
Integrated Activities and Tools for Antimicrobial Stewardship





Our time with **ANTIBIOTICS** is running out.

Antibiotics are in danger of losing their effectiveness due to misuse and overuse, and in many cases they aren't even needed.

**Always seek the advice of
a healthcare professional
before taking antibiotics.**



**World Health
Organization**

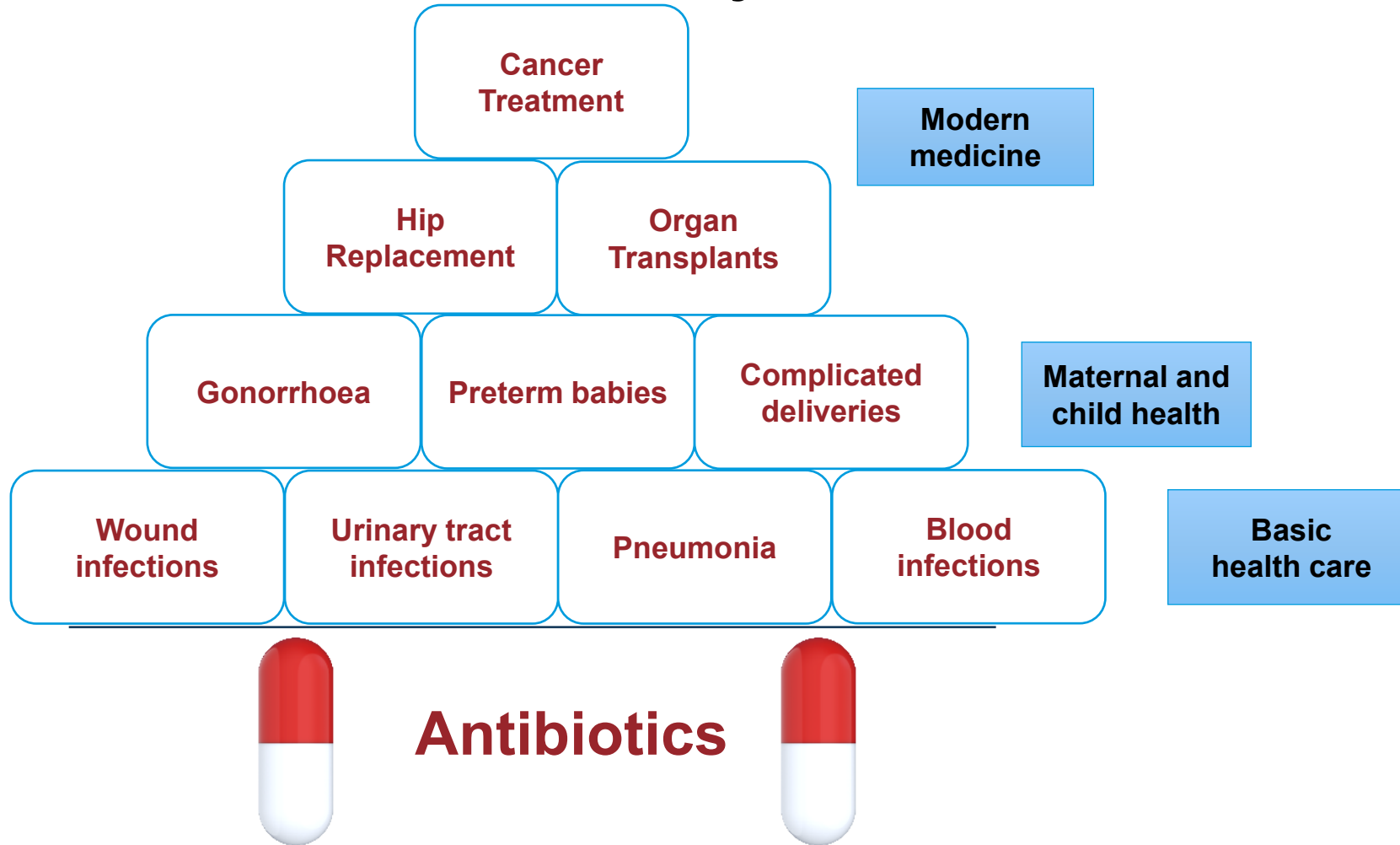
Introduction of antimicrobial stewardship as part of health system strengthening: the WHO AMS toolkit

