



**DEPARTMENT OF PATHOLOGY  
KING EDWARD MEDICAL UNIVERSITY,  
LAHORE**

---

**Antibiogram for Antimicrobial Stewardship  
Pathology Department Mayo Hospital,  
Lahore.**

**(July 2025 to December 2025)**

**DR. HINA BUKHARI**  
Section Head Microbiology  
Department of Pathology  
King Edward Medical University,  
Lahore

## **How to use this Antibiogram?**

This is data collection of antibiotic susceptibility pattern of isolates from clinical specimens submitted at Microbiology department of Central Diagnostic Laboratory, Mayo Hospital Lahore.

This data will help clinicians in choosing empirical treatment against suspected organisms. However, the antibiotic should be adjusted as soon as the original culture sensitivity report becomes available.

The numbers in boxes show percentage of sensitivity of the organism against that antimicrobial.

***Staphylococcus aureus***

Specimen	E	CD	VA	LZD	FD	COT	FOX
Pus	21	36	100	100	52	52	100
Wound swab	12	46	100	100	42	45	100
Blood	21	53	100	100	46	19	100
Fluid	10	10	100	100	55	21	100

***Staphylococcus aureus (MRSA)***

Specimen	E	CD	VA	LZD	FD	COT	FOX
Pus	33	27	100	100	46	25	0
Wound swab	13	34	100	100	25	27	0
Tissue	27	25	100	100	56	29	0
Blood	16	23	100	100	8	18	0

**Intrinsic Resistance:** Aztreonam, Polymyxin B/Colistin and Nalidixic Acid.

Isolates resistant to Cefoxitin are MRSA i.e resistant to other beta lactam agents penicillins, cephalosporins, beta lactam/beta lactamase inhibitor combinations ,aztreonam and carbapenems.

***Streptococcus pneumoniae***

Specimen	CTR	AMP	LZD	VA	E	COT	DO	CTX
Throat Swab	76	100	100	100	45	69	42	72
Sputum	85	78	100	100	52	36	54	78

***Streptococcus pyogenes***

Specimen	CTR	AMP	LZD	CD	E	VA	TE	CTX
Wound swab	88	100	100	46	63	100	75	82
Pus	100	78	100	55	68	100	34	82

***Enterococcus spp.***

Specimen	IPM	AMP	AK	F	MRP	VA	FOS	LZ	TE	CIP	CN-120
Urine	66	76	34	22	55	76	16	73	8	30	
Wound Swab	88	67	11		59	100		100	10	25	
Blood	0	66	23			100		100	15	30	45

**Intrinsic resistance:** Cephalosporins, Clindamycin, Trimethoprim, Trimethoprim/Sulphamethoxazole, Fusicidic Acid, Aztreonam, Polymyxin B/Colistin.

***Salmonella spp.***

Specimen	CTR	COT	IPM	AZM	CIP	MRP	AMP	CFM	TE
Blood	56	52	100	100	77	100	58	39	25

For *Salmonella* spp, aminoglycosides, 1<sup>st</sup> and 2<sup>nd</sup> generation Cephalosporins and Cephamycins may appear effective in vitro but are not effective clinically.

***Escherichia coli***

Specimen	CTX	CTR	AM C	SC F	CIP	LE V	AK	IPM	MR P	TE	PT Z	CN	CO T	NO R	NA	FOS	F	CT
Pus	25	25	18	44	12	54	25	78	62	7	34	10	17					100
Wound Swab	18	22	16	6	32	33	38	56	48	18	22	21	34					100
Blood	21	21	14	33	11	21	23	66	57	11	46	23	29					100
Ascitic fluid	14	21	8	32	40	23	45	79	59	10	44	54	8					100
Sputum	15	15	8	35	0	45	21	56	79	11	14	23	11					100
BAL	11	11	8	66	21	21	8	26	25	0	33	44						100
Urine	0	0	0	45	52		33	52	77	12	33	42	13	21	33	82	52	100

