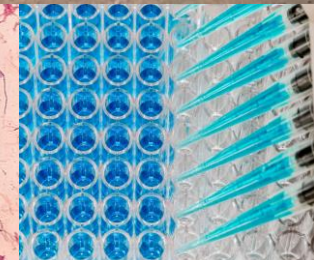
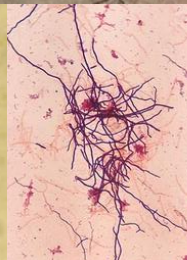




# Microbiology Newsletter



**Department of Microbiology**

**University College of Medical Sciences & GTB Hospital, Delhi-95**

**Issue: January to December 2025**

**Published: March 2026**

**Courtesy:**

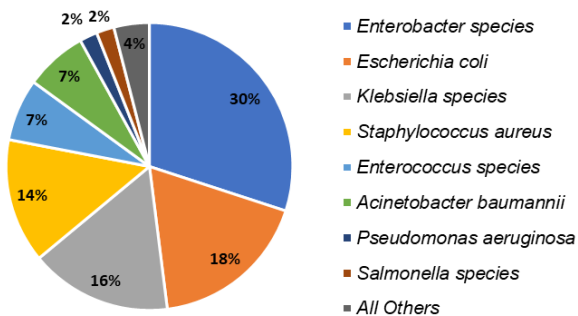
**Dr. Dheeraj Shah (Principal, UCMS)**

**Dr. Vinod Kumar (Medical Director, GTBH)**

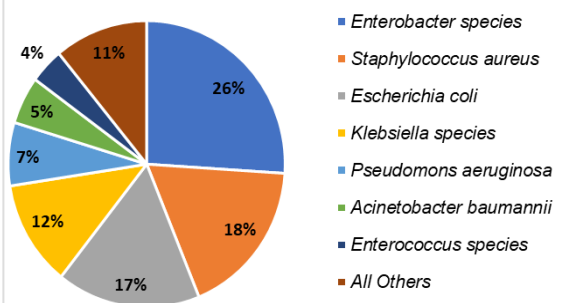
**Contact: Dr . Shukla Das ([sdas@ucms.ac.in](mailto:sdas@ucms.ac.in)) ([shukladas\\_123@yahoo.com](mailto:shukladas_123@yahoo.com))**

# Percentage Distribution Of Bacterial Isolates From Samples Received from Different Clinical Sections (2025)

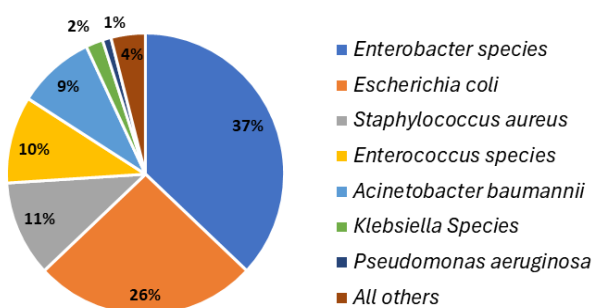
## MEDICINE: OPD & IPD (n=1652)



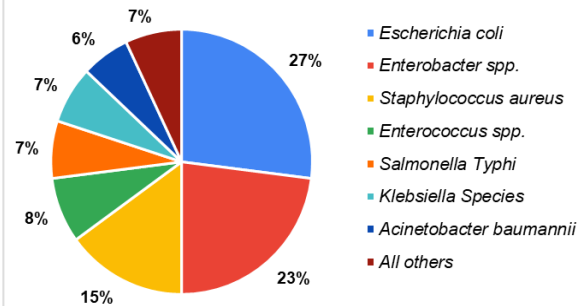
## SURGERY: OPD & IPD (n=1855)



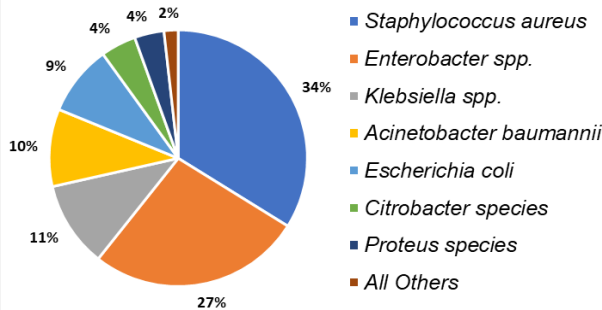
## OB/GYN: OPD & IPD (n=1378)



