

Brief update on ASM activities



AMERICAN
SOCIETY FOR
MICROBIOLOGY

Prof Dr Mohammad Murshed
Senior Consultant, ASM
General Secretary, BSMM



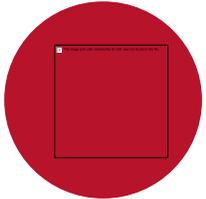
About ASM

With more than 30,000 members, including researchers, educators and health professionals, the American Society for Microbiology, founded in 1899, is one of the largest professional organizations dedicated to the life sciences.

What We Do

- Advance the Microbial Sciences
- Support Microbiology Professionals
- Improve Global Health
- Connect Science, Our Members and the Public

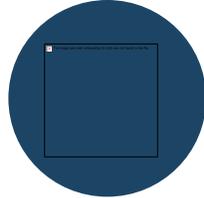
How we do?



PUBLISHING
HIGHLY-CITED
PUBLICATION
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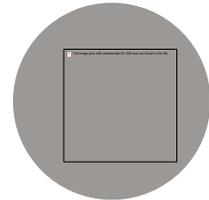
RUNNING MULTI-
DISCIPLINARY
MEETINGS



DEPLOYING OUR
RESOURCES AND
EXPERTISE AROUND
THE WORLD



ADVOCATING FOR
SCIENTIFIC
RESEARCH



FOSTERING A DEEPER
PUBLIC
UNDERSTANDING OF
MICROBIOLOGY

ASM BD Team

Senior Consultants:

Prof Dr. Mohammad Murshed

Assoc Prof Dr. Ruksana Raihan

Covid Consultant: Dr. Barnali Sen

IT Consultant: Mr. Shakawat Hossain

Country Co-Ordinator Kazi Md. Saiful Islam



Partner organizations With MOU

- Institute of Epidemiology, Disease Control and Research (IEDCR)
- Communicable Disease Control (CDC), Directorate General of Health Services
- Bangabandhu Sheikh Mujib Medical University (BSMMU)

Our In Country Projects

Laboratory Strengthening Project

Antibiotics uses and Antimicrobial pattern in Tertiary hospitals

Bio-Containment

Establishment of Laboratory Information System

BD-COVID Project

COVID PCR Quality Control Program

Zoonotic Diseases Project

Projects on Prevention and Control of Anthrax and Leptospirosis



Project: Antibiotic uses and Antimicrobial pattern in Tertiary care hospitals

Project Duration: May 2021- August 2021

Objective: To help government to make antibiotic uses policy and to develop strategy for in patients treatment.

Project outline: Collaborated with ten tertiary hospitals in four divisions.

Collected two months medicine, gynae, surgery, ICU, and COVID units' patients data on antibiotic sensitivity pattern of these selected tertiary hospitals.

Project: Bio-Containment

Project Status: BSMMU Virology laboratory designing is on going, all others finished.

Objective: To improve the Biosafety and Bio-Security practices

Project Outline: Collaborated with two organizations (IEDCR, BSMMU).

- Provided technical support to develop National Bio-Safety and Bio-Security manual.
- Provided Bio-Safety, Bio-Security and Risk Assessment training for the Trainers
- Provided technical support for **National AMR reference laboratory**
- Virology laboratory of BSMMU
- Supported BSCs certification in COVID testing laboratories all over the country



Project: Implementation of nationwide Laboratory information system

Objective:

To enhance the laboratory services to improve the health sector as well as it can be helpful for national planning and strategy to monitor, control any diseases.

Project Outline:

A pilot study is launched for 2 months in collaboration of hepatitis alliance of CDC, BD to understand the impact of computer/app based data monitoring from laboratory in elimination of Hepatitis.

4 govt and 4 private hospitals were selected and an app to keep record of all hepatitis markers were installed.



What Is LIMS?

- Software products designed to help labs keep track of their equipment, samples, and test results, manage their workflows/protocols, create compliance reports, and analyse findings.



Project: Laboratory assessment

Objectives:

To assess the condition of COVID labs in country to identify the gaps and needs to decide the next plan of action.

Out line of the project:

5 govt hospital COVID labs were visited physically and by using an assessment tool the labs were assessed and recommendations were made.

Impacts:

Results and recommendations were disseminated with DGHS, based on that new action plan for COVID lab quality assurance program has been developed.

Project: COVID RT-PCR Lab Q/A program

Objective: To support govt/IEDCR to conduct the program smooth to ensure proper diagnosis to control the pandemic.

Project outline:

Analysis of performance of the external quality assessment by different labs and to identify particular laboratories performing poor and to find out the gaps and needs.

Development of SOP of the workflow of a COVID lab.

