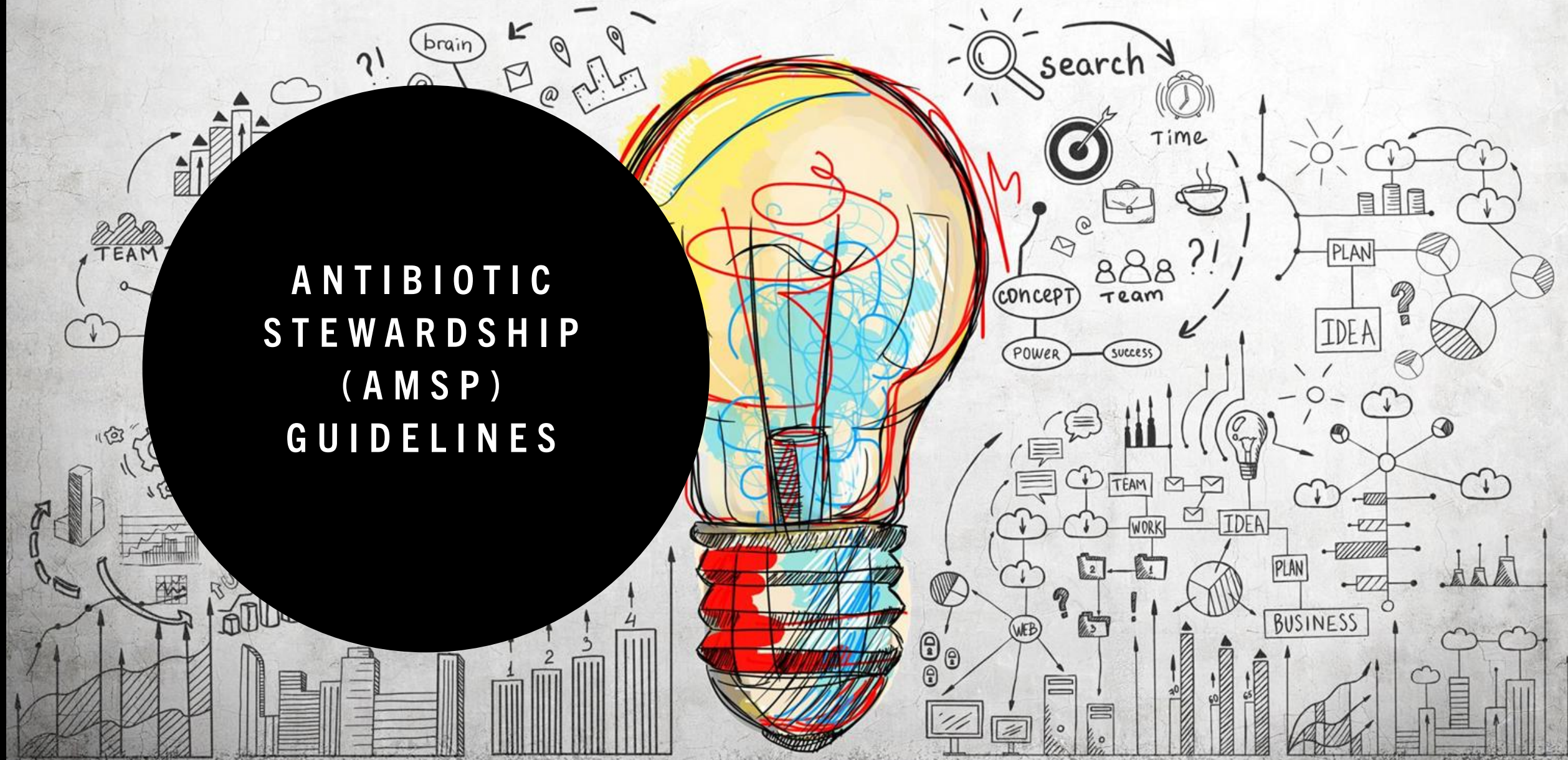
ANTIBIOTIC STEWARDSHIP (AMSP) GUIDELINES



Guidelines	CDC	WHO
Core Elements of AMSP	1. Hospital leadership commitment 2. Accountability 3. Drug Expertise 4. Action 5. Tracking 6. Reporting 7. Education	Same as CDC
AMSP Guidelines	AMSP Guidelines on resource limited settings 1. Basic: require only limited resources 2. Intermediate: require some resources, planning, and dedicated staff 3. Advanced: require establishment of a formal program with trained staff and dedicated resources	Divided into State/Regional Core Elements in LMICs 1. National Plan & Strategies 2. Regulation & Guidelines 3. Awareness, Education & Training 4. Supporting Technologie

