurrence of quality issues in manufacturing or regulatory compliance.

Desk Review: A type of GMP inspection conducted remotely, where documents and records are reviewed without an onsite visit.

Evaluation of Medicinal Products Technical Committee (EMP-TC): A technical committee under the AMRH responsible for the scientific evaluation of medicinal products and providing recommendations for their continental listing.

FDA Orange Book: A reference book published by the U.S. Food and Drug Administration (FDA) that lists approved drug products with therapeutic equivalence evaluations. The AMRH Green Book is modeled after this.

Good Manufacturing Practice (GMP): A system for ensuring that products are consistently produced and controlled according to quality standards. It is designed to minimize the risks involved in pharmaceutical production.

Indication: The specific medical condition or disease that a medicinal product is intended to treat or prevent.

Listing Date: The date on which a medicinal product is officially approved for LISTING by the AMRH Steering Committee.

Manufacturing Sites: The physical locations where medicinal products are produced, which must comply with GMP standards.

Onsite Inspection: A physical inspection of a manufacturing facility to ensure compliance with GMP standards.

Pilot Procedure: A preliminary or trial process used to test and refine regulatory pathways before full implementation.

Positive Opinion: A recommendation by the EMP-TC that a medicinal product meets the required standards for safety, efficacy, and quality, leading to its recommendation for Continental Listing.

Regulatory Framework: A structured set of guidelines and procedures used by regulatory authorities or quality assurance bodies to evaluate and recommends medicinal products for marketing authorization and registration.

Submission Date: The date on which an application for the evaluation of a medicinal product is submitted to the EMP-TC.

Therapeutic Category: A classification of medicinal products based on their intended use, such as vaccines, immunotherapy, etc.

Therapeutic Equivalence: A term used to describe pharmaceutical products that have the same therapeutic effect as a reference product, often used in the context of generic drugs.

Virtual Inspection: A remote inspection process, often conducted via video conferencing, to assess compliance with GMP standards.

Foreword

The AMRH Green Book is a publicly available resource that provides information on medicines scientifically evaluated for safety, efficacy, and quality by the Evaluation of Medicinal Products Technical Committee (EMP-TC) in collaboration with the Good Manufacturing Practices Technical Committee (GMP-TC) through the Continental Procedure for Evaluation and Listing of Human Medicinal Products. It is intended to assist national regulatory agencies, healthcare professionals, industry stakeholders and the public by offering details on products that have undergone continental-level evaluation and received a positive opinion regarding safety, efficacy, and quality. This resource supports national marketing authorization decisions across AU member states through reliance principles. Additionally, the book includes information on the assessment of Good Manufacturing Practices (GMP) standards and compliance for the manufacturing sites of listed products, as assessed and established by the GMP-TC).

The listed medicinal products in this book have been positively recommended by the EMP-TC and approved by the AMRH Steering Committee for Continental Listing. These continental listings do not imply national registrations or marketing authorization, as that remains the mandate of each member state's national regulatory agency.

Introduction

The document serves as a reference for stakeholders involved in medicines regulation across Africa. Modeled after the US FDA Orange Book, this document provides a comprehensive listing of medicinal products approved under the AMRH framework, including their regulatory status, assessment procedures, and GMP compliance outcomes.

Purpose

Serves as a resource for healthcare professionals, regulators, and the public on medicinal products recommended for approval by national regulatory authorities in Africa based on reliance. It provides summary information on product evaluation process and basis for positive opinion.

Scope

Includes all types of human medicinal products such as medicines, vaccines, biotherapeutic products etc., assessed and listed through the Continental Procedure and other recognized continental pathways.

Updates

The book will be updated periodically to reflect new listings, changes in product status, and any other additional information requiring changes to the currently issued edition.

Continental Regulatory Framework

The African Medicines Regulatory Harmonisation (AMRH) initiative was established in 2009 by the African Union with the aim of streamlining and harmonising regulatory processes for medicinal products across African Union member states.

