

WHO Medically Important Antimicrobial list

Previously known as the WHO Critically Important Antimicrobial List

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Content

- Context and background
- Revision and development of the WHO MIA List
- Purpose and target audience
- Classification- Classes and groups -
- Methodology for the categorization
- Categorization
- > Uses and implementation activities of the MIA List
- Next steps



Background: The MIA List – a 19-year journey

> A ranking of medically important antimicrobials for risk management of AMR due to non-human use





WHO Advisory Group on CIA (AG CIA) for Human Medicine 2021-2024

Established in October 2021

Revision and

development

of the WHO

MIA List

- > 17 members from the six WHO Regions
- Includes members from human, animal, and aquaculture sectors
- Food and Agriculture of the United Nations (FAO), United Nations Environment Programme (UNEP), and World Organisation for Animal Health (WOAH) representatives

Development of the WHO MIA list

- Review of the 6th Revision, background, purpose, and text
- > Three working groups (WG) have been established
 - WG1: Review of national and regional CIA lists
 - WG2: Review of Macrolides and other classes of antimicrobials
 - WG3: Review of the prioritization factors
- Public discussion July 2023
- Publication in February 2024

WHO Advisory Group on Critically Important Antimicrobials for **Human Medicine**





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Purpose and target audience

Purpose:

- to ensure that all antimicrobials, especially medically important antimicrobials, are used prudently in all sectors
- to help regulators and stakeholders know which antimicrobials used in animals present higher risk to humans

Target audience:

- National Regulators and policymakers
- Veterinarians, veterinary paraprofessionals, aquatic animal/plant/crop health professionals, practicing physicians and prescribers of antimicrobials
- National AMR steering or coordinating committees
- Food-animal producers; institutional food purchasers; food companies



WHO Medically Important Antimicrobials List

A risk management tool for mitigating antimicrobial resistance due to non-human use

Previously known as the WHO Critically Important Antimicrobial List for Human Medicine



WHO MIA List: Classes, groups and categorization of Antimicrobials



- > All classes of antimicrobials were analyzed and included in one of the three groups
- Antimicrobial classes were evaluated based on their current authorization status, in humans, both in humans and animals, and only in animals.
- > The categorization is based on resistance mechanisms. The most common resistance mechanism affects all agents in a particular class of antimicrobials.
- > Some exceptions are considered:
 - > 1st and 2nd generation cephalosporins, combination with an inhibitor (e.g., beta-lactam, beta-lactamase inhibitor)
 - > Presence of different resistance mechanisms compared to other members within the class/subclass

Antimicrobials CLASS/agent		Resistance	
Humans	Animals	mechanism	
QUINOLONES		Modification of target	
Ciprofloxacin	Enrofloxacin	site	
CEPHALOSPORINS		Enzimatic	
Ceftriaxone	Ceftiofur	(betalactamase)	
AMPHENICOLS		Modification of target	
Chloramphenicol	Florfenicol	site	

Authorization status

- Antimicrobial groups were evaluated based on their **current authorization status**.
 - > Antimicrobial classes were considered authorized for human and/or non-human use if any member of the drug class was authorized for use in any country.
- Antimicrobial classes that are only **authorized for topical use were not considered** unless they are frequently used to treat multidrug-resistant pathogens in humans.

Best practices statements:

- Any **new antimicrobial class** that is authorized only in humans will automatically be placed in the authorized for use in humans-only category.
- For **implementation purposes**, drugs within **classes in the group authorized for use in humans only** should not be authorized in the future for use in food-producing animals, crops, or plants.