Guidelines

Implementation of AMSP In Resource Limited Settings as per CDC

BASIC

1. Promote the creation of national committees and teams with clear terms of reference.

2. Develop national and/or sub-national antibiotic stewardship action plans

3. Participate in antibiotic awareness campaigns.

4. Adopt policies requiring prescription.

INTERMEDIATE

1. Develop and ensure access to recommended formularies

2. Create and promote adherence to evidence-based treatment guidelines for common clinical syndromes

3. Promote diagnostic stewardship

4. Support inclusion of antibiotic stewardship training in pre- service curriculums or stand-alone.

ADVANCED

1. Enforce policies requiring prescriptions.

2. Track antibiotic dispensing using available data and set national targets for improvement.

3. Measure antibiotic use and assess appropriateness.

4. Describe resistance patterns to improve treatment guidelines and identify priority pathogens.

5. Monitor antibiotic quality.

6. Address drivers of inappropriate prescribing behaviour.

Guidelines

IMPLEMENTATION OF AMSP IN RESOURCE LIMITED SETTINGS AS PER WHO

NATIONAL PLANS AND STRATEGIES

1. National action plan on AMR that states AMS is a priority.

2. Dedicated funding for the national action plan on AMR.

3. Technical working group on AMS established with clear terms of reference.

4. National AMS implementation plan or policy endorsement.

5. Monitoring and evaluation mechanism in place for the national action plan on AMR.

REGULATION & GUIDELINES

1. Integration of the AWaRe classification of antibiotics in the national EML and formulary.

2. Up-to-date clinical guidelines that include AMS principles and integrate the AWaRe classification of antibiotics.

3. Regulations on fixed-dose combinations of antibiotics.

4. Regulations on prescription-only sale of antibiotics.

5. Measures in place to ensure continued availability of quality-assured antibiotics.

6. Measures in place to ensure affordability of essential antibiotics.

GUIDELINES	CDC	WHO
IMPLEMENTATION OF AMSP IN RESOURCE LIMITED SETTINGS	STEPWISE APPROACH TO BUILDING A STEWARDSHIP PROGRAM 1. Form an antibiotic stewardship committee. 2. Start with a single priority area of the ASP. 3. Ensure appropriate policies or guidelines are in place, especially for the priority area. 4. Educate staff and publicize stewardship campaign. 5. Implement stewardship activities targeted at	AWARENESS, EDUCATION & TRAINING 1. Regular public antibiotic awareness campaigns. 2. Education in schools on basic infection principles. 3. Training on AMS competencies for AMS team members. 4. Education and training for all health-care professionals on AMS. 5. Incentives to support implementation of AMS programmes in all health-care facilities, including staffing standards, training and accreditation. SUPPORTING TECHNOLOGIES & DATA 1. National surveillance system on AMC in place. 2. National surveillance system on AMR in place with laboratory capacity to guide optimal use of antibiotics in clinical practice and update clinical guidelines. 3. Diagnostic tests available and capacity building undertaken to optimize antibiotic use

GUIDELINES FOR EVALUATION OF AMSP IN RESOURCE LIMITED SETTINGS AS PER CDC

MONITORING AND EVALUATING PROCESS

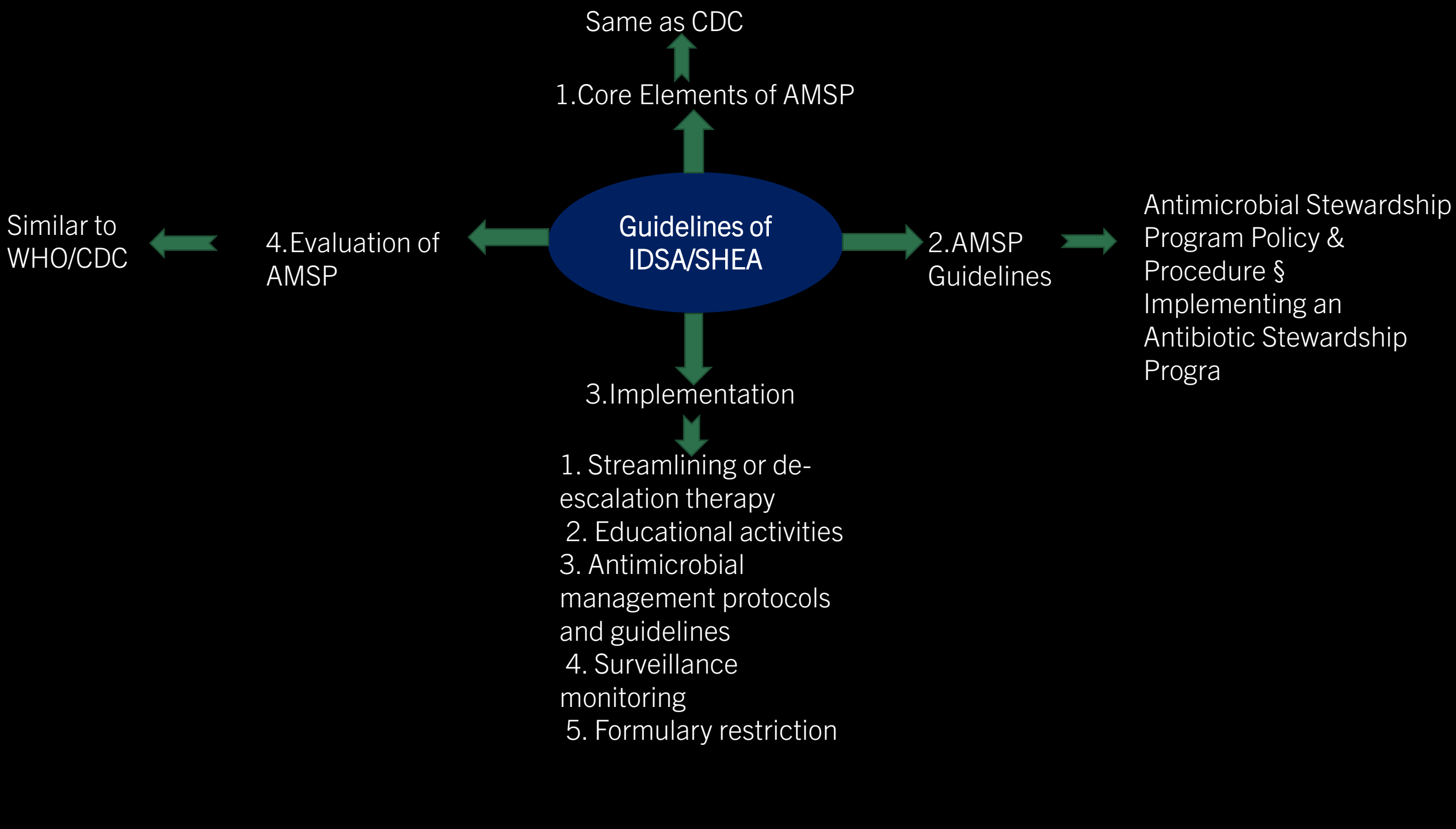
- Total antibiotic use (measured as days of therapy or defined daily dose).
- Appropriateness of antibiotic selection, dose and duration (e.g. % prescriptions that adhere to local guidelines for a given condition)
- Cost (e.g. a cost-effectiveness analysis of the program)
- Resistance
- Clinical outcomes (e.g. rates of Clostridioides difficile or methicillin-resistant Staphylococcus aureus infections)

GUIDELINES FOR EVALUATION OF AMSP IN RESOURCE LIMITED SETTINGS AS PER WHO

INDICATORS

- PPS Data/ Audit Data
- DDD/1000 patient days
- DDD/admission
- Antimicrobial Consumption data
- Mortality
- Length of Sta

- Documented indication for antibiotic use .
- Stop/review date .
- Compliance with current clinical treatment guidelines .
- Length of therapy by indication .
- 48-hour review .
- De-escalation.
- IV-to-oral switch .
- Compliance with current guidelines for surgical prophylaxis (antibiotics) .
- Surgical prophylaxis within the previous 60 minutes .
- Surgical prophylaxis stopped within 24 hours.