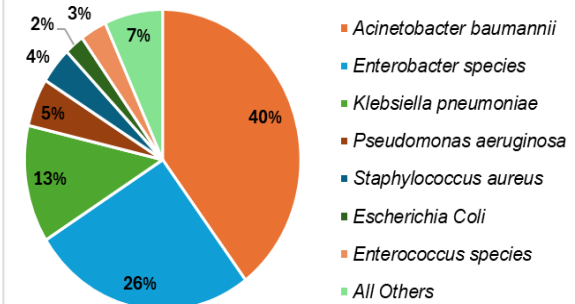
## PEDIATRICS: OPD & IPD (n=858)



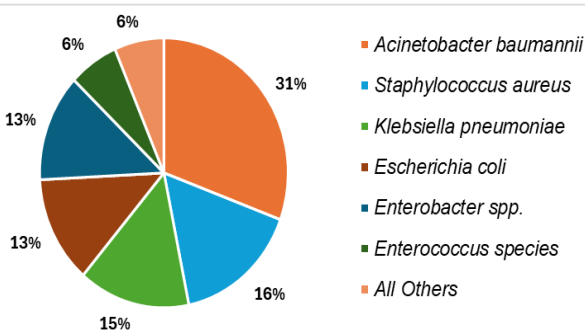
## ORTHOPEDICS: OPD & IPD (n=676)



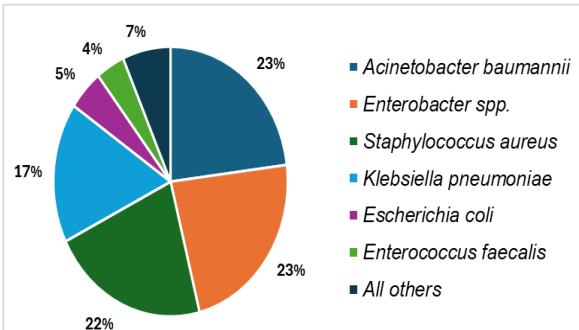
## MAIN ICU (n=483)



## PEDIATRIC ICU (n=62)



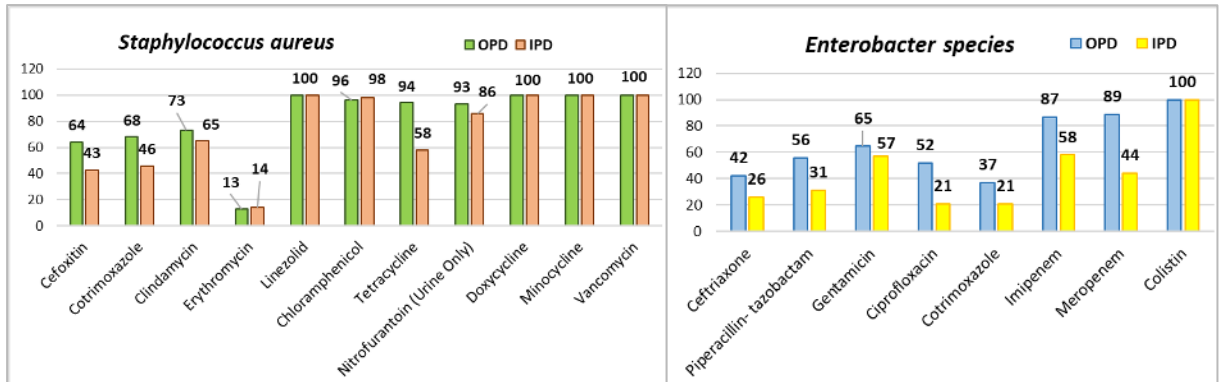
## NEONATAL ICU (n= 226)



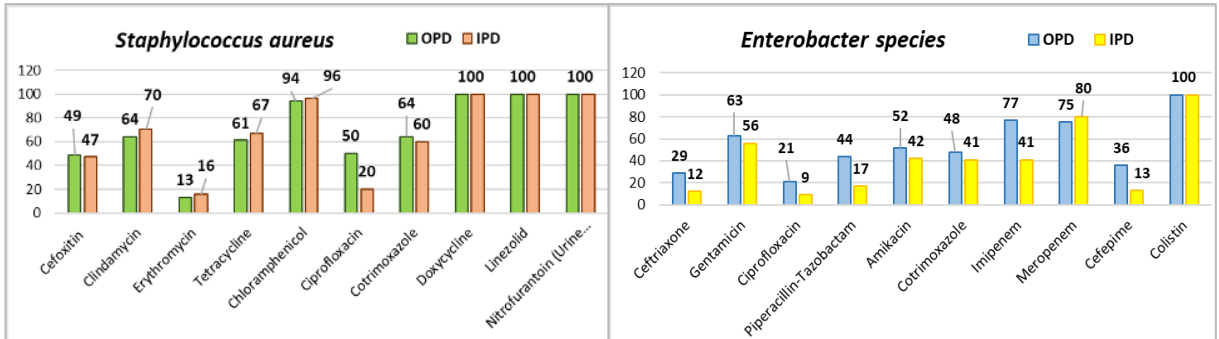
# Antimicrobial Susceptibility Pattern Of Most Common Bacterial Isolates From Various Clinical Sections (2025)

