

Module 5: Planning and Establishing Antimicrobial Stewardship Programs



Learning Objectives

By the end of this module, you should be able to:

1. Describe the process of planning and establishing an AMS program
2. Describe the link between Infection Prevention and Control (IPC) and AMS
3. Demonstrate data collection and utilization for AMS
4. Implementation of the current KEMH and AWARe classification at facility level
5. Explain the role of microbiology
6. Illustrate the stepwise approach to establishing an AMS Program in a Healthcare Facility



Introduction

- AMS programs in healthcare facilities should link with other existing programs (e.g. IPC, diagnostic stewardship, etc.) to optimize antimicrobial use, to improve quality of care and infection management
- AMS program should be adapted to the facility's human, financial, structural and organizational resources
- It is important that facility management and an AMS committee decide which strategies best fit their setting, based on a situational analysis and development of an action plan



Baseline Assessment

A ***Baseline Assessment*** should be performed before establishing and implementing an AMS program

It should include:

- Mapping which core elements are in place in the facility
- Undertaking a baseline survey on antimicrobial use
- Identifying main challenges related to antibiotic prescribing and use
- Identifying available human, structural and financial resources



Situation Analysis

It should include

- Strengths, weaknesses, opportunities and threats (SWOT) at different levels in the facility
- Possible barriers and enablers for the full participation of the different health-care professionals and departments in the AMS programme

Helps the healthcare facility to develop a stepwise AMS action plan that identifies:

- What is already in place
- What needs to be put in place over time
- Human resources needed to compose an AMS team
- Any other resources required



Example of SWOT Analysis for AMS Readiness in a Healthcare Facility

	HELPFUL	HARMFUL
INTERNAL / PRESENT FACTORS	STRENGTHS Core elements: - AMR and AMS are a leadership priority - IPC program/ committee is active. Human Resources: - There is enthusiasm for AMS in the facility / wards. - There is clinical knowledge of AMS. Antimicrobial use and resistance data: - Prescription audit is conducted in one ward. - Facility aggregate antibiogram is available. AMS activities: - A pharmacist is involved in some AMS activities in one ward.	WEAKNESSES Core elements: - No medical record or prescription pad is available. Human resources: - No dedicated health-care professional is available to lead the AMS team. Antimicrobial use and resistance data: - The supply of microbiology reagents is poor. - The supply of antibiotics is poor. AMS activities: - Health-care professionals have competing priorities and little time for AMS work.
EXTERNAL / FUTURE FACTORS	OPPORTUNITIES Core elements: - Active Implementation of the NAP on AMR. - Increasing national awareness of AMR and its consequences for health. Human resources: - Incorporating AMS responsibility into the IPC committee, antimicrobial use and resistance data. - Funds for conducting a facility PPS. AMS activities: - Presenting findings from AMS activities to other wards/ health-care professionals.	THREATS Core elements: - Unstable access to essential antibiotics. - Increased cost for antibiotics. - Prioritization of issues other than AMS in the facility. - Low facility budget. Human resources: - Too many non-functional committees in the health-care facility Antimicrobial use and resistance data: - Increasing AMR rates, including Carbapenem-resistant Enterobacteriaceae (CRE) AMS activities: - Opposition from clinical leaders.



Facility AMS Action Plan

- A facility AMS Action Plan should be developed based on the situational analysis
- Developed to ensure accountability, prioritize activities and measure progress
- Should include the following key components/elements:
 - Leadership & Governance
 - AMS activities
 - Healthcare facility multidisciplinary involvement
 - Education and training
 - Budgetary allocation



Identifying Human Resources

- The AMS team should be multidisciplinary
- The different healthcare professionals should collectively possess the competencies required to undertake functions to successfully deliver and implement the AMS program
- The AMS team should have clear Terms of Reference
- Members of the AMS team should have their AMS role included in their job description and performance contract



