

How antimicrobial medicines are used has an important impact on the emergence and spread of resistant microbes. The correct (rational) use of antimicrobials minimizes the threat of resistance and helps to prolong the useful lifespan of these drugs.

## **1. Why is rational use of medicines essential for combating antimicrobial resistance?**

Irrational use (misuse) of antimicrobial medicines is a major driver of antimicrobial resistance (AMR).

Antimicrobials are misused when taken for too short or too long a period, at too low a dosage, at substandard potency, or for the wrong disease. Both under-use and over-use favour the development of AMR.

Only 50% of people with malaria receive the recommended first-line antimalarial medicine.

Only 50–70% of people with pneumonia are treated with appropriate antibiotics.

Up to 60% of people with viral upper respiratory tract infection receive antibiotics inappropriately.

## **2. Challenges to overcome**

Insufficient training for prescribers and dispensers: Inadequate knowledge of health-care providers leads to improper prescription and dispensing practices; these are major factors responsible for the misuse of medicines worldwide.

Lack of legislation and enforcement: Lack of appropriate legislation and/or poor enforcement fosters the indiscriminate use of antimicrobials; for example, unauthorized dispensing of antimicrobials encourages harmful self-medication.

**Accessibility of updated information:** Even relatively well-trained prescribers may lack the up-to-date information needed to make correct decisions on which medicines to prescribe.

**Absence of data and guidelines:** Lack of surveillance data and updated treatment guidelines can result in the inappropriate prescription of antimicrobials or the prescription of older antimicrobials that are no longer effective; conversely, excessive and unnecessary use of newer antimicrobial medicines may occur.

**Poor application of guidelines:** Even when proper treatment guidelines are available, they are not always followed because of ineffective dissemination and lack of relevant training and supervision.

**Perverse incentives:** Pressure by patients as well as economic incentives, such as profits from both prescribing and dispensing, can stimulate unnecessary prescription of antimicrobial medicines.

**Inappropriate promotion:** Pharmaceutical promotion focused on increasing sales irrespective of the effects on health often leads to irrational use of antimicrobials.

Countries which have successfully tackled these problems have done so through a series of core actions (see below) guided by a well-defined national medicines policy

### **3. Core actions**

(A) Promote and enforce standard treatment guidelines

Develop standard treatment guidelines (STGs) in collaboration with professional societies, medical and paramedical teaching institutions; regularly update and promote the use of the guidelines; and encourage inclusion of the guidelines in basic medical and paramedical curricula.

Engage professional societies and teaching institutions to provide problem-based training on rational use of medicines linked to STGs and the Essential Medicines List (EML), to establish good prescribing habits.

Review and revise regulations for professional licensing to link regular participation in continuous education activities with registration requirements.

Require hospitals and other health-care facilities to establish committees to develop and update institutional drug formularies and STGs, provide training and continuous education, and establish a system for audit and review.

Work with health-care institutions to ensure the availability of programmes on antimicrobial stewardship and good diagnostic capacity, to promote appropriate antimicrobial prescribing.

Establish surveillance systems on antimicrobial resistance to provide essential information for maintaining and regular updating of STGs, and monitor trends in antimicrobial usage.

## **(B) Enforce prescription-only use of antimicrobials**

Establish an effective licensing scheme for pharmacies and other outlets where medicines are sold.

Limit the availability of antimicrobials to prescription-only categories.

Link prescription-only categories to regulations regarding sale, supply and dispensing.

Prohibit the prescription and sale of single drug treatments for cases for which the recommended treatment is a combination of drugs.

### **(C) Promote education on antimicrobial medicines and their use**

Provide independent and unbiased information about medicines for health personnel and for consumers as a function of the ministry of health, with dedicated budgets for this purpose.

Implement systems to ensure compliance with STGs as an integral part of treatment programmes and monitor the emergence of resistance to antimicrobial medicines.

Train prescribers and dispensers to educate patients on how to use antimicrobial medicines correctly and the importance of following exactly (adherence to) the prescribed treatment.

Arrange targeted public education campaigns; introduce the correct use of medicines in health education components of school curricula and adult education programmes; and engage the media in awareness campaigns.

Actively involve consumers, patients and their organizations in education efforts.

### **(D) Reduce antimicrobial use in food-producing animals**

(see separate briefing note)

### **(E) Work to reduce financial incentives that encourage irrational use of medicines**

Examine the incentive structures that exist locally, and identify factors that influence prescribing and dispensing practices; develop policies to reduce financial incentives for providers, such as separating the functions of prescribing and dispensing, and ensure that the policies are implemented, monitored and enforced.

Educate prescribers on factors which may influence their prescribing habits.

Review the methods of payment and reimbursement; and structure charges and reimbursements according to the EML and STGs, to promote more rational use of medicines.

Introduce regulations which address all aspects of the promotion of pharmaceuticals; ensure that advertisements contain only information that was approved when the product was registered.

Monitor activities that promote medicines to ensure that they accord with government regulations.

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