Same as CDC
1.Core Elements of AMSP
Guidelines of IDSA/SHEA
Similar to WHO/CDC
4.Evaluation of AMSP
2.AMSP Guidelines
Antimicrobial Stewardship Program Policy & Procedure § Implementing an Antibiotic Stewardship Progra
3.Implementation
1. Streamlining or de-escalation therapy
2. Educational activities
3. Antimicrobial management protocols and guidelines
4. Surveillance monitoring
5. Formulary restriction

GUIDELINES OF NATIONAL [ICMR]

1. Core Elements of AMSP	Same as CDC and WHO
2. AMSP Guidelines	Guidelines on Implementation of AMS
3. IMPLEMENTATION	1. Appropriate antimicrobial therapy. 2. Optimizing antimicrobial prophylaxis for operative procedures. 3. Developing and implementing an antibiotic policies and standard treatment guidelines (STG). 4. Prospective auditing and providing feedback and timely intervention in streamlining the antibiotic prescriptions. 5. Formulary restriction/ pre-authorisation. 6. Improving antimicrobial prescribing by educational and administrative means.

EVALUATION OF AMS	STRUCTURAL INDICATORS a. Availability of multi-disciplinary antimicrobial stewardship team b. Availability of guidelines for empiric treatment and surgical prophylaxis. c. Provision of education in the last 2 years PROCESS MEASURES a. Amount of antibiotic in DDD/100 bed days b. Compliance with acute empiric guidance c. Percentage of appropriate de-escalation d. Percentage of appropriate switch from IV to oral . e. Compliance with surgical prophylaxis § Compliance with care bundles. OUTCOME MEASURES a. C. difficile rates § Surgical site infection b. Surveillance of resistance c. Mortality Balancing measures d. Mortality e. SSI rates f . Re-admission within 30 days of discharge g. Admission to ICU h. Rate of complications i. Treatment-related toxicity

GUIDELINES	IDSA/SHEA	NATIONAL [ICMR]
Implementation Tools	• Emergency Department and Urgent Care Stewardship Toolkit • Adult Inpatient Antibiotic Approval Form Antibiotic Recommendation Form, • Blank Order Set for Antifungal Therapy, Toolkit for Reduction of Clostridium difficile Infections Through Antimicrobial Stewardship (AHRQ) • Sample Daily Pharmacist Checklist • Drug Use Evaluation Form • IV to PO Guidelines, • IV to PO Worksheet, Justification and Protocol for Extended-Infusion Piperacillin/Tazobactam in Adult Patients, • Antibiotic Streamlining – Sample Pharmacist's Daily routine.	Similar Tools of IDSA/SHEA

STRATEGIC APPROACHES TO ANTIMICROBIAL STEWARDSHIP

1.Appropriate antimicrobial therapy.

2.. Optimizing antimicrobial prophylaxis for operative procedures.

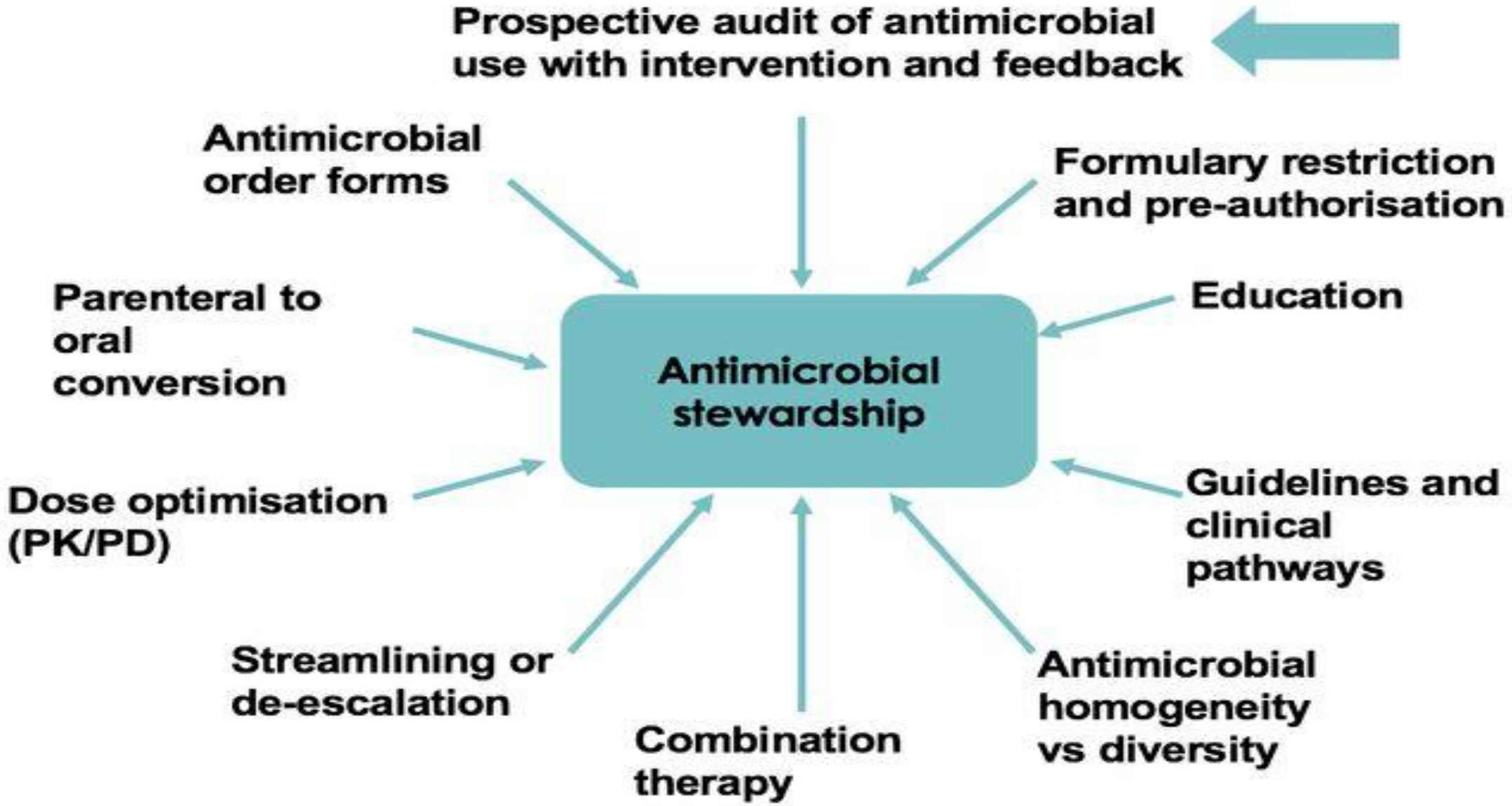
3. Developing and implementing an antibiotic policies and standard treatment guidelines (STG).