Development of an App to collect all the Q/A assessment information's from different labs and the comparative results from IEDCR, so that through the **dash board** of the app concern people can understand the condition of any particular or all labs at a glance.

Thank You!

Questions? Contact Us.

Acknowledgement:

Funded by **US-CDC**



Antibiotic usage and antimicrobial resistance in tertiary care hospitals of Bangladesh

*Prof Dr Mohammad Murshed
Senior Consultant, ASM
General Secretary, BSMM*



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Introduction

- The World Medicines Situation Report of 2011 concludes that inappropriate antibiotic use, including overuse and misuse, is a serious global problem.
- Inappropriate use of antimicrobials and lack of AMR surveillance are two core contributors to the spread of AMR.
- Studies have revealed that 20–50% of antibiotic utilization is not rational
- Due to lack of antibiotic policy, standard treatment guideline and antimicrobial stewardship program, ensuring rational use of antibiotic by the prescribers in hospitals is a great challenge in Bangladesh



Introduction

- ❑ It is further aggravated in COVID-19 pandemic situation.
- ❑ This study will give an overall understanding of antibiotic usage and give an opportunity to compare between and within hospitals.
- ❑ Besides, information on patterns of antibiotic use in COVID-19 patients will add to the knowledge in the current pandemic
- ❑ This study may act as a piloting of more extensive AMR surveillance project continuing in the country



Title:

Antibiotic usage and antimicrobial resistance in tertiary care hospitals of Bangladesh

Type of Study:

Hospital-based cross-sectional study

Conducted by:

Institute of Epidemiology, Disease Control and Research (IEDCR)

Supported by:

American Society for Microbiology (ASM)

Duration:

3 months (from 1 May 2021 to 30 July 2021)



Objectives

General Objective

To find out the antibiotic usage pattern and antibiotic resistance in selected tertiary care hospitals of Bangladesh



Specific Objectives

- To determine the antibiotic usage in inpatient departments (IPD) and intensive care units (ICU) of selected public and private tertiary care hospitals in Bangladesh.
- To estimate the proportions of antibiotics used in patients of IPD and ICU of selected public and private tertiary care hospitals in Bangladesh.
- To estimate the proportions of antibiotics used in COVID-19 patients of IPD and ICU of selected public and private tertiary care hospitals in Bangladesh.



Specific Objectives

- To describe the antibiotic usage in COVID-19 patients IPD and ICU of selected public and private tertiary care hospitals in Bangladesh.
- To compare the antibiotic usage pattern of IPD and ICU of public and private tertiary care hospitals in Bangladesh.
- To compare the antibiotic usage patterns of public and private tertiary care hospitals against WHO prescribing indicators of antibiotics.
- To describe the antimicrobial sensitivity (AST) patterns of selected public and private tertiary care hospitals in that time period.



Sentinel sites:

Division	Hospital
Dhaka	<ol style="list-style-type: none">1. Sir Salimullah Medical College Mitford hospital (SSMC- MH)2. Uttara Adhunik Medical College Hospital (UAMCH)
Chattogram	<ol style="list-style-type: none">1. Chattogram Medical College Hospital (CMCH)2. Chattogram International Medical College (CIMCH)3. Bangladesh Institute of Tropical and Infectious Diseases (BITID)
Rajshahi	<ol style="list-style-type: none">1. Rajshahi Medical College Hospital (RMCH)2. Islami Bank Medical College Hospital (IBMCH)
Sylhet	<ol style="list-style-type: none">1. Sylhet MAG Osmani Medical College hospital (SOMCH)2. Jalalabad Ragib Rabeya Medical College Hospital (JRRMCH)3. Shaheed Shamsuddin Ahmed Hospital, Sylhet (SSAMCH)



Exclusion Criteria:

- Patients receiving long standing chemotherapeutic agent.
- Patients on programmed antibiotics for long-term therapy (patients on anti-tuberculosis drugs and/or antiretroviral therapy)

Inclusion Criteria:

- Patients attending the IPD of the Medicine, Surgery, Gynaecology and Obstetrics departments, ICU, and COVID dedicated units
- Age: 18 years or older
- Sex: Both male and female.
- Given consent



Sampling Technique (for objectives 1-6)

- One ward was selected randomly from each department -
 - Medicine
 - Surgery
 - Gynaecology and obstetrics
 - COVID-19 dedicated unit

and

- ICU

- All patients admitted to those selected wards during the study period was recruited for data collection.



Sampling Technique (for objectives 7)

- All available AST data of the microbiology departments of the respective medical college for the period of study was collected.

Data Collection Instruments

- Data was collected with a checklist using WHO indicators (for objectives 1-6) and with assessment format (for objective 7).