Presentation by: Sarah Paulin and Ingrid Smith

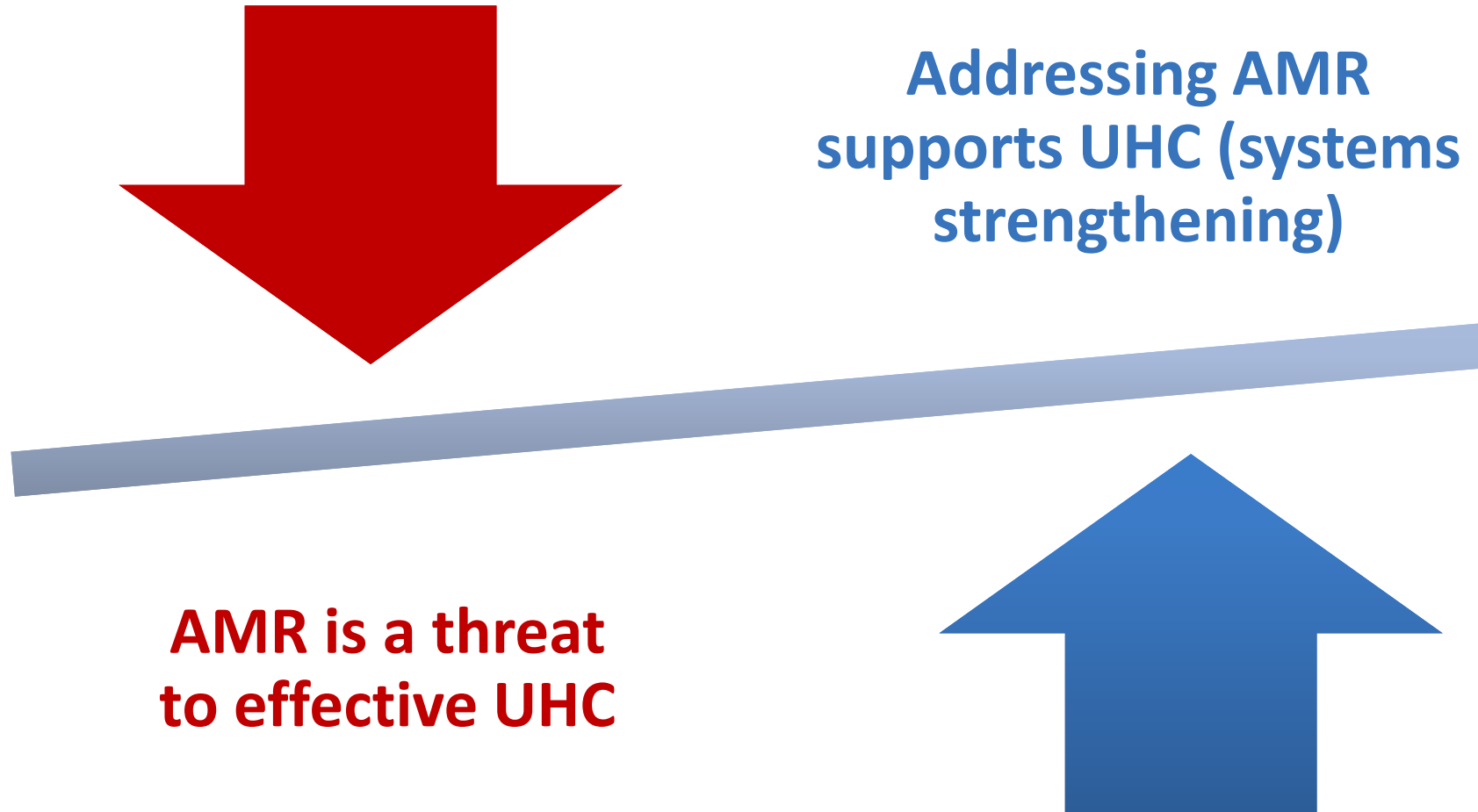
Presented by: Anita Shallal, MD

Antibiotics

The cornerstones of health systems



AMR supports UHC



Risks and Opportunities of AMR and UHC



- Weak health systems unable to manage resistant infections
- Up to 25% increase in health-care costs in low income countries
- Puts mortality gains of the MDGs at risk
- ...

- ✓ **Resilient health system to prevent, diagnose and manage infections**
- ✓ **Clean and safe health facilities**
- ✓ **Optimize use of antibiotics**
- ✓ **Health workforce that understands and appropriately manages AMR risks**
- ✓ Effective multi-sectoral collaboration with other sectors
- ✓ ...



Food and Agriculture
Organization of the
United Nations



World Health
Organization



Global Action Plan on Antimicrobial Resistance

(May 2015)



