



HEALTH HOLDING

HAFER ALBATIN HEALTH  
CLUSTER  
MATERNITY AND  
CHILDREN HOSPITAL

<b>Department:</b>	Infection Prevention and Control Department		
<b>Document:</b>	Multidisciplinary Policy and Procedure (MPP)		
<b>Title:</b>	Antimicrobial Stewardship Program		
<b>Applies To:</b>	Health Care Workers		
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## 1. PURPOSE:

- 1.1 To provide a process governing the Antimicrobial Stewardship Program (ASP) and proper antimicrobial prescribing.

## 2. DEFINITONS:

- 2.1 Antibiogram summarizes the cumulative proportions of pathogenic organisms that are susceptible to particular antimicrobials. This provides a profile of the susceptibilities of specific pathogenic bacteria to antimicrobial agents as tested in routine clinical microbiology practice.
- 2.2 Antimicrobial Stewardship Program (ASP) refers to a systematic approach to optimizing antimicrobial therapy through a variety of structures and interventions. ASP promotes not only limiting inappropriate use but also optimizing antimicrobial selection, dosing, route, and duration of therapy to maximize clinical cure or prevention of infection, while limiting the unintended consequences, such as the emergence of resistance, adverse drug events, and unnecessary costs.
- 2.3 An Antimicrobial Stewardship Committee (ASC) is a standing committee responsible for reviewing all Drug Formulary management requests related to antimicrobial agents; wherein the composition includes physicians and pharmacists specialized in the field of infectious diseases.
- 2.4 Clinical Pathway refers to a multidisciplinary standardized plan of care that describes the course of events in the treatment of patients with similar problems with specific time line, incidents/actions/interventions which must take place, and resources that should be used to achieve desired, standardized outcomes.
- 2.5 Defined Daily Dose (DDD) is the assumed average maintenance dose per day for a drug used for its main indication in adults.

## 3. POLICY:

- 3.1 It is a priority for each hospital to improve the use of antimicrobial agents with the establishment of an ASP, which resides within the hospital's highest quality improvement and patient safety governance structure, as well as, the hospital's quality and safety strategic plan.
- 3.2 The development of antibiotic guidelines and the associated clinical pathways/protocols must be in accordance with the existing hospital standards, policies, and procedures for improving the appropriate use of antibiotics.
  - 3.2.1 The antimicrobial guidelines must be reviewed and updated on a yearly basis by the AST or any other existing committee competent to address antimicrobial agents.
  - 3.2.2 The associated clinical pathways are based on internationally accepted standards of practice and clinical practice guidelines that incorporates relevant standards of care, protocols, and procedures.
  - 3.2.3 The associated clinical pathways must include disclaimer and waiver of liability statements that the recommendations given by AST are meant to serve as guidelines only and not intended to replace good clinical judgment and the ASP assumes no responsibility for any injury or damage resulting from the reliance thereof.

- 3.3 The ASC in each hospital monitors compliance upon the recommendations of the AST and ensures the following:
  - 3.3.1 Establish antimicrobial order tools for restricted antimicrobials by ASC for endorsement by the AST.
  - 3.3.2 That the antimicrobial usage are regularly conducted and reports on antimicrobial utilization are provided to clinical departments and executive management committees.
- 3.4 The AST in each hospital provide specific guidance regarding antibiotic prescribing for surgical infections and surgical prophylaxis in accordance with existing relevant hospital policy and procedures. It is also the functional responsibility of the AST to:
  - 3.4.1 Assist the prescriber or clinician for better utilization of the antimicrobial guidelines/ protocols and enhance de-escalation as well switching parenteral to oral when needed.
  - 3.4.2 Conduct review on the restricted antimicrobials concurrently with the guidelines in a timely manner and provide feedback on improving utilization.
  - 3.4.3 With the assistance of microbiology department, ensures that antibiograms are prepared on bi-annual basis to determine which antimicrobial is best against a strain of infection.
- 3.5 All clinicians and practitioners involved in antimicrobial ordering, dispensing, administration and monitoring antimicrobial resistance and antimicrobial stewardship practices must be properly educated and trained upon hiring to be granted initial privileges.
  - 3.5.1 Continuous education and trainings are conducted by the program to improve antimicrobial prescribing of clinicians
  - 3.5.2 Physicians with prescribing privileges must conform with the provisions stipulated in the hospital policies and procedures for prescribing antimicrobial agents.
  - 3.5.3 Prescribing physician are provided with seminars and/or training conferences in order to be updated in the hospital therapeutic guidelines, policies and procedures.
  - 3.5.4 The prescribing physician ensures that authorization is obtained from restricted drug physicians in accordance with the approved Antimicrobial Guidelines.
- 3.6 The antibiogram report is prepared & interpreted annually by hospital microbiologist and reported to the hospital IPC department and to the ASP team chairman.
- 3.7 Antibiogram is regularly discussed by antimicrobial stewardship committee with action plan and interventions to improve the use of antimicrobials and prevent resistance.
- 3.8 Education about AMR & optimal antimicrobial prescription are provided regularly to the HCWs at least biannually by the ASP team members (each per their role).