Recruitment and training of study personnel

- Doctors and two staff nurses were selected from the study hospital for data collection.
- There were hands-on training on interview techniques, data collection methods, informed written consenting and ethical issues for two days.
- Central coordinator, data entry operator, statistician and software expert was recruited for the study



Data collection Procedure

For objectives 1-6:

- Data was collected from bed-head tickets of each enrolled patient by the trained data collector on the mentioned variables.
- An enrolled patient was followed up daily till discharge/referral/death/other outcome for collecting intended antibiotics related information.
- Before data collection informed written consent was taken as appropriate.



Data collection Procedure

- **For objective 7:**

All available data was collected in an assessment format from the microbiology departments of the respective hospitals for the total period of data collection.



Data Analysis Strategy

- Proportions of antibiotics used (single, double or multiple) in every patient was calculated, according to the hospital type (whether public or private), and according to patient settings (whether IPD or ICU or COVID-19 unit)
- Additionally, antibiotics was categorized according to the World Health Organization (WHO) AWaRe classification framework.
- Susceptibility pattern microorganisms isolated from the specimens in microbiology laboratory was collected and analyzed.



Expected Outcomes of the Study

- This study will act as a pilot project for the understanding of antimicrobial uses patterns in IPDs, ICUs, COVID-19 patients, public and private tertiary care hospitals throughout the country.
- The result may guide for the impending necessity of an Antimicrobial uses in the country and also for the antibiotic stewardship program.





Orientation on **“Antibiotic usage and antimicrobial resistance in tertiary care hospitals of Bangladesh”**

Venue: Jalalabad Ragib-Rabeya Medical College & Hospital, Sylhet
Date: 19th May 2021

Institute of Epidemiology, Disease Control and Research (IEDCR)
Mohakhali Dhaka-1212
American Society for Microbiology (ASM)



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- সম্মেলন কক্ষ -

Orientation on
"Antibiotic usage and antimicrobial resistance in tertiary care hospitals of Bangladesh"
Venue: Chattogram Medical College Hospital, Chattogram
Date: 9 May 2021
Institute of Microbiology (AMR)







সিলেট এম এ জি ওসমানী মেডিকেল কলেজ, সিলেট

সেবা পেতে
মাস্ক পরুন

সঠিক সঠিক নয়

No Mask
No Service

সিলেট এম এ জি ওসমানী মেডিকেল কলেজ

মুজিব শতবর্ষ
৩ জানুয়ারি শিল্প শিবির
২০২১ সাল - ২০২২



সোনালী ব্যাংক লিমিটেড

TRANSFAST

Definition and Discussion



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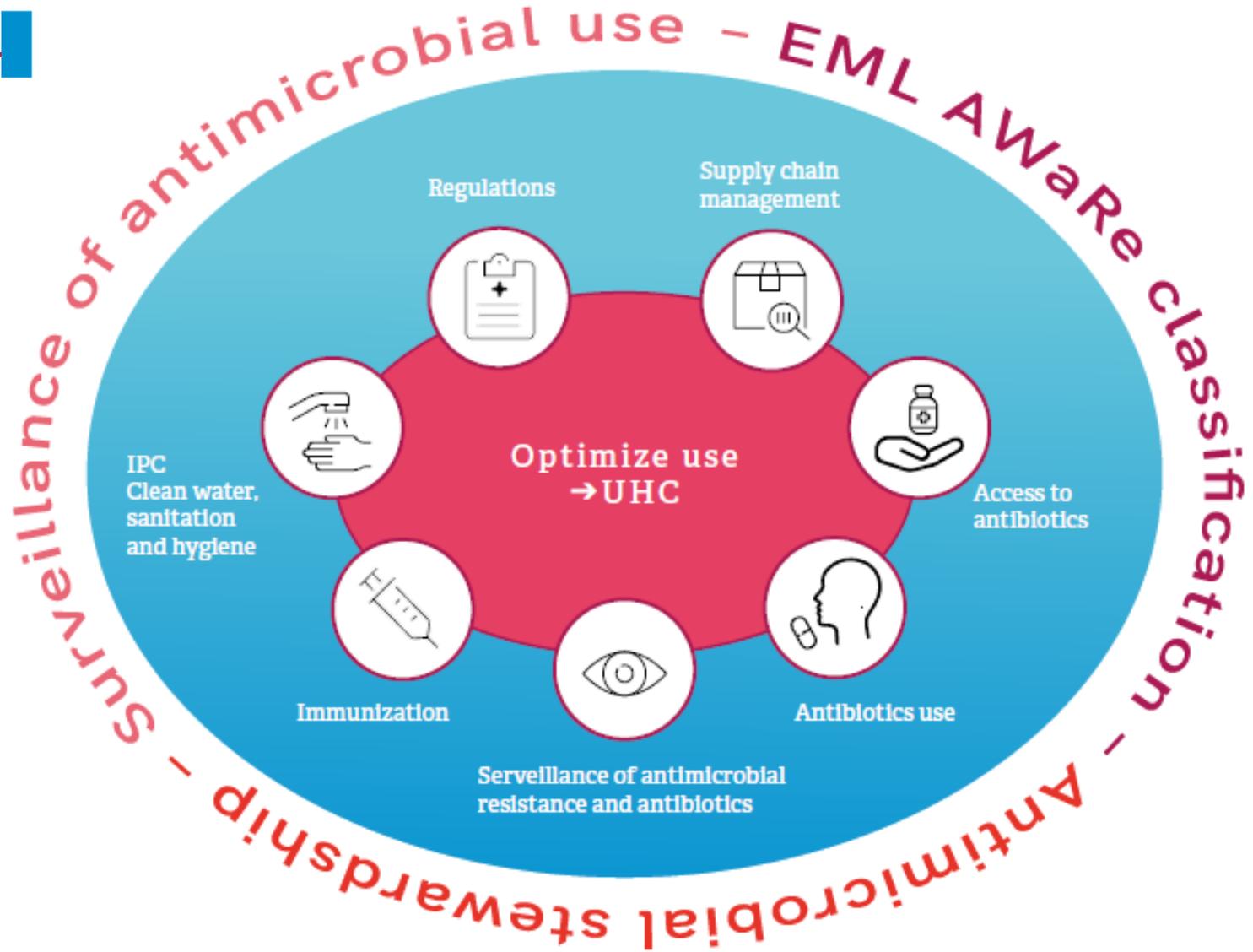