4. Prospective auditing and providing feedback and timely intervention in streamlining the antibiotic prescriptions.

5. Formulary restriction/ pre-authorisation.

6. Improving antimicrobial prescribing by educational and training sessions

Strategies for Antimicrobial Stewardship



Edited from Dellit TH. *Clin Infect Dis*. 2007;44:159-177

Indian States have Released their own Action Plan to Combat Antimicrobial Resistance

Guidelines	Delhi	Madhya Pradesh	Kerala
			
Strategic priorities	1.Improve awareness and understanding of AMR among all stakeholders through effective communication, education and training. 2. Strengthen knowledge and evidence through surveillance . 3. Reduce the incidence of infection through effective infection prevention and control. 4. Optimize the use of antimicrobial agents in health, animals and food . 5. Promote investments for AMR activities, research and innovation. 6. Strengthen collaboration to contain AMR.		

ETIOLOGY OF ANTIMICROBIAL RESISTANCE

CAUSES OF ANTIBIOTIC RESISTANCE

HANDLE ANTIBIOTICS WITH CARE

Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.

Over-prescribing of antibiotics

Patients not finishing their treatment

Over-use of antibiotics in livestock and fish farming

Poor infection control in hospitals and clinics

Lack of hygiene and poor sanitation

Lack of new antibiotics being developed

www.who.int/drugresistance

#AntibioticResistance

World Health Organization

ANTIBIOTIC RESISTANCE HOW IT SPREADS

HANDLE ANTIBIOTICS WITH CARE

Antibiotics are given to food producing animals and crops

Animals develop drug-resistant bacteria in their gut

Antibiotics are given to patients, which can result in drug-resistant bacteria developing in the gut

Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.

Drug-resistant bacteria reaches humans through food, the environment (water, soil, air) or by direct human-animal contact

Patient attends hospital or clinic

Drug-resistant bacteria spreads to other patients through poor hygiene and unclean facilities

Drug-resistant bacteria spreads to the general public

www.who.int/drugresistance

#AntibioticResistance

World Health Organization

FOCUSING AREAS OF AMR

KERALA-AMR STRATEGIC ACTION PLAN

Monitoring and Evaluation Framework

Priority indicators	Inputs(basic resources)	Process (activities)	Outputs (results at programme level)	Outcomes (results at population level)
1. Awareness and Understanding	• IEC materials for relevant groups (public, farmers, professionals in health, agriculture and environment sectors) developed.	• AMR awareness campaign organized • Awareness activities for media at State, District and subdistrict level • AMR module developed for CME/CPD for relevant professional groups	• Number of print articles covering AMR. • Inclusion of AMR in curricula of professional Universities [KUHS, KVASU]. • Inclusion of AMR in curricula at school and college level.	• AMR awareness levels in target populations, e.g. % of population who know that it is inappropriate to use antibiotics for common cold or viral infections. • Knowledge, attitudes and practices of health workers and vets on AMR and its implications for antimicrobial use and misuse (via standard online survey)

Monitoring and Evaluation Framework

Priority indicators	Input (basic resources)	Process (activities)	Outputs (results at programmee level)	Outcomes (results at population level)
2. Knowledge and Evidence.	• State Coordinating Centre for AMR surveillance established with clear terms of reference. • Operational plan developed for AMR surveillance .	• Number of hospitals - /laboratories participating in quality assurance programmee . • SOPs established for AMR surveillance in animals, aquaculture and environment. • AMR data received from all sectors.	• Surveillance system for AMR in animals, food and environment established. • Report on AMR (humans, animals/food/aqua culture and environment) and AM residues in food and environment.	• Reduced levels and trends of resistance in E. coli, Klebsiella spp., Pseudomonas aeruginosa, Acinetobacter spp., MRSA and Enterococcus spp

Monitoring and Evaluation Framework

Priority indicators	Input (basic resources)	Process (activities)	Outputs (results at programmee level)	Outcomes (results at population level)
3. Infection Prevention and Control.	• State nodal institution identified for IPC.	• % hospitals with functioning IPC committee. • % hospitals with adequate IPC nurses. • AMR issues incorporated in biosecurity guidance for farms and slaughterhouses.	• Hib/rotavirus/typhoid, PCV vaccine coverage across the state. • Proportion of acute health care facilities with IPC program in place (including monitoring of hand hygiene). Number of health facilities with new or refurbished WASH facilities. Number of commercial farms compliant with infection prevention guidelines and good practices.	• Average hand hygiene compliance rates in hospitals and primary care centers. Percentage of health facilities with functional water, sanitation and hygiene under Kayakalp/SBM. • Number of pharmaceutical companies manufacturing antibiotics having effluent treatment plants.

Monitoring and Evaluation Framework

Priority indicators	Input (basic resources)	Process (activities)	Outputs (results at programmee level)	Outcomes (results at population level)
4. Optimising Use of Antibiotics.	• State nodal institution identified for antimicrobial stewardship	• Treatment guidelines reviewed and updated considering patterns of resistance and use. • Monitoring antimicrobial use (AMU)/consumption at facility level. Legislation approved, banning sales of antibiotics incorporated in animal food. Vets involved in drug control in the state Methodology developed for calculating antimicrobial use at	• Numbers of hospitals with updated AB guidelines based on local AMR pattern. • Percentage of tertiary care hospitals with AB stewardship programmee. • Percentage of medical colleges/hospitals with AB stewardship programmee. Implementation of ban/restrictions on antibiotic premixed food in animal husbandry and	• Total consumption of antibiotics monitored (state level). • % of antibiotics tested by State Drug Controller with acceptable quality.

Monitoring and Evaluation Framework

Priority indicators	Input (basic resources)	Process (activities)	Outputs (results at programmee level)	Outcomes (results at population level)
5. Research and Innovations.		• State AMR research agenda established Collaboration between Rajiv Gandhi Centre and stakeholders for AMR research.	• Financing sources for KARSAP identified Monitoring indicators at state level (% major hospitals and labs reporting to government).	• Proportion of KARSAP activities (1) With identified funds (2) Adequately funded and implemented.
6. Collaborations	• State AMR monitoring cell established .	• State AMR monitoring cell functional Number of AMR projects under PPP.	• State AMR forum established and functional.	• Data/information from KARSAP to be reported to State and Central Government** .