#### 4. PROCEDURE:

- 4.1 The Antimicrobial Stewardship Team (AST) is a hospital-based team of experts in the field of infectious diseases responsible in monitoring the appropriateness of antimicrobial usage. The ASP committee members includes:
  - 4.1.1 Consultant, Infectious Disease physician
  - 4.1.2 Clinical Pharmacists
  - 4.1.3 IPC Director
  - 4.1.4 IPC Practitioner
  - 4.1.5 Microbiologist
  - 4.1.6 Head of critical care units
  - 4.1.7 Head of operating room
  - 4.1.8 Head of surgical department
  - 4.1.9 Head of nursing services and
  - 4.1.10 Other departments as needed.
- 4.2 The Director/Acting Director of Infection Prevention and Control will allocate adequate resources in terms of manpower and time for dedicated AST.
  - 4.2.1 High-performing staff will be assigned/endorsed by Director/Acting Director, Infection Prevention and Control to the AST.
  - 4.2.2 The Director/Acting Director of Infection Prevention and Control will endorse the annual AST activities, review the progress of the AST, identify barriers and provide advices on specific

- stewardship related cases and issues.
- 4.3 The AST consists of the following:
- 4.3.1 Consultant, Infectious Diseases will serve as Team Leader and perform the following:
- 4.3.1.1 Provide expert advice, educate prescribers, and play a major role in the development and implementation of antimicrobial policy and prescription guidelines.
- 4.3.1.2 On weekends, on-call Infectious Diseases Consultant will provide expert advice on Antimicrobial Stewardship activities.
- 4.3.1.3 Use antimicrobial stewardship as clinical outcome measures and quality improvement, wherein the outcome measurements include, but not limited to the following:
- 4.3.1.3.1 Antimicrobial Resistance Prevalence Rate
- 4.3.1.3.2 Antimicrobial Defined Daily Dose (DDD)
- 4.3.1.3.3 Duration of Therapy (DOT)
- 4.3.1.3.4 Antimicrobial Cost
- 4.3.1.3.5 Clostridium difficile Infection Rate.
- 4.3.1.4 Clinical Pharmacist will perform the following:
- 4.3.1.4.1 Review antimicrobial orders in accordance with the Antimicrobial Guidelines and provide timely feedback (where applicable) to the prescriber.
- 4.3.1.4.2 Work with and educate ward pharmacists to identify potential patients for stewardship interventions (e.g. de-escalation, IV to oral switch etc.).
- 4.3.1.4.3 Ensure dose optimization is carried out especially for complex antimicrobials and complex clinical scenarios.
- 4.3.1.4.4 Enforce the approval system of restricted antimicrobials.
- 4.3.1.4.5 Collects and analyze local consumption and expenditure.
- 4.3.1.4.6 Leads and conducts appropriate antimicrobial audits.
- 4.3.1.4.7 Provide timely feedback for future improvement
- 4.3.1.4.8 Attends rounds with the AST
- 4.3.1.4.9 Provide guidance on measure selection, data collection, analysis, validation of measurement data and the process measurement, which includes the following:
- 4.3.1.4.9.1 Percent of compliance with the ASP recommendations; and
- 4.3.1.4.9.2 IV to Oral Switching Rate.
- 4.3.1.5 Infection Control Preventionist /Coordinator will perform the following:
- 4.3.1.5.1 Prepares surveillance and audit reports
- 4.3.1.5.2 Obtain and timely provision of data as required by the Program
- 4.3.1.5.3 Ensures complete filling of the forms (whenever applicable)
- 4.3.1.5.4 Provide help in organizing the administrative and educational activities.
- 4.3.1.6 Clinical Microbiologist will perform the following
- 4.3.1.6.1 Provision of timely and accurate reporting of culture and antimicrobial susceptibility data
- 4.3.1.6.2 Prepare antibiogram on bi-annual basis (every 6 months)
- 4.3.1.6.3 Work closely with the attending clinician, infectious diseases specialist and antimicrobial pharmacist in the management of patients with infections.
- 4.3.1.6.4 Ensures to adopt new technology or advances in microbiological identification and susceptibility testing.
- 4.4 Pre-authorization System for Restricted Antimicrobials
- 4.4.1 Each hospital has to have restricted antimicrobial policy where specific antimicrobials would be restricted by specific physicians in each hospital.