Global Action Plan: 5 strategic objectives

1. Improve awareness and understanding of AMR

Risk communication

Education

2. Strengthen knowledge through surveillance and research

National AMR surveillance

Laboratory capacities

Research and development

3. Reduce the incidence of infection

IPC, WASH, HAI

Community level prevention

Animal health: prevention and control

4. Optimize the use of antimicrobial medicines

Access to qualified antimicrobial medicines, regulation, AMS

Use in veterinary and agriculture

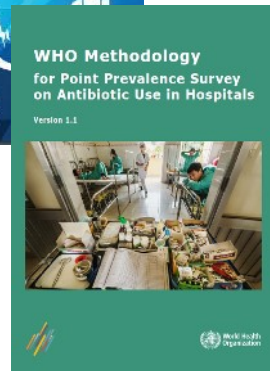
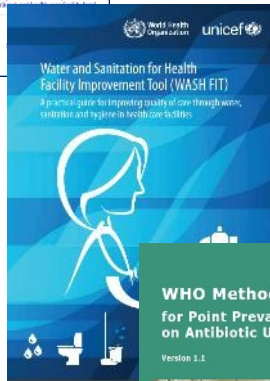
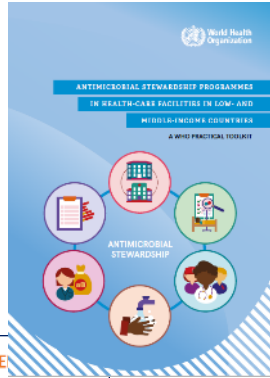
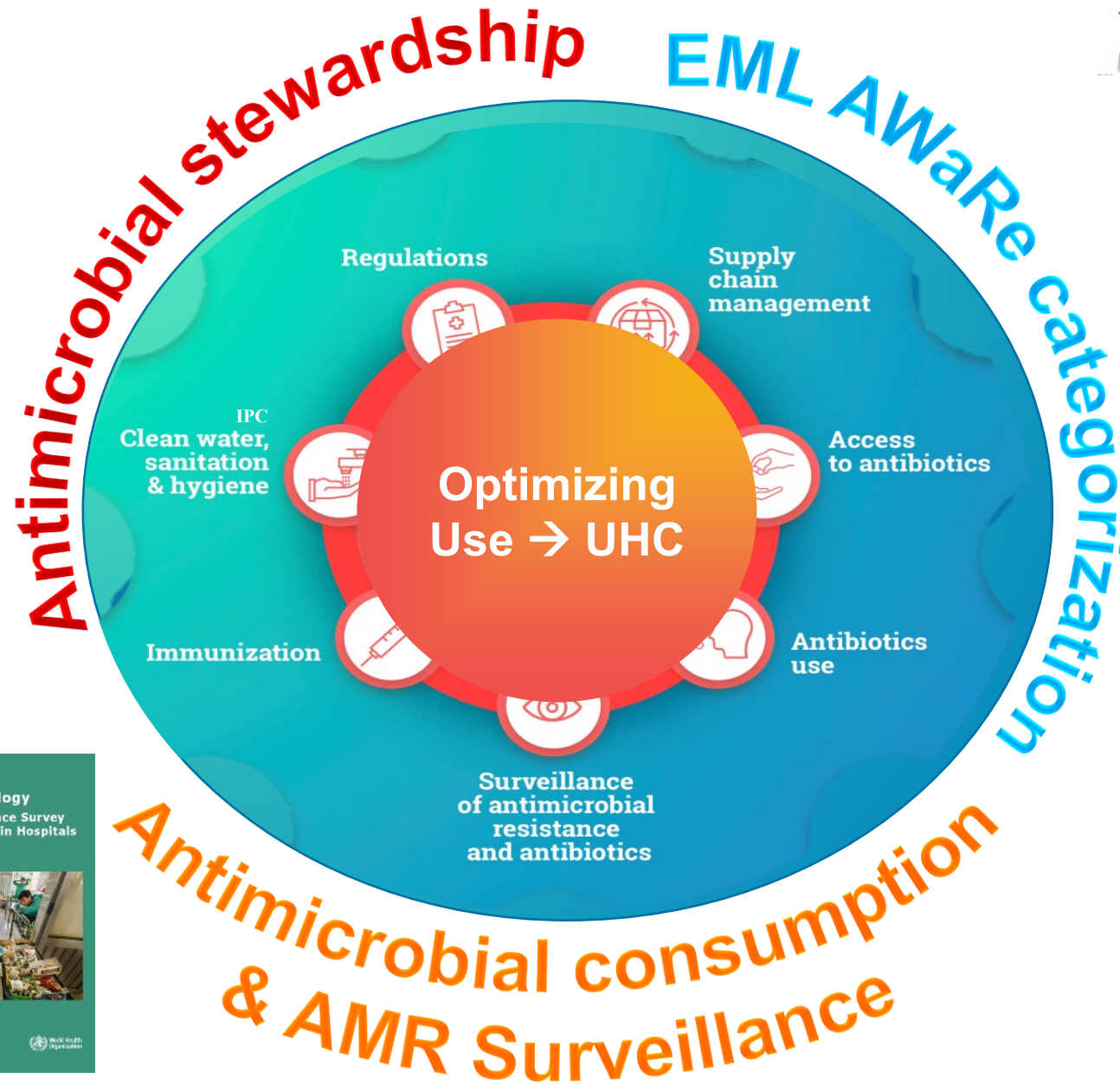
5. Ensure sustainable investment in countering antimicrobial resistance

Measuring the burden of AMR

Assessing investment needs

Establishing procedures for participation

Integrated approach



WHO Model List of Essential Medicines

20th List (March 2017)

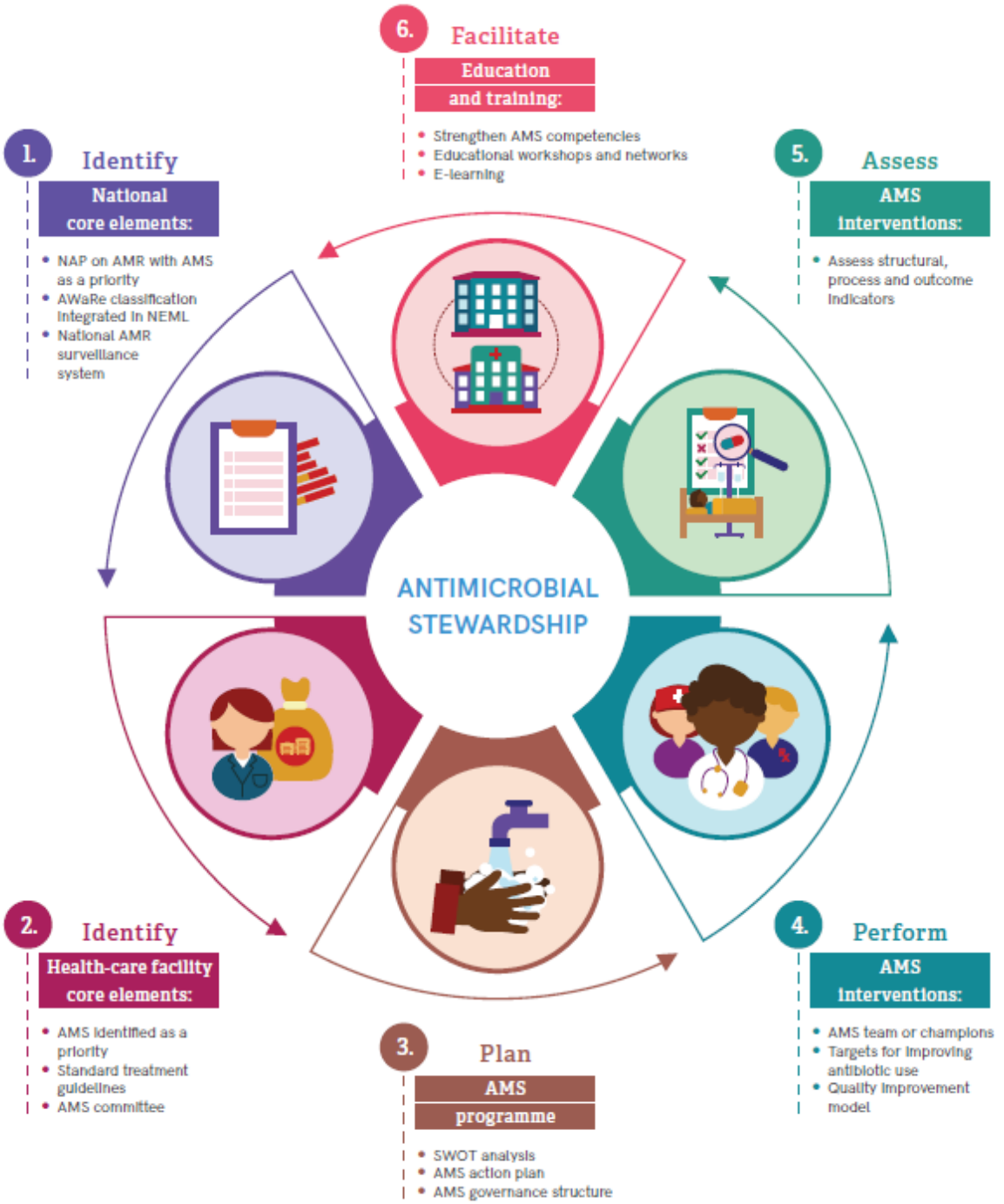
Status of this document
This is a reprint of the text on the WHO Medicines website
<http://www.who.int/medicines/essential/20th-list>