Note: Numbers in Graph indicate Susceptibility Percentage

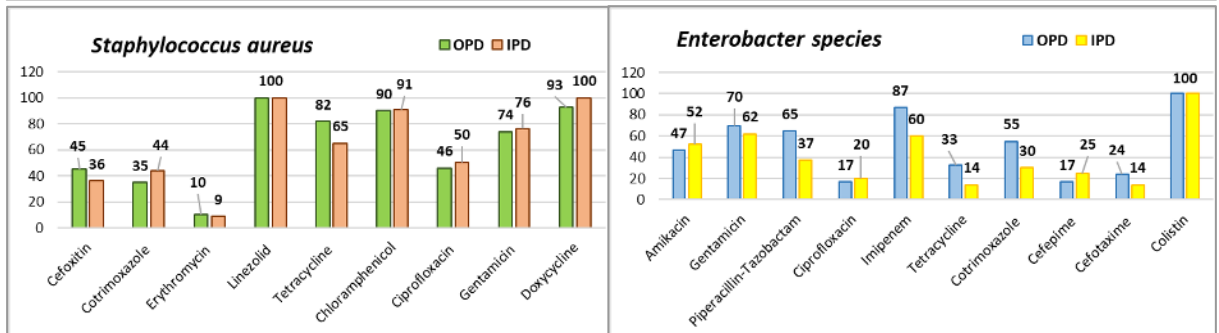
## MEDICINE



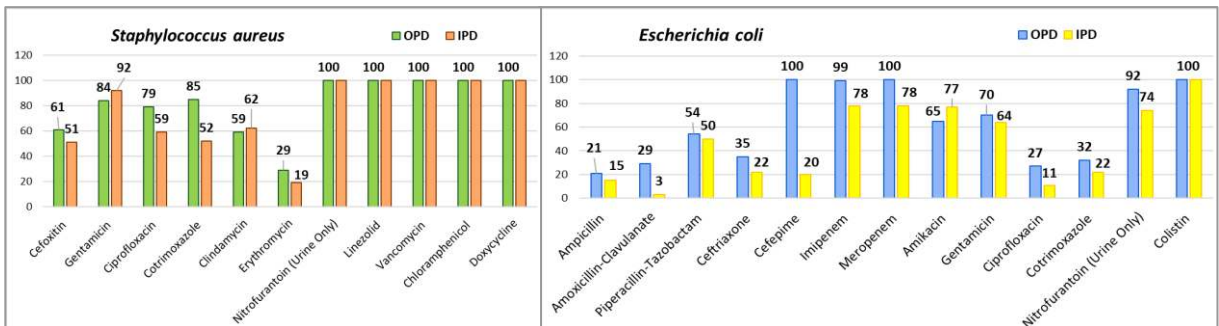
## SURGERY



## OBSTETRICS AND GYNAECOLOGY



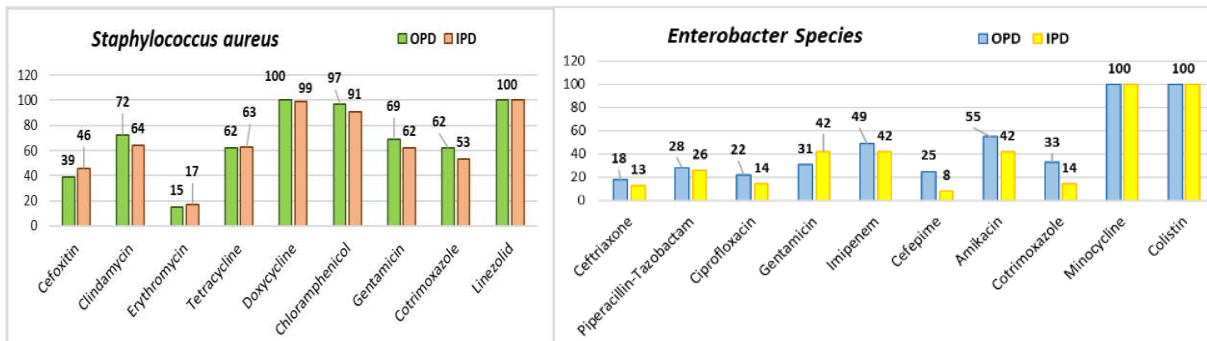
## PEDIATRICS



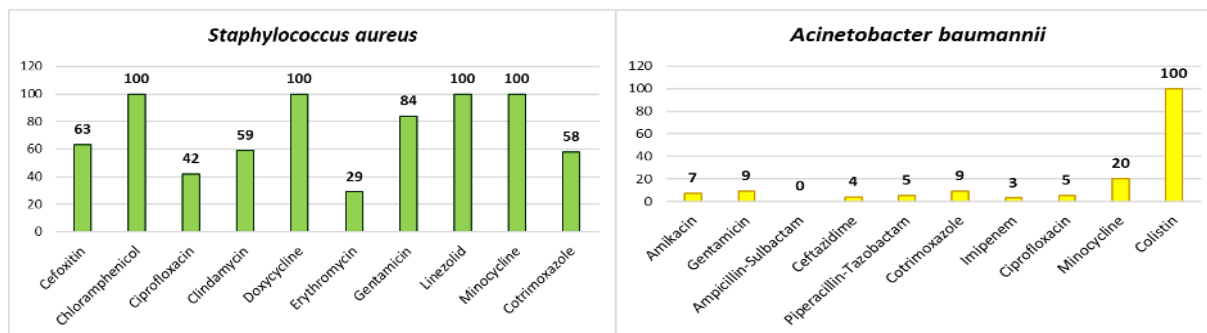