Antimicrobial Stewardship Programme

Stewardship is defined as “the careful and responsible management of something entrusted to one’s care”. It was originally applied in the health-care setting as a tool for optimizing antimicrobial use, termed “antimicrobial stewardship” (AMS)

Antimicrobial stewardship programmes optimize the use of antimicrobials, improve patient outcomes, reduce AMR and health-care-associated infections, and save health-care costs amongst others

AMS principles also apply to the use of antimicrobials in the animal and agriculture sectors, typically with an emphasis on the responsible and prudent use of these agents.



- **Access group:**

This group includes antibiotics that have activity against a wide range of commonly encountered susceptible pathogens while also showing lower resistance potential than antibiotics in the other groups. Selected Access group antibiotics are recommended as essential first or second choice empiric treatment options.

- **Watch group:**

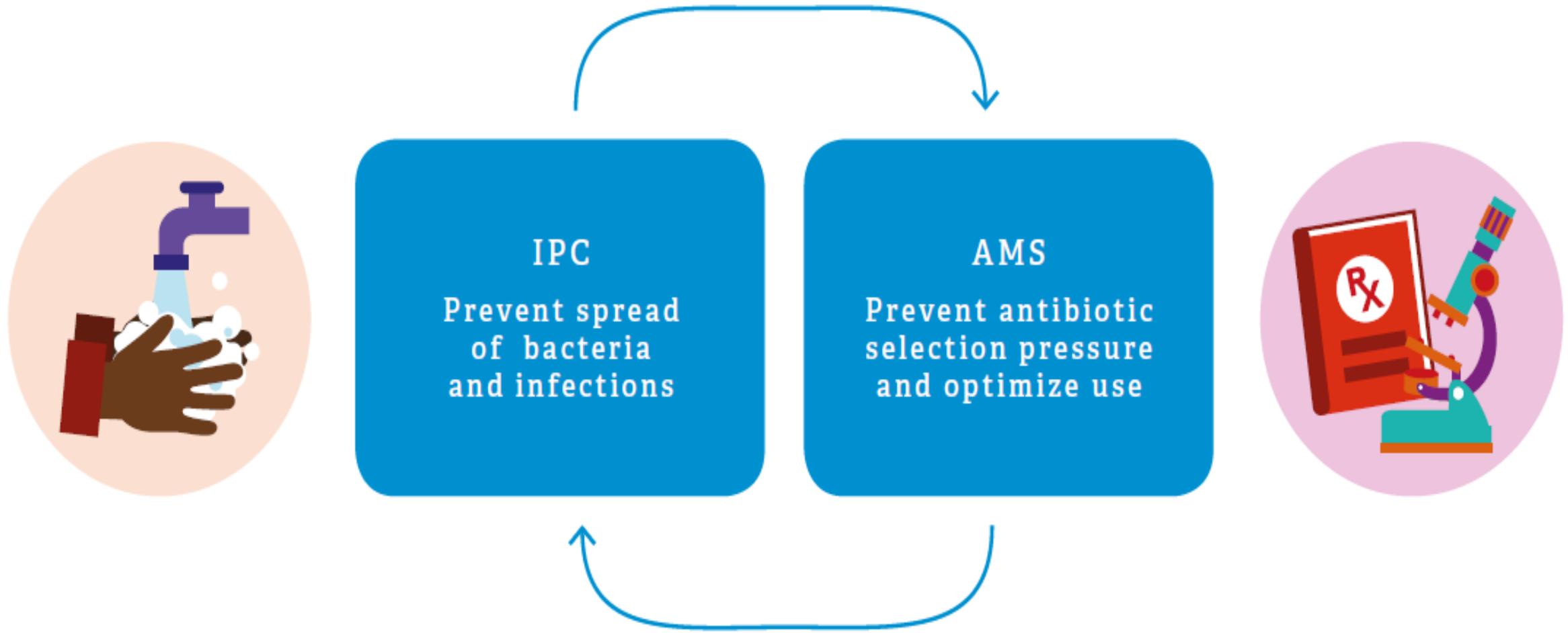
This group includes antibiotic classes that have **higher resistance potential** and includes most of the highest priority agents among the **Critically Important Antimicrobials** for Human Medicine and/or antibiotics that are at relatively high risk of selection of bacterial resistance.

