



## Antibiogram Infectious Disease/Microbiology Department

BKMC Swabi Year Jan To July 2024



### Objective:

The objective of circulating this antibiogram is to help clinical colleagues in choosing the appropriate empirical antimicrobial therapy against suspected microorganisms. This antibiogram is data collection of antibiotic susceptibility pattern of isolates yielded from various clinical specimens submitted at Microbiology Department, BKMC Swabi.

### HOW TO USE THIS ANTIBIOGRAM?

The figures in the boxes represent the %age resistant isolates against a particular antibiotic.

**IR means the isolate is INTRINSICALLY RESISTANT against the drug. It should not be used clinically, and does not require testing.** Resistance to Cloxacillin/ Oxacillin indicates methicillin resistance, and the isolates are labeled MRSA. Such isolates are resistant to all currently available B- lactam antimicrobials with exception of newer cephalosporins having anti-MRSA activity I.e Ceftaroline, Ceftaroline, Ceftobiprole.

CLSI guideline M-39-A3 suggests making antibiogram when isolates number (n) is > 30. In case where n is < 30, the interpretation may be impaired due to small number.

All sensitivity results are interpreted according to Clinical Laboratory Standard Institute (CLSI) 2023, 33<sup>RD</sup> Ed. S100, except Tigecycline and Polymyxin B/ Colistin (EUCAST 2020).



## **DISCLAIMER**

**Aim of this Antibiogram is to provide users with an overview of antimicrobial susceptibility profiles for specific microorganisms. This can be helpful in guiding the choice of empiric antimicrobial therapy, supporting antimicrobial stewardship programs in the development of local treatment guidelines, aiding in monitoring resistance trends over time, and formulary management.**

**BKMC Swabi routinely prepares antibiograms for bacterial isolates to inform local health networks and clinicians. These are generally presented to summarise the susceptibilities for urine, blood and non-urine/ non-blood isolates (for example, sputum or wound culture results).**



## **GENERAL GUIDELINES REGARDING ANTIMICROBIAL STEWARDSHIP**

Due to increase in antimicrobial resistance (AMR) and the impending threat of post antibiotic era, **Antibiotic Stewardship is the NEED OF THE HOUR**. Antimicrobial stewardship is the systematic effort to educate and persuade prescribers of antimicrobials to follow evidence-based prescribing, in order to stem AMR. Following are few general guidelines helpful for the prescribing doctors:

1. Before prescribing antibiotic, consider if it actually is a bacterial illness and are antibiotics really needed? Most URTs and diarrheas are viral that are self-limited and need nothing more than symptomatic treatment.
2. Always remember 5 'Ds' of Antibiotic Stewardship. The right Diagnosis, the right Drug, in the right Dose, for the right Duration and then De-escalation.
3. For outdoor patients, oral empirical antibiotics, appropriate according to the site of infection and causative agent, can be prescribed. Generally, community acquired bacteria are sensitive to most antibiotics.
4. For inpatients or healthcare associated infections, always send appropriate samples for cultures. If patient has severe infection and cannot wait for culture results, start with a broad-spectrum drug appropriate for coverage of likely causative agent. However, once culture and sensitivity result is available, always de-escalate to a narrow spectrum antibiotic whenever choice is available.
5. Hand hygiene in busy hospital routine. It is surely the single best measure to stop the spread of hospital acquired pathogens.
6. For patients confirmed to have multidrug resistant pathogens on culture and sensitivity report, please take due infection control precautions/ contact-based precautions to prevent their spread to other patients in the ward.
7. The common use of oral Azithromycin for upper respiratory tract must be curtailed to save this drug for treatment of typhoid/ enteric fever caused by XDR Salmonella Typhi strain.