WHO methodology for a global programme on surveillance of antimicrobial consumption

Waters 10



WHO practical toolkit: AMS in health-care facilities (2019)



Antimicrobial stewardship (AMS) – definition, objective, action & outcome

Definition: A strategy & set of actions to promote using antimicrobials responsibly

Objective: To ensure effective antibiotic treatment for patients today & tomorrow

Action: Change prescribing practices and Abx use:
No ABx when not needed; old ABx when sufficient; new ABx only when necessary

Outcome: Improve patient outcomes, prolong use of existing Abx, save lives & health-care costs, reduce emergence & spread of AMR

1. National AMS programme

Core elements



National plan & strategies

- ✓ **National Action Plan on AMR**
 - ✓ AMS as a priority
- ✓ **TWG on AMS**
- ✓ **Dedicated NAP funding**



Regulation & guidelines

- ✓ **National Essential Medicines List**
 - ✓ AWaRe integration
- ✓ **Clinical guidelines**
- ✓ **Regulation & enforcement of prescription-only sales of Abx**



Awareness, education & training

- ✓ **Antibiotic Awareness Campaigns**
- ✓ **Pre- and in-service training for health professionals**



Supporting technologies & data

- ✓ **National AMC surveillance**
- ✓ **Point prevalence surveys**
- ✓ **National AMR surveillance system**
 - ✓ Enrollment in GLASS

1. Preliminary observations in Nepal

National core elements

National plan & strategies

- ✓ National Action Plan on AMR
 - ✓ AMS as a priority
 - M&E mechanism
 - Dedicated funding
- TWG on AMS
- National AMS implementation plan or policy

Regulation & guidelines

- ✓ National Essential Medicines List
 - AWaRe integration
- ✓ 5 Clinical guidelines
- ✓ Regulation of prescription-only sales of Abx
 - Enforcement

Awareness, education & training

- ✓ Antibiotic Awareness Campaigns
- Training on AMS competencies for AMS teams
- Incentives to support AMS programmes in HCFs

Supporting technologies & data

- ✓ National AMC surveillance
- ✓ National AMR surveillance system
 - ✓ Fleming Fund trainings
 - ✓ Enrollment in GLASS

2. 5. Hospital AMS Programme

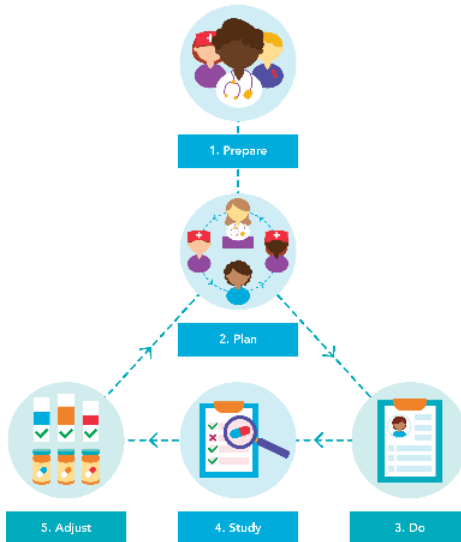
2. Hospital core elements



3. Planning AMS programmes

	HELPFUL	HARMFUL
INTERNAL/PRESENT FACTORS	Strengths <i>Core elements:</i> <ul style="list-style-type: none"> AMR and AMS are a leadership priority. IPC programme/committee is active. <i>Human resources:</i> <ul style="list-style-type: none"> There is enthusiasm for AMS in the facility/wards. There is clinical knowledge of AMS. <i>Antimicrobial use and resistance data:</i> <ul style="list-style-type: none"> Prescription audit is conducted in one ward. Facility aggregate antibiogram is available. <i>AMS activities:</i> <ul style="list-style-type: none"> A pharmacist is involved in some AMS activities in one ward. 	Weaknesses <i>Core elements:</i> <ul style="list-style-type: none"> No medical record or prescription pad is available. <i>Human resources:</i> <ul style="list-style-type: none"> No dedicated health care professional is available to lead the AMS team. <i>Antimicrobial use and resistance data:</i> <ul style="list-style-type: none"> The supply of microbiology reagents is poor. The supply of antibiotics is poor. <i>AMS activities:</i> <ul style="list-style-type: none"> Health-care professionals have competing priorities and little time for AMS work.
EXTERNAL/FUTURE FACTORS	Opportunities <i>Core elements:</i> <ul style="list-style-type: none"> Active implementation of the NAP on AMR Increasing national awareness of AMR and its consequences for health <i>Human resources:</i> <ul style="list-style-type: none"> Incorporating AMS responsibility into the IPC committee <i>Antimicrobial use and resistance data:</i> <ul style="list-style-type: none"> Funds for conducting a facility PPS <i>AMS activities:</i> <ul style="list-style-type: none"> Presenting findings from AMS activities to other wards/health-care professionals 	Threats <i>Core elements:</i> <ul style="list-style-type: none"> Unstable access to essential antibiotics Increased costs for antibiotics Prioritization of issues other than AMS in the facility Low facility budget <i>Human resources:</i> <ul style="list-style-type: none"> Too many nonfunctional committees in the health-care facility <i>Antimicrobial use and resistance data:</i> <ul style="list-style-type: none"> Increasing AMR rates, including carbapenem-resistant Enterobacteriaceae (CRE) <i>AMS activities:</i> <ul style="list-style-type: none"> Opposition from clinical leaders