- **Reserve group:**

This group includes antibiotics and antibiotic classes that should be reserved for treatment of confirmed or suspected infections due to multi-drug-resistant organisms. Reserve group antibiotics should be treated as “last resort” options.

WHO Essential Medicines List

Links between IPC and AMS in delivering quality health care and optimizing antibiotic use



Contextual Information For Data Interpretation

Contextual data may comprise information on:

-hospital characteristics;

-hospital structure;

-coverage of the consumption data;

-supply coverage of the pharmacy;

-data sources and type of hospital activity indicator(s); and

-implementation of antimicrobial stewardship activities.

Antimicrobial Use Indicators



Hospital Indicators



Prescribing
Indicators



Patient Care
Indicators Indicator



Supplemental
Indicator



Socio-demographic Characteristics



Gender Distribution

Sex	Medicine	Surgery	Gynaecology	COVID	ICU	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	
Male	1087(54.46)	645(65.55)	-	436(50.11)	171(57.19)	2,339
Female	909(45.54)	339(34.45)	1160(100)	434(49.89)	128(42.81)	2,969
Total	1996	984	1160	870	299	5,309



Age Distribution

Age group (Years)	Medicine	Surgery	Gynaecology	COVID	ICU	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	
≤20	164(8.22)	131(13.31)	282(24.31)	14(1.61)	29(9.7)	620
21-40	757(37.92)	466(47.36)	830(71.55)	220(25.29)	89(29.77)	2350
41-60	683(34.22)	283(28.76)	45(3.88)	365(41.95)	88(29.43)	1453
Above 60	392(19.64)	104(10.57)	3(0.26)	271(31.15)	93(31.1)	863
Total	1996	984	1160	870	299	5309



General Information of the Participating Hospitals

	SsMCH	UAMCH
Division	Dhaka	
Category	Public	Private
Total Number of Bed	900	348 (Approved 500)
Presence of ICU	Yes	Yes
Total Bed in ICU	8	17
ICU (COVID/Non-COVID)	Non-COVID	Non-COVID
COVID Bed Number	N/A	35
Medicine Bed Number	195	109
Surgery Bed Number	140	54
Gynecology Bed Number	119	31
High Risk wards	Hematology Burn	COVID
Rehabilitation ward	No	No



General Information of the Participating Hospitals

	CMCH	CIMCH	BITID
Division	Chattagram		
Category	Public	Private	Public
Total Number of Bed	1300	300	120
Presence of ICU	Yes	No	Yes (Recently started in July)
Total Bed in ICU	30	N/A	5
ICU (COVID/Non-COVID)	Mixed	N/A	COVID
COVID Bed Number	290	90	45
Medicine Bed Number	170	33	70
Surgery Bed Number	158	45	N/A
Gynecology Bed Number	160	90	N/A
High Risk wards	Hematology, Oncology, Burns	No	Infectious disease
Rehabilitation ward	No	No	No



General Information of the Participating Hospitals

	SOMCH	JRRMCH	SSAMH
Division	Sylhet		
Category	Public	Private	Public
Total Number of Bed	900	750	100
Presence of ICU	Yes	Yes	Yes
Total Bed in ICU	20	14	16
ICU (COVID/Non-COVID)	Non-COVID	(Mixed)	COVID
COVID Bed Number	200	100	84
Medicine Bed Number	150	120	N/A
Surgery Bed Number	150	116	N/A
Gynecology Bed Number	150	100	N/A
High Risk wards	Oncology COVID Dengue	Oncology	N/A
Rehabilitation ward	Yes	Yes	N/A