### PSEUDOMONAS- AERUGINOSA % RESISTANCE

	N	CZA	FEP	CIP	AK	CN	TOB	TZP	IMP	MEM		P. Aeruginosa Intrinsic Resistance
<b>OPD</b>	55	61	59	54	27	34	37	31	19	19		1. <b>Ampicillin</b>
<b>IPD</b>	29	65	64	30	31	53	10	33	09	09		2. <b>Amoxicillin</b>
<b>Urine</b>	10	74	53	65	18	28	NT	20	16	16		3. <b>Ampicillin + Sulbactam</b>
<b>Blood</b>	03	33	53	66	30	35	33	33	67	67		4. <b>Amoxicillin + Clavulanate</b>
<b>PUS</b>	56	64	65	41	27	33	29	26	20	20		5. <b>Cefotaxime</b>
<b>Others</b>	15	66	86	62	33	39	31	49	08	08		6. <b>Ceftriaxone</b>
<b>Total</b>	<b>84</b>											7. <b>Ertapenem</b>
												8. <b>Tetracycline (Doxycycline)</b>
												9. <b>Trimethoprim + Sulfamethoxazole</b>

### SALMONELLA TYPHI % RESISTANCE

	N	AMP	CRO	CTX	CIP	IMP	MEM	AZM
<b>OPD</b>	87	94	89	89	99	00	00	00
<b>IPD</b>	121	95	82	82	99	00	00	00
<b>Blood</b>	207	92	54	54	99	00	00	00
<b>Others (PUS)</b>	01	100	100	100	100	00	00	00
<b>Total</b>	<b>208</b>							





### ENTEROCOCCUS % RESISTANCE

	N	AMP	VA	LNZ	DO	CIP	FOS	F	Enterococcus Intrinsic Resistance
OPD	32	51	01	00	68	88	71	64	Trimethoprim + Sulfamethoxazole
IPD	42	75	02	00	77	87	75	65	Cephalosporins
Urine	55	50	02	00	81	90	73	75	Clindamycin
Blood									Aminoglycosides (Except high level resistance testing)
PUS	19	37	00	00	05	91			
Others	00								
<b>Total</b>	<b>74</b>								

### CANDIDA SPP % RESISTANCE

	N	FLU	VOR
OPD	31	16	16
IPD	58	11	11
Urine	83	14	14
PUS	06	00	00
Others			
<b>Total</b>	<b>89</b>		



### OTHER ISOLATES (N<30)

	N
Streptococcus pyogenes	10
Streptococcus pneumoniae	02
Streptococcus spp	03
Salmonella Paratyphi	15
Stenotrophomonas spp	03
Burkholderia cepacia	05
Proteus mirabilis	17
Enterobacter spp	19
Mucor spp (Fungus)	03
Aspergillus spp (Fungus)	05
Cryptococcus neoformans Fungus)	02





ISOLATE	NUMBER	PERCENTAGE
E Coli	383	31.11 %
Klebsiella pneumoniae	75	06.09 %
Salmonella Typhi	208	16.89 %
P Aeruginosa	84	06.82 %
MRSA	176	14.29 %
Enterococcus	74	06.01 %
Staph Aureus	68	05.52 %
Candida spp	89	07.22 %
Streptococcus pyogenes	10	0.81 %
Streptococcus pneumoniae	02	0.16 %
Streptococcus spp	03	0.24 %
Salmonella Paratyphi	15	01.21%
Stenotrophomonas spp	03	0.24 %
Burkholderia cepacia	05	0.40 %
Proteus mirabilis	17	1.38 %
Enterobacter spp	19	1.54 %
Total	1,231	
<b>TOTAL CULTURE PERFORMED IN 2024</b>	<b>6440</b>	



## KEY

<b>AMP</b>	Ampicillin
<b>PEN</b>	Penicillin
<b>AMC</b>	Amoxicillin + clavulanic acid
<b>SCF</b>	Cefoperazone + Sulbactam
<b>TZP</b>	Piperacillin + Tazobactam
<b>CRO</b>	Ceftriaxone
<b>CTX</b>	Cefotaxime
<b>CZA</b>	Ceftazidime
<b>FOX</b>	Cefoxitin
<b>CIP</b>	Ciprofloxacin
<b>LEV</b>	Levofloxacin
<b>MXF</b>	Moxifloxacin
<b>ERT</b>	Ertapenem
<b>IPM</b>	Imipenem
<b>MEM</b>	Meropenem
<b>AK</b>	Amikacin
<b>CN</b>	Gentamycin
<b>TOB</b>	Tobramycin
<b>DO</b>	Doxycycline
<b>LNZ</b>	Linezolid
<b>VA</b>	Vancomycin
<b>AZM</b>	Azithromycin
<b>FOS</b>	Fosfomycin
<b>F</b>	Nitrofurantoin
<b>FLU</b>	Fluconazole
<b>VOR</b>	Voriconazole

**THANK YOU**