4. Performing AMS Interventions



5. Assessing AMS Interventions



2. Health-care facility core elements



- ✓ Leadership – prioritize AMS
- ✓ Human resources
- ✓ Education and training
- ✓ Treatment guideline
- ✓ AMS interventions
- ✓ Monitoring ABx
- ✓ Reporting and feedback
- ✓ Links to IPC and WASH

2. Preliminary observations in Nepal

Health-care facility core elements

Leadership commitment

- ✓ Leadership – AMS identified as a priority
- ✓ HCF AMS action plan
 - Dedicated financing for AMS action plan

Accountability & responsibilities

- ✓ AMS committee and AMS team
- Links to IPC and WASH
- Regular AMS activity report

Additional AMS actions

- Up-to-date treatment guidelines
- AMS team conducts regular ward rounds
- List of restricted Abx
- ✓ Standardized prescription chart

Education & training

- ✓ Basic but not continued training in optimal Abx use for HCW
- Regular training of the AMS team

Monitoring & surveillance

- ✓ Monitoring quantity and type of Abx (AMC)
- Monitoring appropriateness of Abx use (audit or PPS)
- Monitoring compliance of AMS interventions

Reporting & feedback

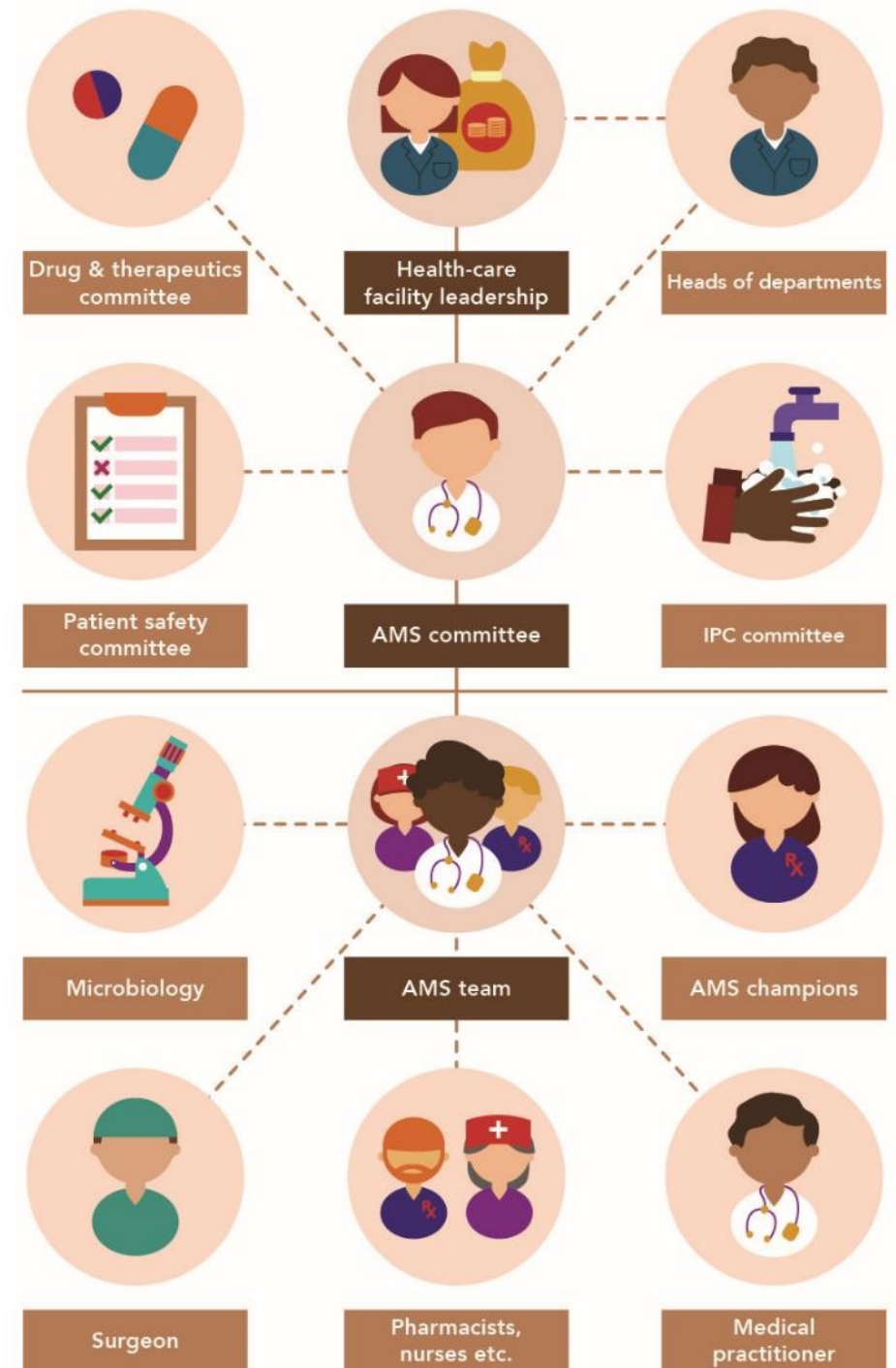
- Regular eval. & sharing of antibiotic use data with prescribers
- Regular eval. & sharing of resistance rates
- Developed and updated antibiogram