STATE ACTION PLAN TO COMBAT ANTIMICROBIAL RESISTANCE IN DELHI

Monitoring and Evaluation Framework

Input (basic resources)	Process (activities)	Outputs (results at programme level)	Outcomes (results at population level)
• IEC resources for relevant groups – public and farmers) developed. • Training resources developed for professionals in health, veterinary, food, agriculture and environment.	• AMR awareness campaign among students (schools and professional colleges), public, government and private healthcare providers, pharmacists, veterinarians in all districts. • Engagement of media for raising AMR awareness. • KAP studies in health workers and vets on AMR and its implications.	• Number of print articles covering AMR. • Total number of minutes of audiovisual clips aired. • Inclusion of AMR in curricula of professional universities. • Inclusion of AMR in curricula at school and college level. • Number of KAP studies and numbers of each target group covered.	• AMR awareness levels in target populations, e.g. percent of population who know that it is inappropriate to use antibiotics for viral infections or avoiding self-medication. • Improvement in KAP of health workers and veterinarians on AMR and antimicrobial use .

Monitoring and Evaluation Framework

Input (basic resources)	Process (activities)	Outputs (results at programme level)	Outcomes (results at population level)
• State Coordinating Centre for AMR surveillance established with clear terms of reference.	• Number of microbiology laboratories (all sectors) participating in quality assurance programme. • SOPs established for AMR surveillance and antimicrobial residues in food-animals, agriculture, food and environment	• Surveillance systems established for AMR and (antimicrobial residues) in human, animals, food and environment.	• Reduction in AMR levels in E. coli, Klebsiella spp., Pseudomonas aeruginosa, Salmonella, Acinetobacter spp., MRSA and Enterococcus spp.

Monitoring and Evaluation Framework

Input (basic resources)	Process (activities)	Outputs (results at programme level)	Outcomes (results at population level)
• Delhi State Health Mission (DSHM) identified as IPC coordinator.	• Percent hospitals with functioning hospital infection control committee (HICC). • Percent hospitals with adequate ICNs. • AMR issues incorporated in biosecurity guidance for farms and slaughterhouses	• Hib/rotavirus/typhoid, PCV vaccine coverage across Delhi . • Proportion of hospitals and nursing homes with IPC programme in place (including monitoring of hand hygiene). • Number of hospitals with WASH facilities. • Number of commercial poultry farms compliant with IPC guidelines and good practices.	• Improved average hand hygiene compliance rates in hospitals and Mohalla Clinics. • Percent HAI rates in health facilities under Kayakalp (and private sector) • .Number of hospitals with effective BMW management. • Number of pharmacetical companies manufacturing antibiotics with effluent treatment plants. Number of licenses issued or revoked by DPCC.

Monitoring and Evaluation Framework

Input (basic resources)	Process (activities)	Output (results at programme level)	Outcomes (results at population level)
• Delhi State Antibiotic Policy. • Number of notices issued by drug control department (DCD) regarding over the counter (OTC) sale of H1 antibiotics. • Number of notices issued by DCD regarding OTC sale of Schedule H antibiotics.	• Treatment guidelines developed as per Delhi's Antibiotic Policy for human health. • STG for animal health. • Analysis of antibiotic consumption in Delhi Government hospitals. • Collate data on total antibiotic consumption in Delhi (based on sale, import, distribution, etc.)	• Numbers of hospitals with updated antibiotic guidelines, based on local antibiogram, aligned with Delhi's STG. • Percentage of medical colleges/ hospitals implementing antimicrobial stewardship programme. • Implementation of ban/ restrictions on antibiotic premixed food in animal husbandry and aquaculture	• Annual consumption of antibiotic in Delhi. • Percent of hospitals monitoring trends of antibiotic consumption. • Percent of antibiotics tested by DCD with acceptable quality (human and nonhuman). • Ban on incorporation of antibiotics in pre-mixed animal feeds

Monitoring and Evaluation Framework

Input (basic resources)	Process (activities)	Outputs (results at programme level)	Outputs (results at programme level)
• AMR research network established. Financial and human resources allocated.	• Delhi state AMR research agenda established.	• Number of research projects on AMR.	• Percent fund utilization for AMR activities.

Input (basic resources)	Process (activities)	Outputs (results at programme level)	Outputs (results at programme level)
• Annual stakeholder meeting during WAAW.	• Number of meetings of Advisory Committee on AMR. • Number of meetings of Technical Committee on AMR .Number of professional associations engaged for AMR.	• Sector-specific ATRs .	• Percentage of sectors actively engaged in combating AMR .

MP-SAPCAR

Monitoring and Evaluation Framework

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
• Awareness and understanding	• Mp State Antibiotic policy . • NHM and AIIMS Bhopal collaboration for containment of AMR. • IIMAR activities coordinated by RDGMC , Ujjan .	• AMR awareness campaign among students ,public media, govt and private health care providers at various level (district and sub-district level), pharmacists, vets and others.	• Number of print articles covering AMR. • Total number of minutes of audio-visual clips aired.	• AMR awareness levels in target population e.g. %of population who know that it is inappropriate to use antibiotics for viral infections . • Knowledge , attitudes and practices of health workers and vets on AMR and its implications for antimicrobial use and misuse (via online survey).

Monitoring and Evaluation Framework

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
2. Knowledge and Evidence	• Resource Centre Of Tropical and Infectious Diseases(RCTID) established at AIIMS Bhopal.	• Number of microbiology laboratories participating in quality assurance programme. • SOPs established for AMR surveillance in animals ,aquaculture and environment .	• Surveillance systems established for AMR in human ,animals , food .	• Reducing trends of MDR E.coli , Klebsiella spp., Pseudomonas aeruginosa , Salmonella, Acinetobacter spp., MRSA and Enterococcus spp.