The Continental Listing is a mechanism established under the AMRH through its Technical Committees for the collaborative scientific evaluation and approval of priority human medicinal products which will inform the African Medicines Agency (AMA) processes for marketing authorization functions.

Continental Listings

1st Edition of March 2025 issued positive opinion for Products Details is as follows:

1.	**Product name**	Easy Six Vaccine
	Application Number	AMA0018
	Applicant	Panacea Biotec
	Active Substance & Strength	Suspension for injection of: • Diphtheria: ≥ 30 IU • Tetanus: ≥ 60 IU • Pertussis (Whole Cell): ≥ 4 IU • Hepatitis B (rDNA): ≥ 10 µg, • Poliomyelitis (Inactivated Salk Poliovirus Type-1: 40DU, Inactivated Salk Poliovirus Type-2: 8DU and Inactivated Salk Poliovirus Type-3: 32DU) • Haemophilus influenzae Type b Conjugate Vaccine (Adsorbed) IP10 µg
	Therapeutic Category	EMP-TC Category 1: Vaccine
	Indication	is indicated for primary and booster vaccination of infants and toddlers from six weeks to 5 years of age against diphtheria, tetanus, pertussis, hepatitis B, poliomyelitis and severe infection caused by Haemophilus influenzae type b.
	Anatomic therapeutic chemical (ATC) code:	J07CA09
	Listing Date	25 March 2025
	Manufacturing Sites	Manufacturing and Batch release Panacea Biotec Ltd. Malpur, Baddi, Distt. Solan, Himachal Pradesh – 173205, India Quality control testing (animal testing for batch release) Panacea Biotec Ltd., Animal House, Lalru Punjab, India
	GMP Status	Compliant
	Therapeutic Equivalents	Not Applicable
	Public Assessment Report	Published
	Summary of Product Characteristics	Published

2.	**Product name**	Bavencio
	Application Number	AMA0043
	Applicant	Merck (Pty) Ltd
	Active Substance & Strength	Solution for Injection of Avelumab 20 mg/mL
	Therapeutic Category	EMP-TC Category 1: Vaccine
	Indication	• Bavencio is indicated as monotherapy for the treatment of adult patients with metastatic Merkel cell carcinoma (MCC). • Also, as monotherapy for the first-line maintenance treatment of adult patients with locally advanced or metastatic urothelial carcinoma (UC) who are progression-free following platinum-based chemotherapy. • Bavencio in combination with Axitinib is indicated for the first-line treatment of adult patients with advanced renal cell carcinoma (RCC).
	Anatomic therapeutic chemical (ATC) code:	L01FF04
	Listing Date	25 March 2025
	Manufacturing Sites	Merck Serono S.A. Succursale d'Aubonne Zone Industrielle de l'Ouriettaz 1170 Aubonne Switzerland.
	GMP Status	Compliant
	Therapeutic Equivalents	Not Applicable
	Public Assessment Report	Published
	Summary of Product Characteristics	Published

3.	**Product name**	Gardasil 9 (Prefilled Syringe)
	Application Number	AMA0044
	Applicant	MSD (Pty) Ltd
	Active Substance & Strength	Suspension for injection of • Each 0.5 ml dose contains approximately: • 30 µg HPV Type 6 L1 protein, • 40 µg HPV Type 11 L1 protein, • 60 µg HPV Type 16 L1 protein, • 40 µg HPV Type 18 L1 protein, • 20 µg HPV Type 31 L1 protein, • 20 µg HPV Type 33 L1 protein, • 20 µg HPV Type 45 L1 protein, • 20 µg HPV Type 52 L1 protein, and • 20 µg HPV Type 58 L1 protein. HPV* Human Papillomavirus L1 Virus-Like Particle Types 6, 11, 16, 18, 31, 33, 45, 52, 58
	Therapeutic Category	EMP-TC Category 1: Vaccine
	Indication	• Gardasil 9 is indicated for active immunisation of individuals from the age of 9 years against the following HPV diseases: • Premalignant lesions and cancers affecting the cervix, vulva, vagina and anus caused by vaccine HPV types • Genital warts (Condyloma acuminata) caused by specific HPV types. • See sections 4.4 and 5.1 of the SmPC for important information on the data that support these indications. The use of Gardasil 9 should be in accordance with official recommendations
	Anatomic therapeutic chemical (ATC) code:	J07BM03
	Listing Date	25 March 2025
	Manufacturing Sites	**Gardasil 9 pre-filled syringe:** Finished product manufacturing site: Merck Sharp & Dohme LLC 770 Sumneytown Pike West Point, Pennsylvania, 19486 USA & MSD International GmbH T/A MSD Ireland, (Carlow)