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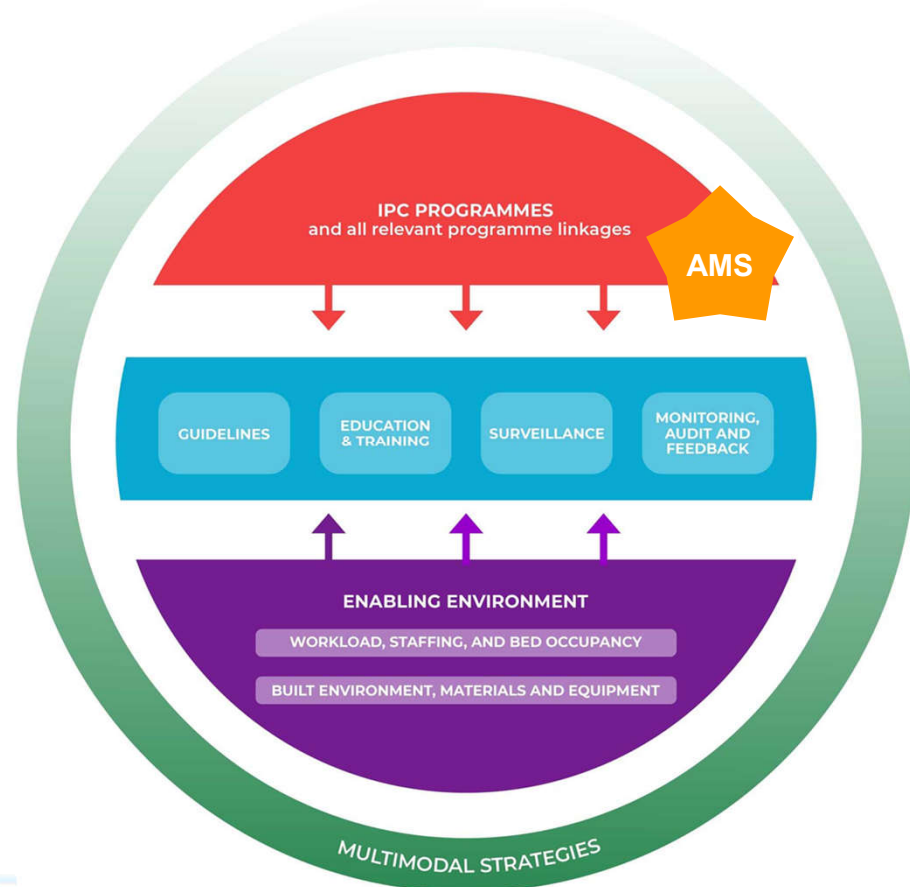
Identifying Human Resources...

The skill sets of professionals who undertake AMS roles include:

- Expertise in infection management: provided by an infectious disease specialist/Physician
- Expertise in antimicrobials: domain of pharmacists
- Expertise in patient care: provided by clinicians
- Expertise in microbiology: provided by microbiologists or laboratory technologists
- Expertise in IPC: provided by IPC practitioners and hospital epidemiologists



Link Between Infection Prevention and Control and AMS



The implementation of IPC interventions not only prevents healthcare associated infections and deaths, but also saves money, reduces the spread of AMR and supports high-quality, people-centred health services

Link Between Infection Prevention and Control and AMS ...

- IPC is a practical, evidence-based approach which aims to prevent patients and healthcare workers from getting infections
- Implementing IPC promotes adoption of appropriate IPC practices during healthcare delivery, thus enhancing patient safety and quality of care
- The approach of IPC is complementary to that of AMS, which aims to prevent the spread of MDR bacteria and infections by reducing overuse and misuse of antibiotics
- IPC and AMS are interdependent programs that require coordinated efforts and interventions to achieve the greatest impact



Collecting Data on Antimicrobials

Main purpose for collecting data is to:

- Assess the extent and quality of antimicrobial use
- Identify inappropriate prescribing practices
- Compare appropriate use of antimicrobial within and across healthcare facilities over time.



Collecting Data on the Antimicrobials...

- Types of antimicrobial data to collect include
 - A. Antimicrobial consumption (AMC)
 - B. Antimicrobial use (AMU)
 - C. Antimicrobial audit data
- The data is used to provide baseline information and evaluate AMS interventions



Collecting Data on the Antimicrobials...

A. Quantity - Antimicrobial Consumption (AMC) Data

- Provide an estimate of the quantity and types of medicines consumed at the national, subnational or facility level over time
- Data should be collected according to a standard national protocol



Collecting Data on Antimicrobials...