# Antimicrobial Susceptibility Pattern Of Most Common Bacterial Isolates From Various Clinical Sections (2025)

Note: Numbers in Graph indicate Susceptibility Percentage

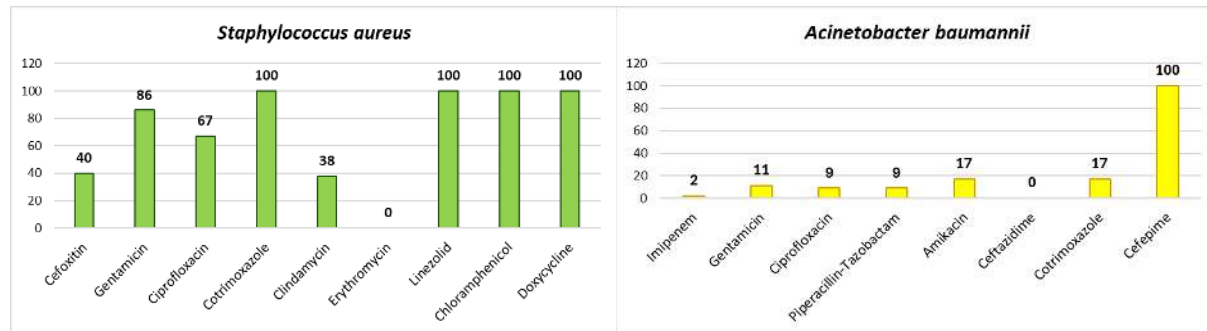
## ORTHOPEDICS



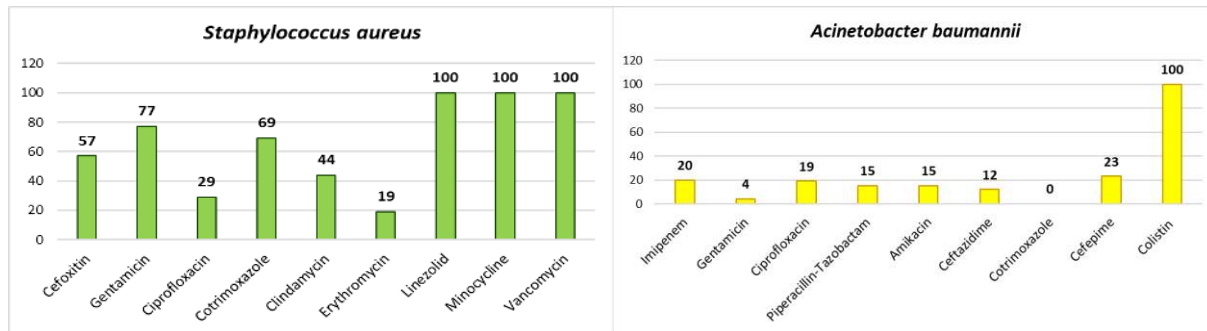
## MAIN INTENSIVE CARE UNIT (MICU)