3. Planning AMS programmes

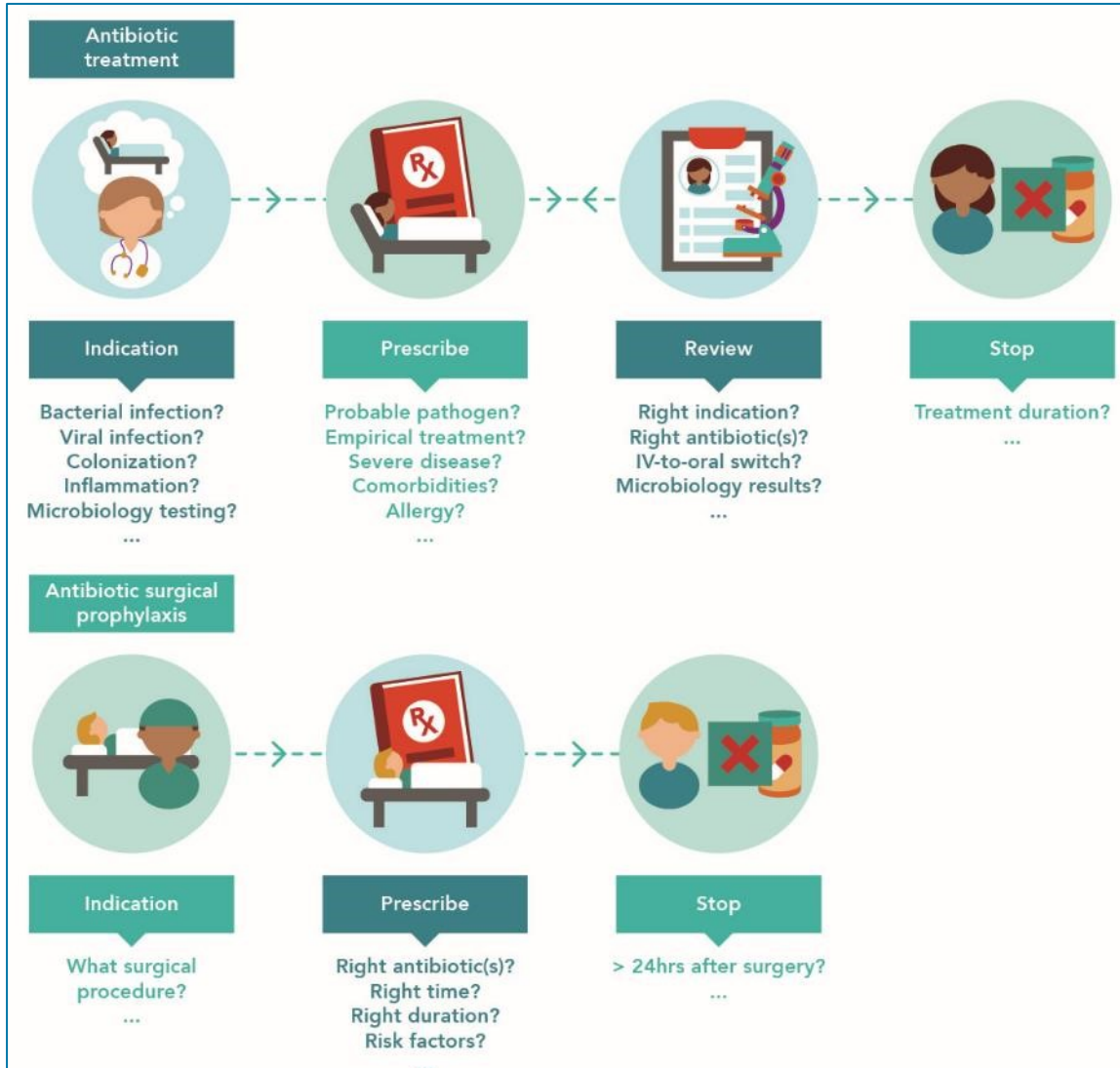
Situational or SWOT analysis	Conduct a SWOT analysis: <ul style="list-style-type: none"> Structures, policies and guidelines Human resources Data: antimicrobials, resistance AMS activities
Facility AMS action plan	To ensure accountability, prioritize activities and measure progress

Governance

- ✓ Responsibilities and accountability
- ✓ AMS team and/or AMS champions
- ✓ Link to other programmes/ committees



4. Performing AMS interventions



Evidence based AMS interventions

Interventions (examples)

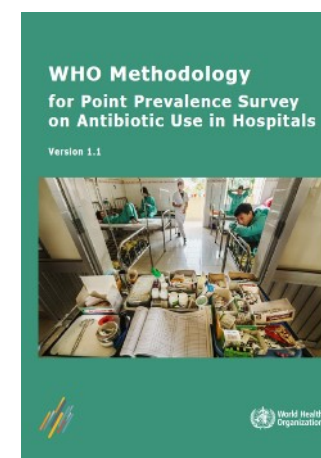
Education	<ul style="list-style-type: none"> Formal/ informal Treatment guidelines
Feedback	<ul style="list-style-type: none"> Audit with feedback Ward rounds
Structure	<ul style="list-style-type: none"> Self-revision by prescriber Computerized order entry
Restriction	<ul style="list-style-type: none"> Pre-authorization Automatic stop orders

Davey P. Interventions to improve antibiotic prescribing practices for hospital inpatients. Cochrane Database Syst Review 2013 Apr 30;4: CD003543.