B. Quality - Antimicrobial Use (AMU) Data (e.g. PPS)

- Refers to estimates derived from individual patient data
- May include information on patient characteristics and indications for treatment
 - Benefit
 - Provide an overview of how antimicrobial are used in a facility
 - Allow assessment of compliance to guidelines
 - Limitation
 - Data collected at a point in time and may not be representative
 - Resource intensive



Collecting Data on Antimicrobials...

C. Quality - Antimicrobial Audit Data

- Prospective or retrospective collection of antibiotic prescription data on hospitalized patients
- Data are analysed and then feedback to the prescribers.



Implementation of Essential Medicines List (EML) and AWaRe Classification

- Antibiotics in the essential medicines list are classified into three groups- **ACCESS**, **WATCH** and **RESERVE** (AWaRe)
- The EML gives recommendations when to use the antibiotics in each category
- It provides a tool to support antibiotic monitoring and AMS activities



Implementation of KEML and AWaRe Classification...

- Stratifying total antimicrobial consumption data by the AWaRe groups can be undertaken at multiple levels (National, Sub-national, facility)
- This allows benchmarking and overall monitoring of national and global progress towards WHO's goal of increasing the proportion of global consumption of antibiotics in the ACCESS group to >60%



Role of Microbiology in AMS

- Most patients receive initial antimicrobial treatment based on a clinical assessment, without the use of microbiological tests
- Treatment is chosen according to which microbes are most likely to cause different infections
- This strategy works well when resistance rates are low or AMR surveillance can guide recommendations for empirical antibiotic treatment (Antibiogram: which outlines sensitivity and resistance patterns)



Role of Microbiology in AMS

- Microbiology laboratories play a key role in informing the appropriate use of ACCESS antibiotics, ensuring first and second-line antibiotics are used whenever possible.
- There is a great need for affordable, sensitive, specific and rapid diagnostic tests that provide prescribers with quality assured information on bacterial infections and which antibiotics the causative bacteria are sensitive to.



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A Stepwise Approach to Building a Stewardship Program

1. Form an antimicrobial stewardship committee
2. Develop a business case based on the baseline assessment
3. Start with a single priority area of the AMS program e.g.
 - Reducing inappropriate use of carbapenem, or 3rd generation cephalosporin
 - Improving adherence to guidelines for empiric treatment for community acquired pneumonia or sepsis
 - Ensuring appropriate use of antibiotics during surgical prophylaxis
4. Ensure appropriate policies or guidelines are in place, especially for the priority area
5. Educate staff and publicize stewardship campaign
6. Implement stewardship activities targeted as priority



The AMS Committee / Team

The AMS committee has big role in the planning and implementation of the Antimicrobial Stewardship Program activities

The Committee/ team responsible for AMS implementation will comprise of:

1. Physician/ID specialist/Consultant/Medical specialists- Team Lead*
2. Pharmacist – Co-lead, Lead in drug expertise
3. Medical officers
4. Clinical officers
5. Nurses
6. Infection prevention and control personnel & hospital epidemiologists
7. Quality improvement staff
8. Laboratory staff
9. Information technology staff

****or senior most clinician***



AMS Committee / Team Roles..

Physician/ID specialist/Consultant/Medical specialist- Team Lead

- An infectious disease specialist or physician with expertise in infection management is crucial for guiding AMS teams in diagnosing and treating infections.
- This expert also plays a key role in developing guidelines, providing consultations, and evaluating the effectiveness of AMS programs.

Pharmacist: co-lead of the AMS program

- Offer expertise in antimicrobials.
- They play a vital role in guideline development, antimicrobial supply management, prescription review, surveillance, AMS audits, optimization of antimicrobial therapy, promoting best practices and improve patient safety.



AMS Committee/ Team Roles..

Medical Officers/Clinical Officers

- As the prescribers of antimicrobials, it is vital that clinicians are fully engaged in and supportive of efforts to improve antibiotic use in hospitals.

Infection prevention and control personnel & hospital epidemiologists

- Coordinate facility-wide monitoring and prevention of healthcare-associated infections
- Bring their skills to auditing, analyzing and reporting data
- Educating staff on the importance of appropriate antimicrobial use.
- Support implementation of strategies to optimize the use of antimicrobials.