## PEDIATRIC INTENSIVE CARE UNIT (PICU)

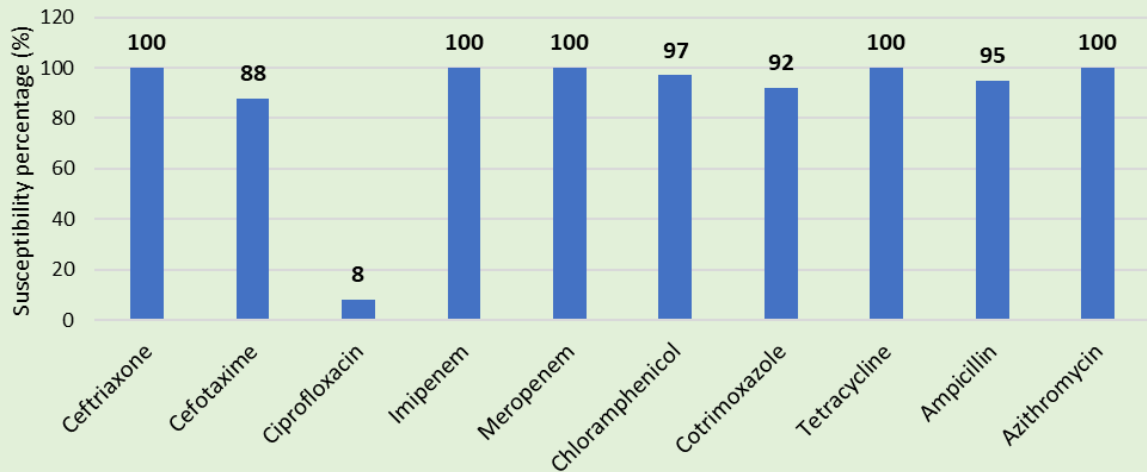


## NEONATAL INTENSIVE CARE UNIT (NICU)

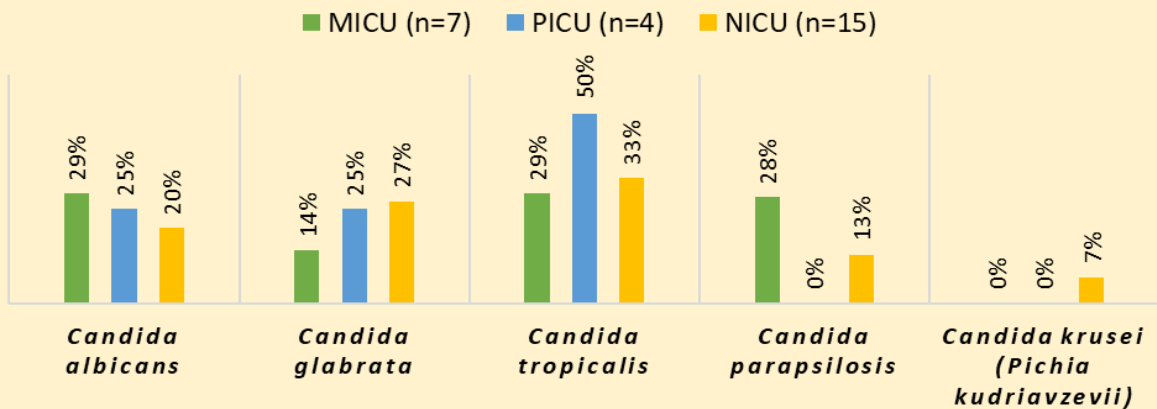


## Highlight on Alert Organisms (2025)

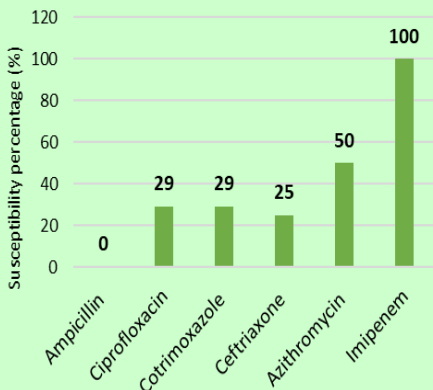
### Antimicrobial Susceptibility Pattern of *Salmonella Typhi* isolated from Blood Samples in 2025 (n=94)



### Distribution of *Candida* species isolated from Blood in ICU (2025)



### Antimicrobial Susceptibility Pattern of *Shigella* species isolated from Stool Samples in 2025 (n=8)



### Invasive Candidiasis in ICU: Key Update

- A significant proportion of yeast isolates from blood cultures are now non-*albicans* *Candida* (NAC) species, reflecting a shift in candidemia epidemiology. Emerging species such as *Candida viswanathii* have also been reported in India.
- Most isolates in our setting remain susceptible to fluconazole (77%) and voriconazole (83%). However, reduced susceptibility to azoles, particularly among NAC species, is an increasing concern. *Candida krusei* is intrinsically resistant to fluconazole but remains susceptible to voriconazole.
- Echinocandins (caspofungin, micafungin, anidulafungin) are highly effective against azole-resistant strains. Amphotericin B should be reserved for severe or resistant cases.