5. Assessing AMS programmes



- **Baseline:** Measure the **quantity** and **quality** of **antibiotic prescribing and use**, to identify priority areas for AMS interventions
- **Goal:** to **compare** results within a hospital, department or ward **over time**; **AB prescribing and use, patient outcomes etc**



WHO methodology for a global programme on surveillance of antimicrobial consumption



- ✓ **Structure measures:** core elements
- ✓ **Outcome measures:** ABX use, patient outcomes
- ✓ **Process measures:** proportions e.g. of pneumonia patients receiving appropriate antibiotic treatment

6. Education & Training

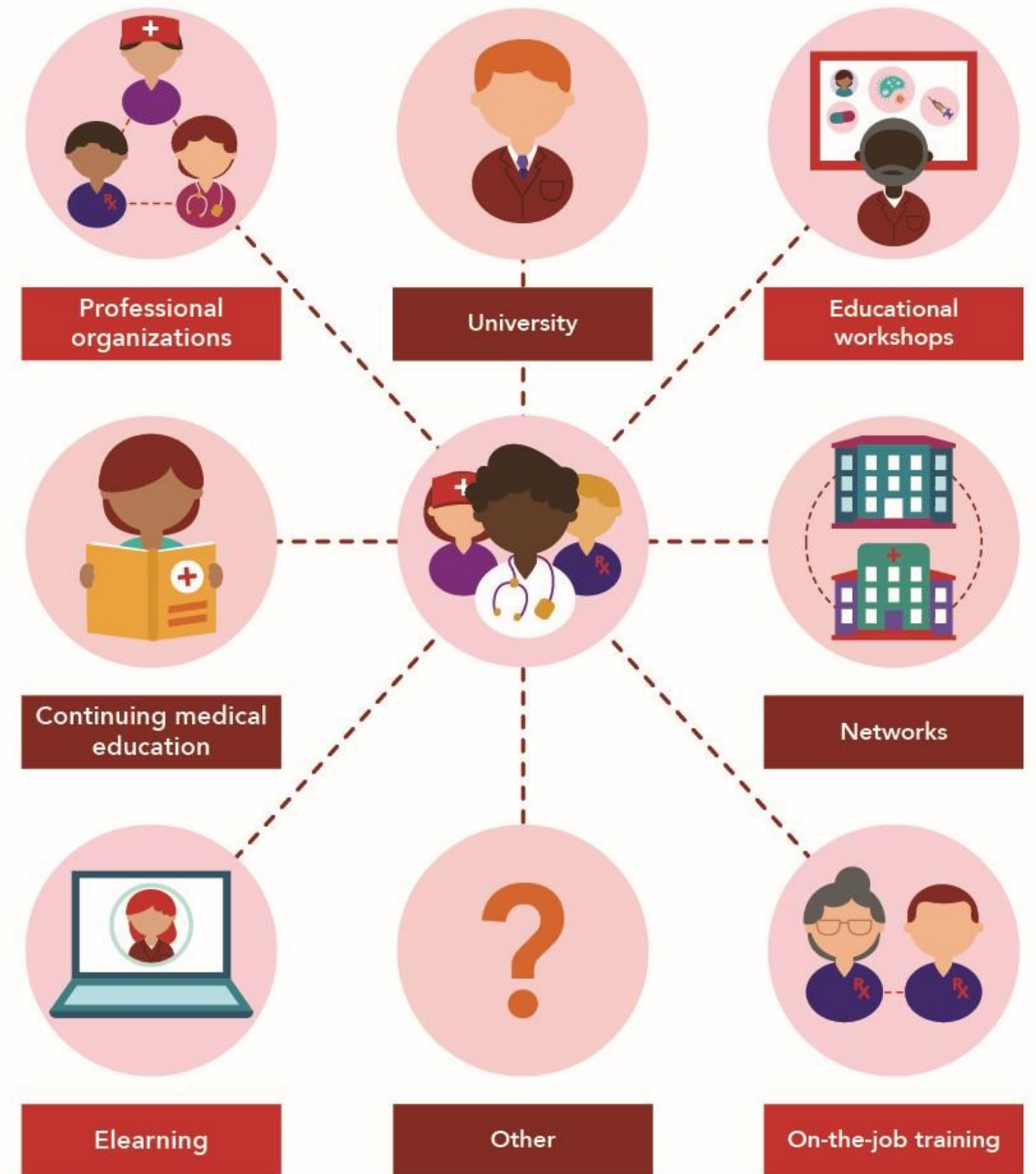
AMS competencies

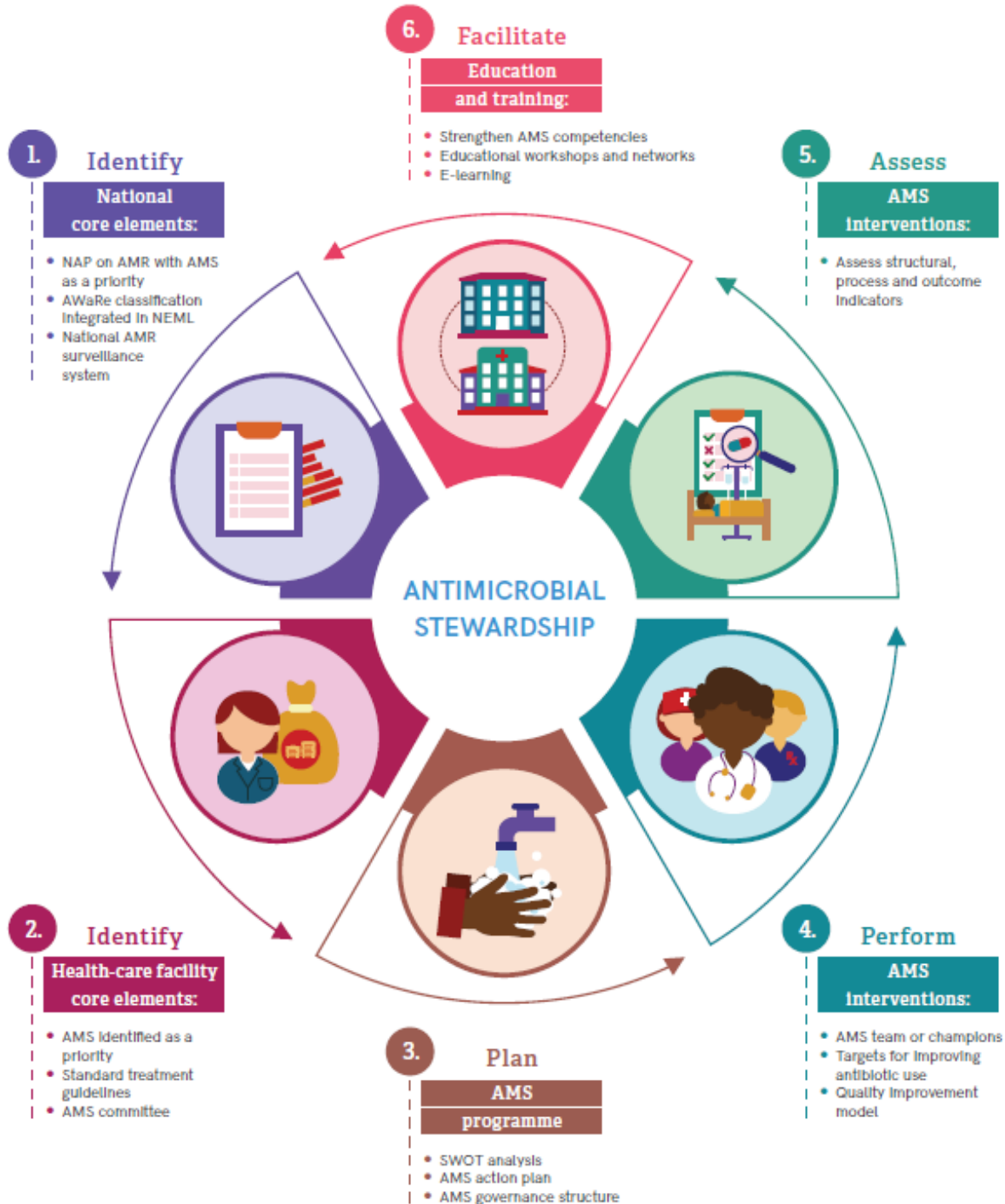
- ✓ Antibiotics
- ✓ Microbiology
- ✓ Infection management
- ✓ Plan and perform AMS interventions
- ✓ Monitor AMS interventions/ ABx use

Face to face workshops

Online e-learning resources

Bread & butter infectious disease talks





Summary

- 6 core components on AMS for health-care facilities
- Step-wise approach
- Build on what is existing, start small
- Build competency and team
- Quality improvement cycle

WHO POLICY GUIDANCE ON INTEGRATED ANTIMICROBIAL STEWARDSHIP ACTIVITIES

WHO Policy Guidance

Practical approach to implementation

- ✓ Complementary to WHO Toolkit for LMIC
- ✓ National level and facility level guidance

Checklist for AMS champions

Recommend quarterly assessments of capacity at facility level

Annex: Periodic National and Health-Care Facility Assessment Tools

Introduction

Purpose

Antimicrobial stewardship (AMS) programmes are successfully implemented when specific structures are in place at the national and health-care facility levels. WHO has developed a list of essential national and health-care facility core elements to assist countries in developing and strengthening the necessary structures at the national and health-care facility level to enable implementation of effective integrated AMS programmes within their local context.

The WHO Periodic National and Health-Care Facility Assessment Tools aim to help countries and health-care facilities identify their AMS preparedness in terms of their national and health-care facility core elements, to develop a stepwise implementation plan, and to monitor progress in implementing AMS programmes and activities over time.

Intended users

The intended users of the assessment tools are national and subnational health-care authorities and health-care facility managers.

For the National Assessment Tool, the intended users are national and/or regional health authorities responsible for the implementation of national policies on integrated AMS activities in human health and other partners supporting national and regional AMS efforts.