**Intrinsic Resistance:** Clindamycin, Fusicidic Acid, Glycopeptides (Vancomycin, Teicoplanin) Linezolid, Rifampin and Macrolides (Erythromycin, Clarithromycin and Azithromycin)

**Citrobacter species**

Specimen	CTX	CTR	AMC	CPM	CIP	AK	IPM	MRP	DO	CT
Pus Swab	10	9	15	21	48	67	88	71	44	100
Pus	11	11	0	23	35	44	56	73	33	100
BAL	17	17	17	0	62	44	62	74	21	100
Blood	11	11	7	33	50	92	72	82	32	100
CVP Tip	9	8	12	21	52	92	87	69	65	100

**Intrinsic Resistance:** Ampicillin, Ampicillin-Sulbactam, Cefazolin, Cefuroxime, Clindamycin, Fusicidic Acid, Glycopeptides (Vancomycin, Teicoplanin), Linezolid, Rifampin and Macrolides (Erythromycin, Clarithromycin and Azithromycin)

*Citrobacter* may develop resistance during prolonged therapy with third generation cephalosporins. Therefore, isolates that are initially susceptible may become resistant within 3 to 4 days after initiation of therapy. Testing of repeat isolates may be warranted.

***Klebsiella pneumoniae***

Specimen	CTX	CTR	AMC	CPM	SCF	CIP	TE	AK	CN	IPM	MRP	PTZ	COT	NOR	NA	F	CT
Pus	21	21	0	11	33	44	32	52	26	52	63	33	42				100
Pus swab	23	32	18	42	72	42	27	66	56	44	54	27	18				100
Tracheal secretion	0	0	0	21	35	12	28	21	17	25	32	25	32				100
Fluid	25	10	10	21	33	44	17	23	32	42	25	22	27				100
BAL	33	22	11	16	18	25	33	34	26	64	78	33	23				100
Blood	11	11	68	78	21	11	22	22	12	52	72	21	27				100
Tissue	17	17	0	33	27	44	11	35	44	36	55	35	44				100
Sputum	11	11	11	21	33	15	9	52	33	22	21	21	22				100
Urine	0	0	0	0	33	21	14	50	67	82	56	14	38	31	35	38	100

**Intrinsic Resistance:** Ampicillin, Clindamycin, Fusicidic Acid, Glycopeptides (vancomycin, teicoplanin) Linezolid, Rifampin and Macrolides (erythromycin, clarithromycin and azithromycin)

**Proteus species**

Specimen	CTX	CTR	AMC	SCF	CIP	AK	MRP	IPM	CPM	CN	PTZ	CAZ	COT
Wound Swab	17	17	7	33	43	47	35	28	33	31	16	10	18
Pus	12	12	8	91	33	22	40	27	33	21	32	33	34
Tissue	14	14	7	85	36	33	65	56	35	11	55	89	14

**Intrinsic Resistance:** Colistin/Polymyxin B, Ampicillin, Cefazolin, Cefuroxime, Tetracycline, Tigecycline, Nitrofurantoin, Clindamycin, Fusicidic Acid, Glycopeptides (Vancomycin, Teicoplanin), Linezolid, Rifampin and Macrolides (Erythromycin, Clarithromycin and Azithromycin)

***Acinetobacter baumannii***

Specimen	CN	MRP	IPM	CAZ	LEV	PTZ	CPM	A/S	DO	CT
Wound Swab	19	17	24	11	4	23	26	11	15	100
Pus	23	22	27	12	7	28	34	10	19	100
BAL	0	0	0	7	13	7	7	0	27	100
Fluid	21	14	14	10	10	14	13	3	28	100
Blood	25	22	45	24	17	34	45	42		100
Tip	39	6	17	0	0	6	6	17	39	100
Tissue	14	14	29	14	14	0	29	2	0	100
Tr. Secretion	7	0	2	2	2	0	0	2	24	100
Urine	0	33	10	17	0	67	84	33	17	100
Sputum	11	11	11	17	22	33	33	0	22	100
CSF	33	0	17	0	0	17	17	0	17	100