## Diagnostic Tests Available In Department of Microbiology

| INVESTIGATIONS                                                     | TOTAL TESTS PERFORMED (2025) |
|--------------------------------------------------------------------|------------------------------|
| <b>BACTERIOLOGY LABORATORY (CULTURE &amp; SENSITIVITY)</b>         | <b>(Room No. 325)</b>        |
| Blood Culture & Sensitivity                                        | 12918                        |
| Cerebrospinal Fluid (CSF) Culture & Sensitivity                    | 2084                         |
| Urine Culture & Sensitivity                                        | 23036                        |
| Pus & Fluids Culture & Sensitivity                                 | 9870                         |
| <b>MYCOBACTERIOLOGY LABORATORY</b>                                 | <b>(Room No. 532)</b>        |
| Pulmonary & Extrapulmonary Samples for AFB Staining                | 4703                         |
| Pulmonary & Extrapulmonary Samples for TB culture                  | 1613                         |
| Pulmonary & Extrapulmonary Samples for Molecular Testing (NAAT)    | -                            |
| <b>MYCOLOGY LABORATORY</b>                                         | <b>(Room No. 314-B)</b>      |
| Cryptococcal Antigen Test/India Ink Staining                       | 732                          |
| Glactomanan Test                                                   | 47                           |
| KOH/Calcofluor Microscopy & Culture (Biopsy Tissues & Nasal Crust) | 564                          |
| KOH Microscopy & Culture (Other Samples)                           | 3009                         |
| Fungal PCR (Biopsy Tissues & Nasal Crust)                          | 25                           |
| <b>PARASITOLOGY, ENTERIC PATHOGENS &amp; STI LABORATORY</b>        | <b>(Room No. 322)</b>        |
| Stool Culture & Sensitivity for Enteric Pathogens                  | 628                          |
| Stool Routine Microscopy (Parasites)                               | 3174                         |
| Antigen Detection & Peripheral Smear for Malarial Parasite         | 3306                         |
| Microscopy for Coccidian Parasites/ Free Living Amoeba             | -                            |
| Microscopy, Culture & Sensitivity for Gonococcus (Gc)              | -                            |
| <b>SEROLOGY LABORATORY</b>                                         | <b>(Room No. 314-A)</b>      |
| Widal Test                                                         | 27052                        |
| ASO (Antistreptolysin O) Test                                      | 446                          |
| CRP (C-reactive protein) Test                                      | 10688                        |
| RF (Rheumatoid Factor) Test                                        | 5540                         |
| VDRL Test for Syphilis                                             | 13237                        |
| TPHA Test for Syphilis                                             | 250                          |
| ANA Test (Antinuclear Antibody)                                    | 944                          |
| Scrub Typhus Antibody Test                                         | 245                          |
| Leptospira Antibody Test                                           | 239                          |
| Procalcitonin Test                                                 | 37                           |
| Anti-CCP (Cyclic Citrullinated Peptide) Antibody Test              | 1570                         |
| Anti-tissue Transglutaminase (tTG) Antibody Test                   | 556                          |
| Brucella Antigen Test                                              | 8                            |
| Immunoglobulin (IgE, IgM, IgA, IgG) Test                           | 94                           |
| <b>VIROLOGY LABORATORY</b>                                         | <b>(Room No. 311)</b>        |
| Rubella Virus Antibody Test                                        | 264                          |
| Cytomegalovirus (CMV) Antibody Test                                | 264                          |
| Herpes Simplex Viruses 1 & 2 (HSV-1/HASV-2) Antibody Test          | 264                          |
| Hepatitis B Antigen (HbsAg) Test                                   | 39601                        |
| Hepatitis C Antigen & Antibody Test                                | 23827                        |
| Hepatitis A IgM Antibody Test                                      | 1266                         |
| Hepatitis E IgM Antibody Test                                      | 1990                         |
| Dengue Serology (NS-1 Antigen & IgM Antibody) Test                 | 1140                         |

- The department is also equipped with a **NABL Accredited- Integrated Counselling and Testing Centre (ICTC) for HIV testing**, providing comprehensive diagnostic and counselling services.
- A well-established **Viral Research and Diagnostic Laboratory (VRDL-DHR, ICMR)** is also functional at **UCMS**, offering advanced **molecular diagnostic facilities**. The VRDL performs a range of tests including real-time PCR (RT-PCR) for COVID-19, PCR for chikungunya, dengue serotyping, viral load estimation for hepatitis B virus (HBV) and hepatitis C virus (HCV), H1N1, Influenza A/ B viruses, EBV, VZV, HPV, RSV, Enteroviruses, etc.
- Serology laboratory** of the department is sanctioned as **Northern Zone spoke for National Rickettsial Surveillance** by **National Reference Centre for Rickettsial Diseases (NRCRD)**.