For the Health-Care Facility Assessment Tool, the intended users are health-care facility managers/leadership, AMS committees/teams or AMS champions responsible for the overall coordination and implementation of health-care facility AMS programmes.

Users are encouraged to fill out the checklist (national or health-care facility) based on their function, to identify core elements that are already in place and their level of implementation as well as core elements that require accelerated implementation by addressing identified gaps. This will provide the user with baseline information on implementation status and a visual tool that can assist the development of a plan to address core elements that are missing or strengthen the implementation of existing core elements. The user is also encouraged to periodically (e.g. quarterly, annually) reassess their AMS programme with the assessment tools to monitor and evaluate progress over time and to disseminate these reports.

When and how to conduct the assessment

The tool may be used as an annual/quarterly activity or integrated into a larger and existing review of the national AMR response. Responses may be gathered from desk reviews, individual or group interviews, observations in health-care facilities, focus group discussions among policy-makers and data collection from health-care facility records and documents. A verifier section has been provided to serve as a guide.

It is recommended to consult the *WHO policy guidance on integrated antimicrobial stewardship activities and the practical toolkit for Antimicrobial stewardship programmes in health-care facilities in low- and middle-income countries* (<https://apos.who.int/iris/bitstream/handle/10665/329404/9789241515481-eng.pdf>) when necessary.

To complete the assessment tool, the user should provide one response per question based on the following options:

1. **No** – the core element is not in place and is not a priority.
2. **No, but a priority** – the core element is a priority but there is no plan in place to initiate it.
3. **Planned but not started** – the core element is planned but no action has taken place.
4. **Partially implemented** – the core element is in place, but it is only partially implemented requiring further strengthening.
5. **Fully implemented** – the core element is in place and is fully implemented without requiring strengthening but needing to be sustained.

Misuse of **ANTIBIOTICS** puts us all at risk.

Taking antibiotics when you don't need them speeds up antibiotic resistance. Antibiotic resistant infections are more complex and harder to treat. They can affect anyone, of any age, in any country.

Always seek the advice of a healthcare professional before taking antibiotics.

Thank you