		Dublin Road, Carlow, Co. Carlow Ireland <u>Release site:</u> Merck Sharp & Dohme B.V. Waarderweg 39, Haarlem, 2031BN The Netherlands
	GMP Status	Compliant
	Therapeutic Equivalents	Not Applicable
	Public Assessment Report	Published
	Summary of Product Characteristics	Published

4.	**Product name**	Gardasil 9 (Vial)
	Application Number	AMA0045
	Applicant	MSD (Pty) Ltd
	Active Substance & Strength	Suspension for injection of • Each 0.5 ml dose contains approximately: • 30 µg HPV Type 6 L1 protein, • 40 µg HPV Type 11 L1 protein, • 60 µg HPV Type 16 L1 protein, • 40 µg HPV Type 18 L1 protein, • 20 µg HPV Type 31 L1 protein, • 20 µg HPV Type 33 L1 protein, • 20 µg HPV Type 45 L1 protein, • 20 µg HPV Type 52 L1 protein, and • 20 µg HPV Type 58 L1 protein. HPV* Human Papillomavirus L1 Virus-Like Particle Types 6, 11, 16, 18, 31, 33, 45, 52, 58
	Therapeutic Category	EMP-TC Category 1: Vaccine
	Indication	• Gardasil 9 is indicated for active immunisation of individuals from the age of 9 years against the following HPV diseases: • Premalignant lesions and cancers affecting the cervix, vulva, vagina and anus caused by vaccine HPV types • Genital warts (Condyloma acuminata) caused by specific HPV types. • See sections 4.4 and 5.1 of the SmPC for important information on the data that

		support these indications. The use of Gardasil 9 should be in accordance with official recommendations
	Anatomic therapeutic chemical (ATC) code:	J07BM03
	Listing Date	25 March 2025
	Manufacturing Sites	Gardasil 9 pre-filled syringe: Finished product manufacturing site: Merck Sharp & Dohme LLC 770 Sumneytown Pike West Point, Pennsylvania, 19486 USA & Release site: Merck Sharp & Dohme B.V. Waarderweg 39, Haarlem, 2031BN The Netherlands
	GMP Status	Compliant
	Therapeutic Equivalents	Not Applicable
	Public Assessment Report	Published
	Summary of Product Characteristics	Published

5.	**Product name**	Keytruda
	Application Number	AMA0046
	Applicant	MSD (Pty) Ltd
	Active Substance & Strength	Pembrolizumab 25 mg/ ml Concentrate Solution for Infusion (100 mg/ 4 ml vial)
	Therapeutic Category	EMP-TC Category 1: Vaccine
	Indication	• Melanoma • Non-small cell lung carcinoma (NSCLC) • Classical Hodgkin lymphoma (cHL) • Urothelial carcinoma • Head and neck squamous cell carcinoma (HNSCC) • Renal cell carcinoma (RCC) • Microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR) cancers • Colorectal cancer (CRC) and non-colorectal cancers • Oesophageal carcinoma • Triple negative breast cancer (TNBC)