## Academic Events Organized By Department Of Microbiology in 2025



### **“Approach towards Microbiology PG examination”**

Workshop under the aegis of IAMM Delhi Chapter, for the 3<sup>rd</sup> Years MD students of various medical colleges of Delhi NCR in September 2025



**“Exploring Cell Culture and Embryonated Egg Inoculation Techniques in Clinical Microbiology”** Workshop under the aegis of IAMM, in October 2025 as part of MICROCON 2025.



**Various activities for Antimicrobial & Antifungal Awareness Weeks 2025**



# AWaRe Classification of Antibiotics by WHO

| ACCESS                                                                                              |                                                                                                                                                                 | WATCH                                                                                                                                                               |                                                                                                    |                                                                                                                                        | RESERVE                                                          |                                                                               |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Aminocyclitols</b><br>Spectinomycin                                                              | <b>Nitrofurans derivatives</b><br>Nitrofurantoin                                                                                                                | <b>Aminoglycosides</b><br>Kanamycin<br>Neomycin<br>Netilmicin<br>Streptomycin<br>Tobramycin                                                                         | <b>Glycopeptides</b><br>Teicoplanin<br>Vancomycin IV                                               | <b>Second-generation cephalosporins</b><br>Cefaclor<br>Cefmetazole<br>Cefotetan<br>Cefoxitin<br>Cefuroxime                             | <b>Aminoglycosides</b><br>Plazomicin                             | <b>Phosphonics</b><br>Fosfomycin IV                                           |
| <b>Aminoglycosides</b><br>Amikacin<br>Gentamicin                                                    | <b>Sulfonamide-trimethoprim combinations</b><br>Sulfamethoxazole/trimethoprim                                                                                   | <b>Beta-lactam/beta-lactamase inhibitor (anti-pseudomonal)</b><br>Piperacillin/tazobactam                                                                           | <b>Macrolides</b><br>Azithromycin<br>Clarithromycin<br>Erythromycin<br>Roxithromycin<br>Spiramycin | <b>Steroid antibacterials</b><br>Fusidic acid                                                                                          | <b>Glycopeptides</b><br>Dalbavancin<br>Oritavancin<br>Telavancin | <b>Pleuromutilin</b><br>Lefamulin                                             |
| <b>Beta-lactam/ beta-lactamase inhibitor</b><br>Amoxicillin/clavulanic acid<br>Ampicillin sulbactam | <b>Penicillins</b><br>Amoxicillin<br>Ampicillin<br>Benzathine<br>benzylpenicillin<br>Benzylpenicillin<br>Cloxacillin<br>Dicloxacillin<br>Nafcillin<br>Oxacillin | <b>Beta-lactamase inhibitors</b><br>Tazobactam                                                                                                                      | <b>Penicillins</b><br>Azlocillin<br>Carbenicillin<br>Mezlocillin<br>Piperacillin<br>Ticarcillin    | <b>Tetracyclines</b><br>Chlortetracycline<br>Demeclocycline<br>Minocycline oral                                                        | <b>Glycylcyclines</b><br>Tigecycline                             | <b>Streptogramins</b><br>Dalfopristin/quinupristin                            |
| <b>Beta-lactamase inhibitor</b><br>Sulbactam                                                        | <b>Sulfonamides</b><br>Sulfadiazine<br>Sulfamethoxazole                                                                                                         | <b>Carbapenems</b><br>Doripenem<br>Ertapenem<br>Imipenem/cilastatin<br>Meropenem                                                                                    | <b>Phosphonics</b><br>Fosfomycin oral                                                              | <b>Third-generation cephalosporins</b><br>Cefixime<br>Cefoperazone<br>Cefotaxime<br>Cefpodoxime proxetil<br>Ceftazidime<br>Ceftriaxone | <b>Lipopeptides</b><br>Daptomycin                                | <b>Tetracyclines</b><br>Minocycline IV                                        |
| <b>First-generation cephalosporins</b><br>Cefadroxil<br>Cefalexin<br>Cefalotin<br>Cefazolin         | <b>Tetracyclines</b><br>Doxycycline<br>Tetracycline                                                                                                             | <b>Fluoroquinolones</b><br>Ciprofloxacin<br>Gatifloxacin<br>Gemifloxacin<br>Grepafloxacin<br>Levofloxacin<br>Moxifloxacin<br>Norfloxacin<br>Ofloxacin<br>Pefloxacin | <b>Quinolones</b><br>Cinoxacin<br>Flumequine                                                       | <b>Fourth-generation cephalosporins</b><br>Cefepime<br>Cefpirome                                                                       | <b>Monobactams</b><br>Aztreonam                                  | <b>Other cephalosporins</b><br>Cefiderocol                                    |
| <b>Imidazoles</b><br>Metronidazole<br>Ornidazole<br>Secnidazole<br>Tinidazole                       | <b>Trimethoprim derivatives</b><br>Trimethoprim                                                                                                                 |                                                                                                                                                                     | <b>Rifamycins</b><br>Rifabutin<br>Rifampicin<br>Rifamycin<br>Rifaximin                             |                                                                                                                                        | <b>Oxazolidinones</b><br>Linezolid<br>Tedizolid                  | <b>Carbapenems</b><br>Imipenem/cilastatin/relebactam<br>Meropenem/vaborbactam |
|                                                                                                     | <b>Lincosamides</b><br>Clindamycin                                                                                                                              |                                                                                                                                                                     |                                                                                                    |                                                                                                                                        | <b>Third-generation cephalosporins</b><br>Ceftazidime/avibactam  |                                                                               |
|                                                                                                     |                                                                                                                                                                 |                                                                                                                                                                     |                                                                                                    |                                                                                                                                        | <b>Fifth-generation cephalosporins</b><br>Ceftolozane/tazobactam |                                                                               |