- 4.4.2 If a physician is not privilege to prescribe an antioibotic, he has to go over required steps to obtain authorization.
- 4.4.3 At initiation of treatment, the prescribing physician will provide a clinical rationale for antimicrobial initiation.
- 4.4.4 The prescribing physician will send the appropriate specimens to diagnostic microbiology before the administration of antimicrobials.
- 4.4.5 The prescribing physician will select the antimicrobial according to the hospital Antimicrobial Guidelines.
- 4.4.6 When prescribing restricted antimicrobial, the prescribing physician has to communicate with the AST in a timely manner to obtain the authorization.
- 4.4.7 Upon contacting AST, the prescribing physician will be able to provide detailed clinical status of the patient, indication for antimicrobial therapy, drug allergies and microbiology
- 4.4.8 The AST member will respond to the prescribing physician in a timely manner, discuss the case with the prescribing physician and on the basis of the information provided, may recommend the use of the restricted agent or recommend an alternative therapeutic option or recommend further investigations or clinical follow- up.
  - 4.4.8.1 Targeted restricted antimicrobials require approval within 24 hours for non-ICU orders and within 72 hours for ICU orders.
  - 4.4.8.2 Each hospital will design a mechanism for a timely efficient antimicrobial approval.
  - 4.4.8.3 The AST service is active on weekdays from 0800 to 1700 hours.
- 4.4.9 Approvals during the weekends will require authorization from the on-call Infectious Disease Consultant or their designee.
- 4.4.10 Clinical pharmacist in each clinical unit will identify patients in need for ASP intervention and help in making appropriate clinical decisions with the AST.
- 4.4.11 Compliance with the pre-authorization or pre-approval process will be audited on a regular basis by the AST.
- 4.5 Antimicrobial Review and Prescriber Feedback
  - 4.5.1 The AST will review and provide feedback at the unit level in wards with high antimicrobial usage (intensive care, oncology, hematology units, etc.)
- 4.6 Prescribing Physicians
  - 4.6.1 During continuation of treatment, the prescribing physician will monitor antimicrobial drug levels as required by the hospital policy and ensure daily consideration of de-escalation, intravenous-oral switch or stopping antimicrobials (based on clinical picture and laboratory results).
- 4.7 ASP Point-of-care (POC) interventions
  - 4.7.1 AST will provide direct feedback to the prescriber and an opportunity to educate clinicians on appropriate prescribing.
  - 4.7.2 ASP Point-of-care interventions will be determined by the Executive Management and experts, which includes but is not limited to the following:
    - 4.7.2.1 Reviewing appropriateness of choice of antimicrobial and eliminating dual therapy.
    - 4.7.2.2 Directed therapy based on microbiological studies.
    - 4.7.2.3 Dose optimization
    - 4.7.2.4 Parenteral-to-oral conversion
    - 4.7.2.5 Therapeutic drug monitoring
    - 4.7.2.6 Automatic stop orders
    - 4.7.2.7 Appropriateness of time of initiation of antibiotic therapy with respect to time of surgery for prophylactic use and with respect to time of cultures for therapeutic use.
- 4.8 Information Services and Informatics Division (ISID)
  - 4.8.1 As required by the AST, ISID will provide access to the Hospital Information System (HIS) electronic medical record (EMR), software and hardware support, as well as, support in maintaining electronic files, records, etc

**5. MATERIALS AND EQUIPMENT:**

**5.1 Forms and Records:**

5.1.1 Restricted Antimicrobial Order

**5.2 Materials and Equipment**

5.2.1 N/A

**6. RESPONSIBILITIES:**

6.1 It is the responsibility of Infection Prevention and Control, Medical Services and all other related departments to implement and monitor the provisions stipulated herein.

6.2 The Quality & Patient Safety Department / Quality Management Department in each hospital is responsible for monitoring compliance to all the provisions stipulated herein.

**7. APPENDICES:**





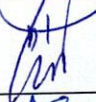


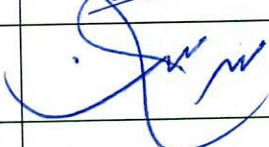

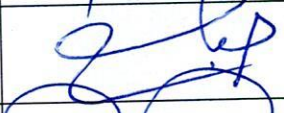



7.1 N/A

**8. REFERENCES:**






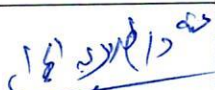


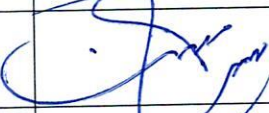

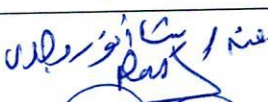



8.1 The GCC Infection Prevention and Control Manual . 3<sup>rd</sup> Edition 2018.

8.2 The Joint Commission. Joint Commission Joins White House Effort to Reduce Antibiotic Overuse. Jt Comm Perspect. 2015 Jul;35(7):4-11