Monitoring and Evaluation Framework

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
3. Infection Prevention & Control	• Active QA team at NHM.	• % hospital with functioning IPC/HICC committee. • % hospital with adequate IPC nurses . • AMR issues incorporated in biosecurity guidance for farms and slaughterhouses.	• Hib/rotavirus/typhoid PCV vaccine coverage across MP. • Proportion of acute health care facilities with IPC programme in place (including monitoring of hand hygience). • Number of health facilities with WASH facilities.	• Average hand hygiene compliance rates in hospitals and PHCs. • %HAI rates in health facilities under Kayakalp. • Number of hospitals with effective BMW management. • Number of pharmaxceutical companies manufacturing antibiotics with effluent treatment plants .

Monitoring and Evaluation Framework

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
4. Optimizing Uses Of Antibiotics	• Number if notices issued by Food and Drug Administration for OTC sale if antibiotics . • Online system for distribution of drugs to Govt. Hospitals . • AMSP network established .	• Treatment guidelines reviewed and updated as per MP Antibiotic Policy for human health.	• Numbers of hospitals with updated AB guidelines based on local AMR patterns. • Percentage of medical colleges /hospitals with AMP. • Implementation of ban/restrictions on antibiotic premixed food in animal husbandry and aquaculture.	• Monitoring of total amount of antibiotics consumed (state level). • % of antibiotics tested by State Drug Controller with acceptable quality. • Banning incorporation of antibiotics in animal food . • Involvement of veterinariansin implementation of MP-SAPCAR.

Monitoring and Evaluation Framework

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
5. Research and Innovations .	• AMR research network established .	• MP State AMR research agenda established .	• Financial sources to be identified. • % of hospitals & labs reporting to government.	• % of fund used for service delivery , teaching , training & research.

PRIORITY INDICATORS	INPUTS	PROCESS	OUTPUTS	OUTCOMES
6. Collaborations	• Annual stake holder meeting during WAAW.	• AMR Steering Committee and AMR Technical Committee established .	• Intersectoral coordination meetings organized to share results from each sector .	• Number of meetings held of AMR governance mechanisms. • % of points implemented by next meeting.