		• Endometrial carcinoma (EC) • Cervical cancer • Gastric or gastro-oesophageal junction (GEJ) adenocarcinoma • Biliary tract carcinoma (BTC)
	Listing Date	25 March 2025
	Manufacturing Sites	MSD International GmbH T/A MSD Ireland, (Carlow) Dublin Road, Carlow, Co. Carlow Ireland Secondary Packer and Release site: Merck Sharp & Dohme B.V. Waarderweg 39, Haarlem, 2031BN The Netherlands
	GMP Status	Compliant
	Therapeutic Equivalents	Not Applicable
	Public Assessment Report	Published
	Summary of Product Characteristics	Published

These medicinal products have been assessed and granted a **Positive Opinion** by the AMRH Evaluation of Medicinal Products Technical Committees, leading to their **Continental Listing** by the AMRH Steering Committee on the **25th of March 2025.**

Register of Listed Products

Product Name	Application Number	Applicant	Therapeutic Category	Evaluation Timelines (Days)	Continental Committees Involved	Listing Date	Type of Scientific Evaluation	Listing Number	Validity of Listing (years)
Easy Six Vaccine	AMA0018	Panacea Biotec	EMP-TC Category 1: Vaccine	194	EMP-TC & GMP-TC	25 March 2025	Full	AMA0001/NMP.0018/FR0325	5
Bavencio	AMA0043	Merck (Pty) Ltd	EMP-TC Category 1: Monoclonal Antibody	207	EMP-TC & GMP-TC	25 March 2025	Full	AMA0002/NMP.0043/FR0325	5
Gardasil 9 (Prefilled Syringe)	AMA0044	MSD (Pty) Ltd	EMP-TC Category 1: Vaccine	197	EMP-TC & GMP-TC	25 March 2025	Full	AMA0003/NMP.0044/FR0325	5
Gardasil 9 (Vial)	AMA0045	MSD (Pty) Ltd	EMP-TC Category 1: Vaccine	197	EMP-TC & GMP-TC	25 March 2025	Full	AMA004/NMP.0046/FR0325	5
Keytruda	AMA0046	MSD (Pty) Ltd	EMP-TC Category 1: Monoclonal Antibody	208	EMP-TC & GMP-TC	25 March 2025	Full	AMA0005/NMP.0046/FR0325	5

Assessment Procedures

Timeline of Evaluation

- **Day 0:** Start of AMRH review process
- **Day 100:** Stop clock for initial assessment phase
- **Day 180:** Stop clock for secondary and tertiary reviews (cycle 1 and 2)
- **Day 210:** Final decision on Continental Listing

GMP Compliance Status

The following manufacturing sites have undergone GMP inspections and assessments as part of the evaluation process for the products listed in this Edition

Manufacturing Site	Inspection Type	Outcome
Panacea Biotech Ltd, India	Onsite	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines
Merck Serono S.A, Vevey, Switzerland	Onsite	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines
Merck Serono S.A.-Succursa le d'Aubonne, Switzerland	Onsite	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines
Merck Sharp & Dohme LLC, USA	Onsite	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines
MSD Ireland (Carlow)	Onsite	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines
MSD Haarlem, Netherlands	Virtual/Remote	The manufacturing was assessed and found to be operating at acceptable level of GMP compliance to the continental GMP Guidelines

Scientific, Technical, Regulatory and Procedural Guidelines Used

Guideline on Listing of Human Medicinal Products:

- https://amrh.nepad.org/publication/compendium-of-continental-guidelines-pilot-of-listing-of-human-medicinal-products

Guidelines on Inspections and Determination of GMP Status

- https://amrh.nepad.org/publication/amrh-standard-operating-procedures-and-guidelines-good-manufacturing-practice-gmp

Public Assessments Reports

The EMP-TC publishes scientific assessment reports for all listed products which contains the scientific details of the products that supported its listing.

Public assessments can be accessed here: <amrh.nepad.org/amrh-resources>:

Conclusion

The Continental List of Human Medicinal Products with Positive Opinion (Green Book) provides transparency in medicinal product evaluation and serves as a vital tool for regulators, manufacturers, and healthcare professionals across Africa to access information on products approved continentally.

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