9. APPROVALS:

	Name	Title	Signature	Date
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Reviewed by:	Dr. Mutlaq Al Dhafeery	Head of Pharmacy Department		November 25, 2024
Reviewed by:	Ms. Awatif Hamoud Al Harbi	IPC Director		November 26, 2024
Reviewed by:	Dr. Kawther M. Abdou	Clinical Pathology Consultant		November 27, 2024
Reviewed by:	Dr. Mohannad Yaghmour	Gyn & OBS Head of Department		November 27, 2024
Reviewed by:	Dr. Fahad Obeid Al Shammari	Head of PICU / Pediatrics Department		November 28, 2024
Reviewed by:	Dr. Sarhan Al Shammari	Head of NICU Department		November 28, 2024
Reviewed by:	Dr. Abdulgani Ibrahim	Head of OT / ICU Department		December 01, 2024
Reviewed by:	Mr. Sabah Turayhib Al Harbi	Nursing Director		December 02, 2024
Reviewed by:	Mr. Abdullellah Ayed Al Mutairi	Quality & Patient Safety Director		December 03, 2024
Reviewed by:	Dr. Thamer Naguib	Medical Director		December 04, 2024
Approved by:	Mr. Fahad Hazam Al Shammari	Hospital Director & IPC Committee Chairman		December 08, 2024

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Reviewed by:	Mr. Abdullellah Ayed Al Mutairi	Quality & Patient Safety Director		December 04, 2024
Reviewed by:	Dr. Thamer Naguib	Medical Director		December 05, 2024
Approved by:	Mr. Fahad Hazam Al Shammari	Hospital Director & IPC Committee Chairman		December 08, 2024

5.1.1 Restricted Antimicrobial Order

**Restricted Antimicrobial Order**

**Part I - To be completed by Prescribing Physician**

Please send the form to the Antimicrobial Stewardship e-mail once the physician and nurse sign it.

<input type="checkbox"/> Meropenem	<input type="checkbox"/> Imipenem	<input type="checkbox"/> Pip/Tazo	<input type="checkbox"/> Colistin	<input type="checkbox"/> Linezolid
<input type="checkbox"/> Tigecycline	<input type="checkbox"/> Caspofungin	<input type="checkbox"/> Anidulafungin	<input type="checkbox"/> Vancomycin (IV only)	
Infectious disease consult already requested:		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Diagnosis:	<input type="checkbox"/> Pneumonia	<input type="checkbox"/> UTI	<input type="checkbox"/> Meningitis/Encephalitis	<input type="checkbox"/> Osteomyelitis
	<input type="checkbox"/> Skin and Soft Tissue Infection		<input type="checkbox"/> Intra-abdominal Infection	<input type="checkbox"/> Septic Shock
	<input type="checkbox"/> Others: _____			

Justification of restricted antimicrobial use:

Empiric       Culture guided treatment.      Source: \_\_\_\_\_  
 Organism and Sensitivities: \_\_\_\_\_

Culture sent prior to antibiotic initiation:

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Blood culture x 2 sets	<input type="checkbox"/> CSF	<input type="checkbox"/> Sputum	<input type="checkbox"/> BAL	<input type="checkbox"/> Urinalysis & Urine Culture
		<input type="checkbox"/> Wound Culture/Location: _____				
		<input type="checkbox"/> Body Fluid (Specify): _____				

Prescriber contacted Antimicrobial (ASP) team (please check appropriate box)

Verbal:  Approval

No Approval, Alternatives recommended: \_\_\_\_\_

Person contacted: \_\_\_\_\_

Prescriber did not contact the ASP team (please contact ASP team within 24 hours for non-ICU and 72 hours for ICU & Hem/onc orders)

_____ Prescribing Physician/Designee (Name & Signature)	_____ Badge No.	_____ Pager No.	_____ Date/Time
_____ Nurse (Name & Signature)	_____ Badge No.	_____ Date/Time	

Send form to: \_\_\_\_\_

**Part II - To be completed by Antimicrobial Stewardship Team**

**Approved antimicrobial(s):** \_\_\_\_\_

Approved Duration: \_\_\_\_\_

Condition: \_\_\_\_\_

**Non-approved antimicrobial(s):** \_\_\_\_\_

Reason: \_\_\_\_\_

_____ Consultant/Designee (Name & Signature)	_____ Badge No.	_____ Date/Time
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**Part III - To be completed by Clinical Pharmacist**

Prescriber accepted ASP recommendation

Prescriber did not accept ASP recommendation

Infectious disease team consulted

_____ Clinical Pharmacist (Name & Signature)	_____ Badge No.	_____ Date/Time
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ASP Team/Clinical Pharmacist - Comments	Signature	Date

**Note:** A Patient with a life threatening condition due to a suspected infection can receive prompt antimicrobial dose without waiting for the approval.