General Information of the Participating Hospitals

	RMCH	IBMCHR
Division	Rajshahi	
Category	Public	Private
Total Number of Bed	1200	500
Presence of ICU	Yes	No
Total Bed in ICU	30	N/A
ICU (COVID/Non-COVID)	20 COVID* 10 non-COVID	N/A
COVID Bed Number	513	N/A
Medicine Bed Number	138	38+Cabin
Surgery Bed Number	118	49+Cabin
Gynecology Bed Number	98	41+Cabin
High Risk wards	Hematology Oncology Burn	No
Rehabilitation ward	No	No



Antimicrobial Stewardship Indicators

SL. No.		Yes	No	N/A
1	Does the hospital have a Pharmacy and Therapeutics Committee?	5	5	
2	Does the hospital have a person or formal organizational structure responsible for pharmacovigilance?	3	7	
3	Does your facility have a formal antimicrobial stewardship programme accountable for ensuring appropriate antimicrobial use?	2	8	
4	Does your facility have a formal organizational structure responsible for antimicrobial stewardship (e.g., a multidisciplinary committee focused on appropriate antimicrobial use, pharmacy committee, patient safety committee or other relevant structure)?	2		8
5	Is an antimicrobial stewardship team available at your facility (e.g., greater than one staff member supporting clinical decisions to ensure appropriate antimicrobial use)?	2		8
6	Is there a physician identified as a leader for antimicrobial stewardship activities at your facility?	2		8



Antimicrobial Stewardship Indicators

SL. No.		Yes	No	N/A
7	Is there a pharmacist responsible for ensuring appropriate antimicrobial use at your facility?	2		8
8	Does your facility provide any salary support for dedicated time for antimicrobial stewardship activities (e.g., percentage of full-time equivalent [FTE] for ensuring appropriate antimicrobial use)?	2		8
9	Does your facility have the information technology (IT) capability to support the needs of the antimicrobial stewardship activities?	2		8
10	Does your facility have an outpatient parenteral antibiotic therapy (OPAT) unit?	1	3	
11	Does your facility have an infection prevention and control committee?	7	3	
12	Does your facility have a microbiological laboratory/division within the hospital?	9	1	
13	Does your facility have access to microbiological services outside the hospital?	8	2	



Policy and Practice regarding Antimicrobial use

SL. No.		Yes	No	N/A
1	Does your facility have an antibiotic formulary (including restricted and unrestricted antibiotics) that is updated regularly?	2	8	
2	Is the antibiotic formulary based on the Essential Medicines List?			
3	Does your facility have an antibiotic guideline?	4	6	
4	Does your facility have local antibiotic guidelines, adapted to the specific circumstances of the hospital (e.g., with respect to the local resistance rates)?	6	6	



Policy and Practice regarding Antimicrobial use

SL. No.		Yes	No	N/A
5	Does your facility have facility-specific treatment recommendations based on local antimicrobial susceptibility to assist with antimicrobial selection for common clinical conditions?	6	4	
6	Does your facility have a written policy that requires prescribers to document an indication in the medical record or during order entry for all antimicrobial prescriptions?	2	8	
7	Is it routine practice for specified antimicrobial agents to be approved by a physician or pharmacist in your facility (e.g., pre-authorization)?	5	5	
8	Is there a formal procedure for a physician, pharmacist or other staff member to review the appropriateness of an antimicrobial at or after 48 hours from the initial order (post-prescription review)?	5	5	

Monitoring and Feedback

SL. No.		Yes	No	N/A
1	Has your facility produced a cumulative antimicrobial susceptibility report in the past year?	5	4	
2	Does your facility monitor if the indication is captured in the medical record for all antimicrobial prescriptions?	4	6	
3	Does your facility audit or review surgical antimicrobial prophylaxis choice and duration?	4	6	
4	Does your facility monitor antimicrobial use?	1	8	
5	Does your facility monitor antimicrobial use by grams (defined daily dose, DDD) or counts (days of therapy, DOT) by patient by day?	1		8



Monitoring and Feedback

SL. No.		Yes	No	N/A
6	Is monitored antimicrobial use reported by hospital activity denominator (e.g., by number of admissions or patient days)?	1		8
7	Are results of antimicrobial audits or reviews communicated directly with prescribers?		1	8
8	Has an annual report that is focused on antimicrobial stewardship (summary antimicrobial use and/or practices improvement initiatives) been produced for your facility in the past year?	2	5	2
9	Is your facility participating in a national antimicrobial resistance surveillance programme?	6	4	
10	Is your facility participating in a national antimicrobial consumption surveillance programme?	3	7	