**Intrinsic Resistance:** Ampicillin, Amoxicillin, Amoxicillin-Clavulanate, Aztreonam, Trimethoprim, Chloramphenicol, Fosfomycin, Benzylpenicillin, Cephalosporins 1<sup>st</sup> generation (Cephalothin, Cefazolin), Cephalosporins 2<sup>nd</sup> generation (Cefuroxime), Cephamycins (Cefoxitin, Cefotetan) Clindamycin, Daptomycin, Fusicidic Acid, Glycopeptides ( Vancomycin, Teicoplanin), Linezolid, Macrolides (Erythromycin, Azithromycin, Clarithromycin)

***Pseudomonas species***

Specimen	IPM	MRP	CAZ	CPM	ATM	PTZ	GEN	LEV	CIP	TOB	AK	CT
Wound swab	18	26	36	29	33	34	4	15	9	21	13	100
Pus	24	36	43	40	35	46	3	18	14	33	16	100
BAL	36	14	68	66	50	73	5	32	20	63	14	100
Fluid	19	14	41	67	30	41	14	19	11	38	8	100
Tip	21	7	43	28	14	21	0	21	0	0	0	100
Tracheal Secretion	21	7	21	20	7	21	7	0	7	7	7	100
Tissue	14	29	14	28	29	43	14	0	0	14	14	100
Urine	36	32	23	41	32	41	0	5	14	23	0	100
Sputum	43	30	57	57	60	70	0	27	23	20	3	100
CSF	50	50	75	50	25	50	0	0	50	25	0	100
Blood	0	63	57	53	37	57	0	57	30	50	3	100

**Intrinsic Resistance:** Ampicillin, Amoxicillin, Ampicillin-sulbactam, Amoxicillin-Clavulanate, Cefotaxime, Ceftriaxone, Tigecycline/Tetracycline, Trimethoprim, Trimethoprim-Sulphamethoxazole, Chloramphenicol, Benzylpenicillin, Cephalosporins 1<sup>st</sup> generation (Cephalothin, Cefazolin), Cephalosporins 2<sup>nd</sup> generation (Cefuroxime), Cephamycins, (Cefoxitin Cefotetan), Clindamycin, Daptomycin, Fusicidic Acid, Glycopeptides ( Vancomycin, Teicoplanin), Linezolid, Macrolides (Erythromycin, Azithromycin, Clarithromycin)

*Pseudomonas aeruginosa* may develop resistance during prolonged therapy with all antimicrobial agents. Therefore, isolates that are initially susceptible may become resistant within 3 to 4 days after initiation of therapy. Testing of repeat isolates may be warranted.

**ABBREVIATIONS:**

**E:**Erythromycin

**DA/CD:** Clindamycin

**VA:** Vancomycin

**LZD:** Linezolid

**FD:** Fusicidic Acid

**TE:** Tetracycline

**FOX:** Cefoxitin

**CTR/CRO:** Ceftriaxone

**C:** Chloramphenicol

**AMP:** Ampicillin

**SXT/COT:** Co-trimoxazole

**DO:** Doxycycline

**CTX:** Cefotaxime

**CPM:** Cefepime

**AMC:** Amoxicillin+Clavulanic Acid

**PTZ:** Piperacillin+tazobactam

**PB:** Polymyxin B

**CT:** Colistin

**ATM:** Aztreonam

**IPM/IMP:** Imipenem

**MRP:** Meropenem

**CAZ:** Ceftazidime

**CIP:** Ciprofloxacin

**LE:** Levofloxacin

**NOR:** Norfloxacin

**F:** Nitrofurantoin

**NA:** Nalidixic Acid

**A/S:** Ampicillin+Sulbactam

**SCF:** Cefoperzone +sulbactam

**AK:** Amikacin

**CN/GEN:** Gentamycin

**LE:** Levofloxacin

**AZM:** Azithromycin

**TGC:** Tigecycline

**TEC:** Teicoplanin