Quality improvement staff

- Monitor antimicrobial use to optimise medical quality and patient safety
- Advocate for adequate resources and integrate stewardship interventions into other quality improvement efforts



AMS Committee/ Team Roles..

Laboratory staff

- "Diagnostic stewardship"- Guide the proper use of tests and the flow of results
- Guide empiric therapy by creating and interpreting a facility cumulative antibiotic resistance report, known as an antibiogram
- Lab and stewardship staff can work collaboratively to ensure that lab reports present data in a way that supports optimal antibiotic use
- Education on best practices of specimen collection

Information technology staff/ Health Records information officers

- Integrating stewardship protocols into existing workflow
- Implementing clinical decision support for antimicrobial use
- Creating prompts for action to review antibiotics in key situations
- Facilitating the collection and reporting of antibiotic use data



AMS Committee/ Team Roles..

Nurses

- Assure that cultures are performed before starting antibiotics
- Review medications as part of their routine duties and can prompt discussions of antibiotic treatment, side effects, indication, and duration, identify opportunities for IV to oral switch
- Monitor the correct handling of patients' invasive devices



AMS Committee-Staffing Recommendations

- There is no consensus on staffing recommendations; however, hospitals with existing programmes suggest that for every 100 patient beds, at least 10 hours of clinical pharmacist and 3.5 hours of lead clinician time per week should be dedicated to AMS activities.
- WHO's AMS guidelines can be used to guide institutions on staffing and other stewardship requirements



2. Develop a Business Case

- Present the Action Plan to source for the funding and support that is required
- The metrics that can support the establishment of an AMS program include:
 - Reduced expenditure on antimicrobials
 - Reduced incidence of infections due to MDR organisms
 - Reduced length of stay
 - Reduced morbidity and mortality



3. Start with a Single Priority Area of the AMS Program

- Choose an area of focus that will be informed by:
 - The AMS committee or reviewed data on AMU or situational analysis or an expert opinion source
- Plan according to the resource availability (lab capacity, pharmacy etc.)
- Some of the areas that one can focus on in a facility:
 - Reducing inappropriate use of carbapenem, or 3rd generation cephalosporin antibiotics (Watch and Reserve antibiotics)
 - Improving adherence to guidelines for empiric treatment for community acquired pneumonia or sepsis
 - Ensuring appropriate use of antibiotics during surgical prophylaxis



4. Ensure Appropriate Policies or Guidelines Are In Place, especially for the Priority Area

- Align the chosen priority areas with the Standard treatment guidelines (STG's) which can be National, Regional or locally tailored to the facility
- Start with a short targeted plan on the priority area



5. Educate Staff and Publicize Stewardship Campaign

- Ensure Consistent /ongoing education and sensitizations
- Education can be general or targeted depending on priority area e.g surgical prophylaxis targeting surgeons.
- Publicize the stewardship campaign
- Alert staff on upcoming events (text messages, social media, emails)
- Engage champions in the awareness campaign e.g. senior surgeons, physicians to lead in campaign
- Engage leadership and administration among other stakeholders to influence and engage others



6. Implement Stewardship Activities Targeted at the Priority Area

- Implement the priority areas in reference to the core elements of Antimicrobial Stewardship Program
- Start small (focusing on available resource)
- Be realistic



Conduct Monitoring, Evaluation and Surveillance of the AMS Program

- Have SMART objectives
- Develop indicators around those objectives
- Regular monitoring of the program and conduct evaluation through audits
- Provide regular feedback to all the relevant stakeholders involved



Key Points

1. **Align** AMS with IPC, diagnostics, and local resources.
2. **Assess** gaps using SWOT analysis before starting.
3. **Build** a multidisciplinary AMS team with defined roles.
4. **Track** antibiotic use (AMU/AMC) to guide interventions.
5. **Follow** WHO's AWaRe framework to prioritize rational use.
6. **Start small** (e.g., carbapenems), then expand with education and policies.
7. **Monitor** with SMART goals, audits, and feedback for sustainability.



The End



You have come to the end of this module. Kindly attempt module 5 quiz before proceeding to module 6