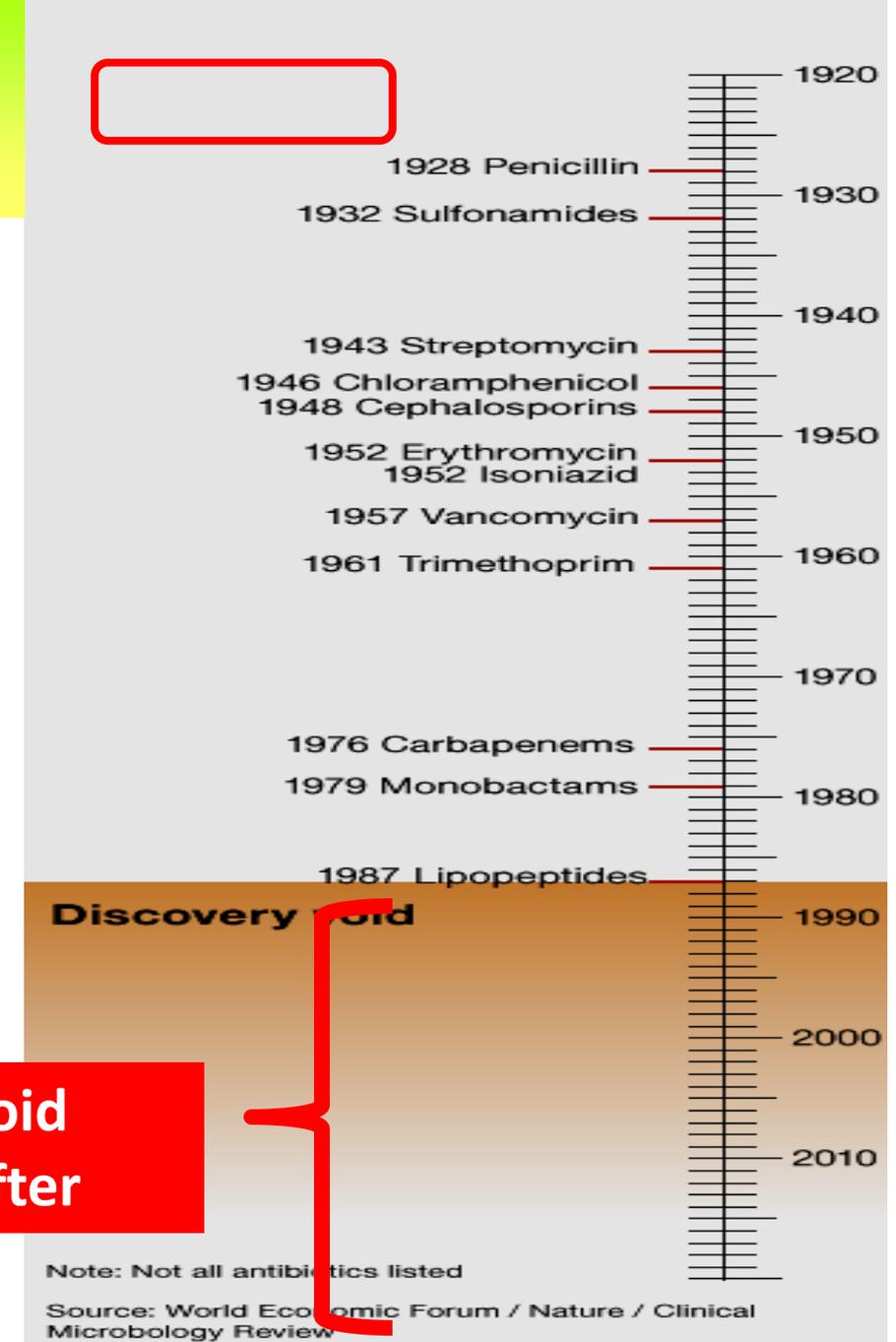
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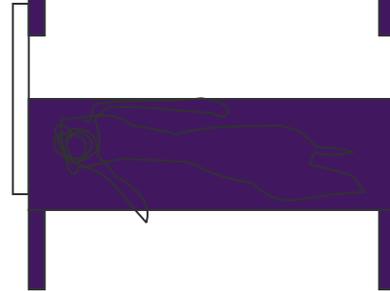
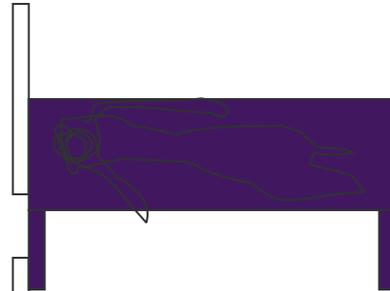
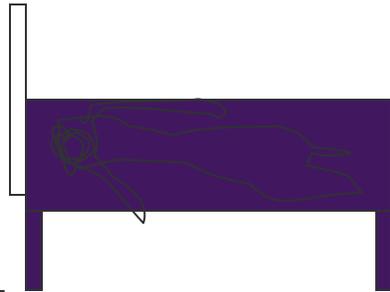
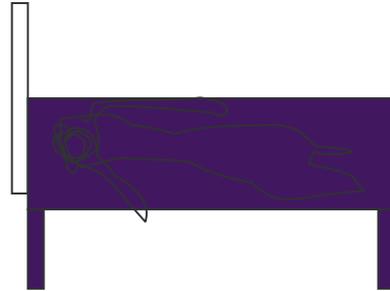
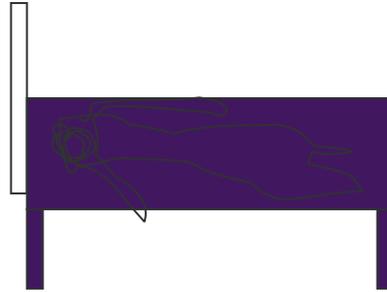
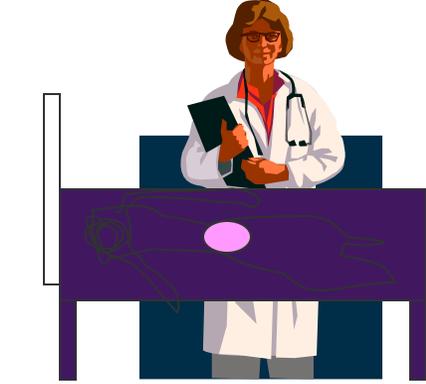
- **Hospital need to establish antibiogram, antibiotic policy, standard treatment guideline, ASP**
- **Antibiotic uses are studied here in IPD. Need to evaluate Pharmacy and Community level**