| BACTERIA                                                       | INTRINSIC RESISTANCE TO ANTIMICROBIAL AGENTS- CLSI M-100- 36 <sup>TH</sup> EDITION                                                                                      |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enterobacteriales</b>                                       | Clindamycin, Glycopeptides (vancomycin), Lipoglycopeptides (teicoplanin), Linezolid, Macrolides (Erythromycin, Clarithromycin, and Azithromycin)                        |
| <i>Klebsiella species</i><br><i>Citrobacter koseri</i>         | Ampicillin, Ticarcillin                                                                                                                                                 |
| <i>Klebsiella aerogenes</i><br>(formerly <i>Enterobacter</i> ) | Ampicillin, Amoxicillin-clavulanate, Ampicillin-sulbactam, 1 <sup>st</sup> Generation Cephalosporins (Cefazolin, Cephalothin), Cephamycins (Cefoxitin, cefotetan)       |
| <i>Citrobacter freundii</i><br><i>Serratia marcescens</i>      | Ampicillin, Amoxicillin-clavulanate, Ampicillin-sulbactam, 1 <sup>st</sup> & 2 <sup>nd</sup> Generation Cephalosporins (Cefuroxime), Cephamycins (Cefoxitin, cefotetan) |
| <i>Proteus mirabilis</i>                                       | Tetracycline, Tigecycline, Nitrofurantoin, Polymyxin B, Colistin, Imipenem                                                                                              |
| <i>Proteus vulgaris</i>                                        | Tetracycline, Tigecycline, Nitrofurantoin, Polymyxin B, Colistin, Ampicillin, 1 <sup>st</sup> & 2 <sup>nd</sup> Generation Cephalosporins                               |
| <i>Salmonella &amp; Shigella species</i>                       | Aminoglycosides, 1 <sup>st</sup> & 2 <sup>nd</sup> Generation Cephalosporins, and Cephamycins                                                                           |
| <i>Pseudomonas aeruginosa</i>                                  | Ampicillin, Amoxicillin, Amoxicillin-clavulanate, Ampicillin-sulbactam, Ertapenem, Chloramphenicol, Cotrimoxazole, Cefotaxime, Ceftriaxone, Tetracycline, Tigecycline   |
| <i>Acinetobacter species</i>                                   | Ampicillin, Amoxicillin, Amoxicillin-clavulanate, Ertapenem, Chloramphenicol, Fosfomycin, Aztreonam                                                                     |
| <b>Gram Positive Cocci</b>                                     | Aztreonam, Polymyxin B/Colistin, Nalidixic acid                                                                                                                         |
| <i>Enterococcus species</i>                                    | Cephalosporins, Aminoglycosides (Except High Level), Clindamycin, Cotrimoxazole                                                                                         |

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**Acknowledgements:** Dr. Angelene Ekka (PG-2), Dr. Naqsh Rahman (PG-2)

All SRs and PGs of Department of Microbiology, UCMS & GTB Hospital, Delhi

National Programme on Antimicrobial Resistance Containment, NCDC, Delhi