INTERNATIONAL ANTIBIOTIC STEWARDSHIP GUIDELINES

7

CORE

ELEMENTS

OF

HOSPITAL

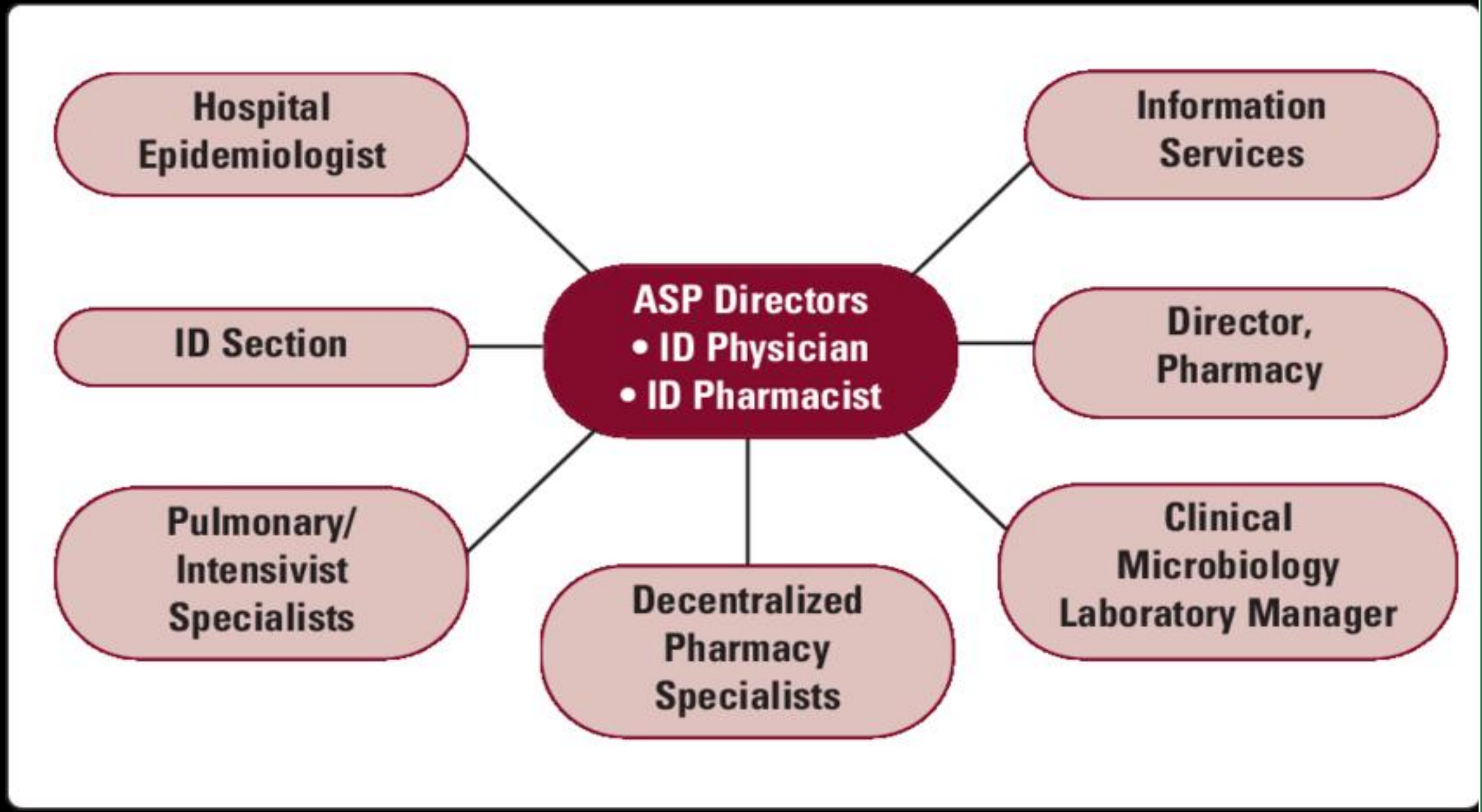
ASP

CDC Core Elements

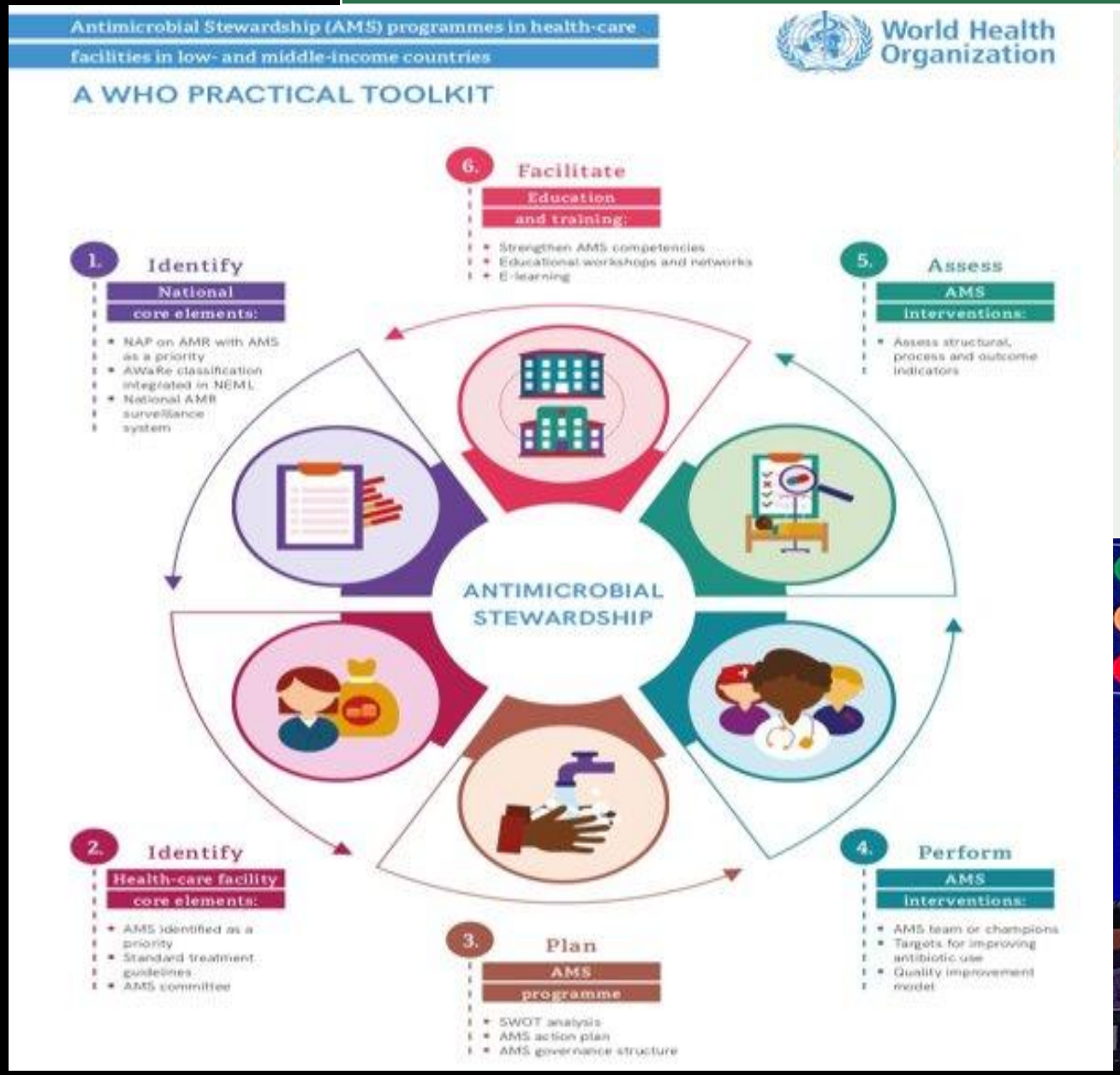
Antibiotic Stewardship

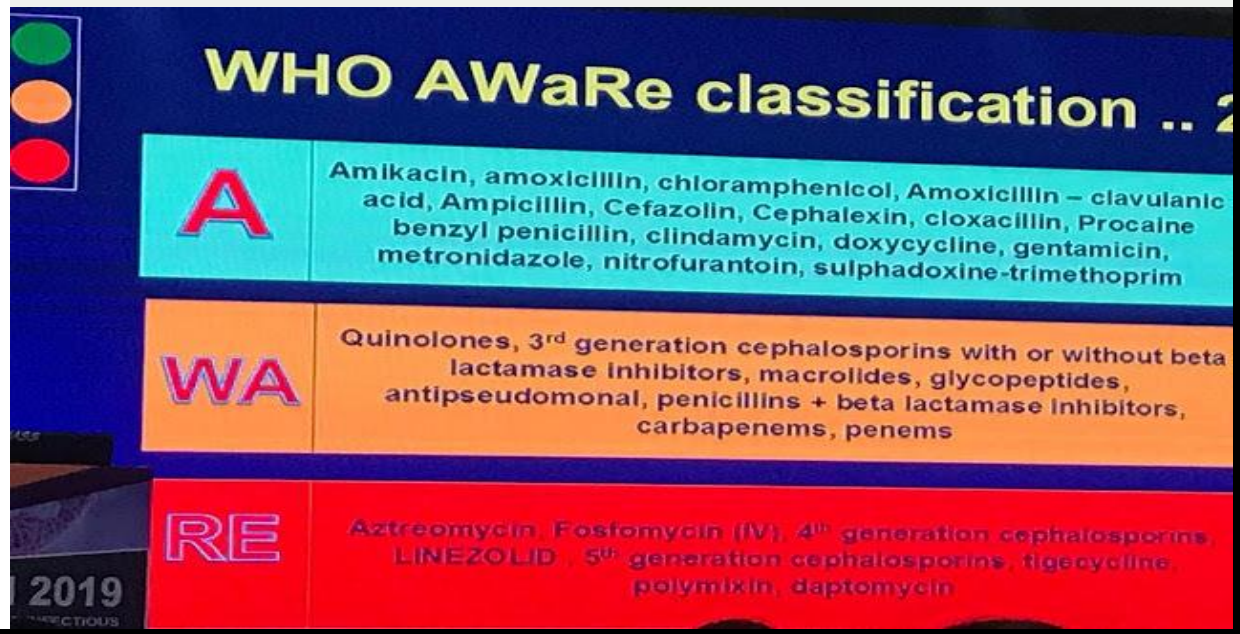
[13] Centers for Disease Control and Prevention, CDC, *"Core Elements of Hospital Antibiotic Stewardship Programs."*

STEWARDSHIP TEAM



TOOLS FOR IMPLEMENTATION





FEW MODULES IN STEWARDSHIP PROGRAM

Module 1

Antimicrobial Stewardship Systematic Thinking Approach

- Principles &Goals of Antimicrobial Stewardship
- Systematic Thinking in Infected Patients
- Microbiology of Bacteria
- Clinical Pharmacology of Antibiotics
- Antimicrobial Pharmacokinetics/ Pharmacodynamic
- Stewardship Algorithm
- Antimicrobial Stewardship Toolkits