Groups and categories classification



Group of authorized only in humans



Drug class/subclass authorized only in humans

- Mainly newer antimicrobials that are very important for the treatment of serious MDR infections; several are considered last resort or sole therapy
- > Should be considered by default as **most critical and with the highest AMR implications** (at a minimum, similar to HPCIA)
- > Should not be authorized in the future for use in food-producing animals, crops, or plants



Group of authorized in humans & animals



- Analysed according to two criterion based on resistance mechanisms
- Critically important classes further evaluated to identify those of Highest Priority



Example: Fluoroquinolones

➤ Used in humans (ciprofloxacin) and animals (enrofloxacin)

World Health Organization





Antimicrobial classes and agents: new classification

Class/agent of antimicrobials	Change	WHO CIA List 2018	WHO MIA List 2024
Ketolides	Separated from macrolides	Macrolides/ketolides same class= HPCIA	Ketolides: Human only Macrolides: CIA
Fidaxomicin	Macrolide with different spectrum of activity	Included with Macrolides=HPCIA	Fidaxomicin: Human only
Eravacycline and Omadacycline	Tetracyclines with different spectrum of activity and RM	Included with Tetracyclines=HIA	Eravacycline and Omadacycline: Human only
Plazomicin	Aminoglycoside with different RM	Included with Aminoglycosides=CIA	Plazomicin: Human only
Macrolides	Reclassified from HPCIA to CIA	Macrolides=HPCIA	Macrolides=CIA
Aminopenicillins	Reclassified from CIA to HIA	Aminopenicillins=CIA	Aminopenicillins=HIA
Phosphonic acid derivatives	Reclassified from CIA to HPCIA	Phosphonic acid derivatives=CIA	Phosphonic acid derivatives=HPCIA
Nitroimidazoles	Reclassified from IA to HIA	Nitroimidazoles= IA	Nitroimidazoles= HIA

Highest and Critically Important Antimicrobials: Categorization 2024



Highest Priority Critically Important Antimicrobials –HPCIA-				
WHO CIA 6 th Revision 2018	WHO MIA List 2024			
Cephalosporins (3rd, 4th generation)				
Quinolones/fluoroquinolones				
Polymyxins				
Macrolides	Phosphonic acid derivatives			
Glycopeptides				
Critically Important Antimicrobials –CIA-				
Aminoglycosides				
Ansamycins				
Other classes moved to "authorized for use in human	Macrolides			
only"				

Intended uses of the WHO MIA List

> Enhanced regulations and optimized use of antimicrobials at National and Regional levels:

- > To prioritize risk management strategies for MIA to preserve their effectiveness
- > To use in conjunction with Codex AMR texts
- To develop treatment guidelines in non-human sectors in conjunction with existing international guidelines such as the WOAH List of antimicrobials of veterinary importance
- > To develop national and regional policies to support the responsible and prudent use of MIA
- > To guide approaches to reduce or restrict the use of certain antimicrobials in non-human sectors
- To assist efforts to eliminate the use of MIA for non-veterinary medical purposes (Growth promotion)

Intended uses of the WHO MIA List - 2 -

> Surveillance, monitoring and evaluation:

- As part of a One Health approach, ensuring MIA are in AMR and AMU monitoring/surveillance programs (Quadripartite Guidance on Integrated Surveillance of AMR)
- Use in conjunction with Codex Guidelines on IS of FBAMR

> Strengthen risk management in non-human sectors

Developing risk management measures such as restricted use, labeling or extra-label use and making antimicrobial agents available by prescription only.

> Strengthen communication of risk

> Communicating risks to the public, prescribers, and users of antimicrobials in non-human sectors





- 1. The MIA List is an important component of the Global Action Plan on Antimicrobial Resistance
 - Supports risk management and containment of antimicrobial resistance due to non-human antimicrobial use
- 2. Support Member States in:
 - Developing national policies and guidance for risk management and responsible and prudent use of antimicrobials in all sectors
 - Improving integrated AMR/AMU monitoring/surveillance programs
 - Promote research activities and interventions
- 3. Multisectoral collaboration is key to implementing action to contain AMR at the national, regional, and global level





THANK YOU

Thank you to the Government of the Kingdom of Saudi Arabia