Take home message

No New antibiotics
in the pipe line

**Prepare for a pre
antibiotic-era**







**This will directly go
to dust bean**

A Tokai will pick this syringe

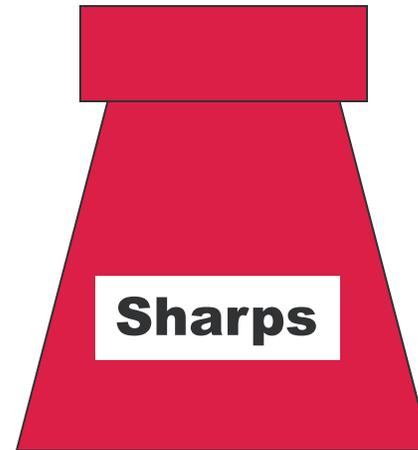
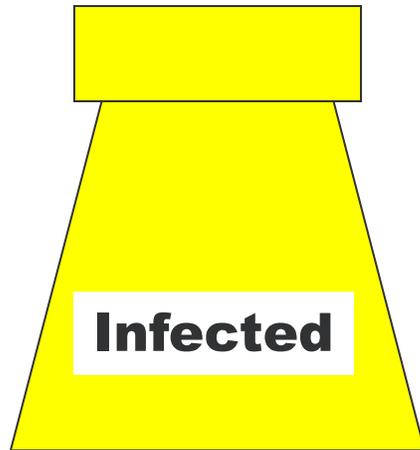
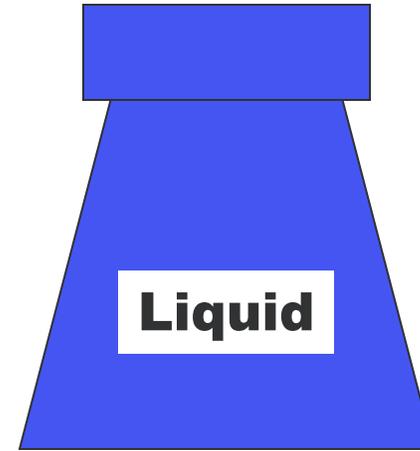
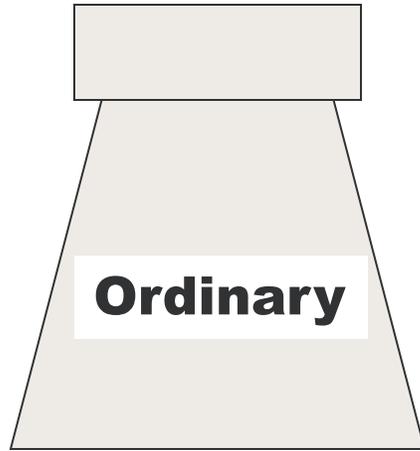


Please! Please! Please!

No!



Safe disposal of Hospital wastes



Thank You!

Questions? Contact Us.

Acknowledgement:

This Study was funded by **US-CDC**