Module 2

Antimicrobial Stewardship Guidelines

- Upper & Lower Respiratory Tract Infections(ULRTI & LRTI)
- Urinary Tract Infections (UTI)
- Infective Endocarditis
- Sepsis
- Clostridioides Difficile Infection (CDI)
- Acute Bacterial Skin and Skin Structure Infection (ABSSSIs)
- Catheter-Related Blood Stream Infection (CRBSI)
- Antimicrobial Prophylaxis & Surgical Site Infection (SSI)
- Antifungal Stewardship

Module 3

Antimicrobial Stewardship in Acute Care Setting

- Strategies for Stewardship Intervention
- Stewardship Outcome in Acute Care Settings
- Antimicrobial Stewardship Committee
- Infection Control & Antibiogram
- Antimicrobial Stewardship Policy/ Guidelines/ Proposal

Module 4

Antimicrobial Stewardship in Long-Term Care (LTC)

- Pharmacokinetics/ Pharmacodynamics for Physician
- Approach to Infection in Older Adult
- Guide to Manage LTC Common Infections
- Stewardship Intervention & Outcomes in Long-Term Care (LTC)
- Nursing's Role in Antibiotic Stewardship

Module 5

Antibiotic Stewardship in Ambulatory Care

- Guide to Antibiotic Stewardship in Ambulatory Settings
- Community Stewardship Business Plan
- Road Map for Ambulatory ASP
- Patients as a Guardians of Antimicrobial Stewardship

Module 6

Out-Patient Parenteral Antimicrobial Therapy (OPAT)

- Clinical Efficacy and Cost-Effectiveness of OPAT
- Comparison of OPAT Techniques/ Outcomes
- OPAT Good Practice Recommendations
- Write a Relevant OPAT Policy
- OPAT Outcome Assessment

Module 7

Antibiotic Stewardship Strategic and Sustainability Plan

- Action Plan for Antimicrobial Stewardship
- Strategic & Sustainability Plan for Antimicrobial Stewardship
- Essential Resources & Strategies for Antimicrobial Stewardship

LEADERSHIP COMMITMENT/AC-COUNTABILITY

- Designate a physician (e.g.,CMO) that reports to C-suite to be accountable for the outcomes of the antibiotic stewardship.
- Approve a policy for the creation and/or expansion of the antibiotic stewardship program to include all core elements.
- Integrate stewardship activities into ongoing quality improvement and/or patient safety efforts in the hospital (e.g., efforts to improve sepsis management)
- Create a reporting structure for the stewardship program to ensure that information on stewardship activities and outcomes is shared with facility leadership and the hospital board (e.g., semi-annual stewardship update at the board meeting).
- Issue a formal board-approved statement on the importance of the antibiotic stewardship program and include in the hospital's annual report.
- Issue a statement from the hospital leadership (e.g., medical, pharmacy and nursing) to all providers and patients highlighting the hospital's commitment to improving antibiotic use.
- Support training for hospital stewardship leaders on antibiotic stewardship through on-line or in

DRUG EXPERTISE

- Appoint a pharmacist leader. Consider having stewardship as part of the job description or service contract of the pharmacist leader and ensure that leaders have dedicated time to spend on developing and maintaining a stewardship.
- Appoint a physician leader to provide physician support to the antibiotic stewardship program.
- Offer access to training courses on antibiotic stewardship to help develop local.
- Seek additional expertise by joining multi-hospital improvement collaboratives or through remote consultation (e.g. telemedicine.)

- Community - acquired pneumonia (CAP), urinary tract infections (UTIs) and skin and soft tissue infections (SSTIs) – Areas to improve antibiotic use.
- Resources can be maximized by reviewing courses of therapy of certain key antibiotics like carbapenems, piperacillin-tazobactam and anti-MRSA agents like vancomycin.
- To Stop or narrow the spectrum of therapy in cases where certain important and/or broad- spectrum antibiotics are prescribed as initial therapy.

- Calculating DDD, DOT, LOT.
- Measuring AMR rates .
- Clostridium difficile infections.
- Adherence to hospital guidelines .
- Monitoring how often patients are converted from I.V. therapy to oral form.
- Monitoring unnecessary or duplicate antibiotics prescribing.

- Prepare regular reports on the measures being tracked related to antibiotic Include these data as a standing report to key stakeholders within the facility, e.g., pharmacy and therapeutics, patient safety/quality, medical staff leadership/committees, and hospital board.
- If feasible, share provider-specific reports with individual clinicians .
- Distribute data and key messaging through staff newsletters and emails

- Provide targeted in-person or web-based educational presentations and messages to key provider, pharmacist and nursing groups at least annually (e.g., staff meetings for sections).
- One-on-one provider education/coaching (e.g., academic detailing).
- Incorporate antibiotic stewardship education into orientation for new medical, pharmacist and nursing staff and required annual provider educational programs.
- Incorporate antibiotic stewardship into (re)credentialing education
- Ask the patient-family advisory committee for input on patient education material

SWOT ANALYSIS FOR AMS

Example of a SWOT analysis for AMS readiness in a health-care facility

	HELPFUL	HARMFUL
INTERNAL/PRESENT FACTORS	**Strengths** *Core elements:* • AMR and AMS are a leadership priority. • IPC programme/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 costs for antibiotics • Prioritization of issues other than AMS in the facility • Low facility budget *Human resources:* • Too many nonfunctional 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

SWOT

- Over prescribing of antibiotics
- Over prescribing of broad spectrum antibiotics
- Unnecessary combination of antibiotics.
- Wrong antibiotic choice .
- Wrong antibiotic dose.
- Wrong dose interval
- Wrong route of administration .
- Wrong duration.

INDICATORS

- Documented indication for antibiotic use.
- Stop /review date.
- Compliance with current clinical treatment guidelines.
- Length of therapy by indication.
- 48-hour review.
- De-escalation .
- IV-to-oral switch.
- Compliance with current guidelines for surgical prophylaxis.
- Surgical prophylaxis within the 60min.
- Surgical prophylaxis stopped within 24hr after surgery.
- Dose optimization
- Renal dose adjustments.
- Pk/pd parameters


ANY
QUESTIONS?

Thank You!!!