

# Hospital Antibiotic policy

(July 2023 to June 2024)



Department of Microbiology

SVIMS – SPMC (W), Tirupati

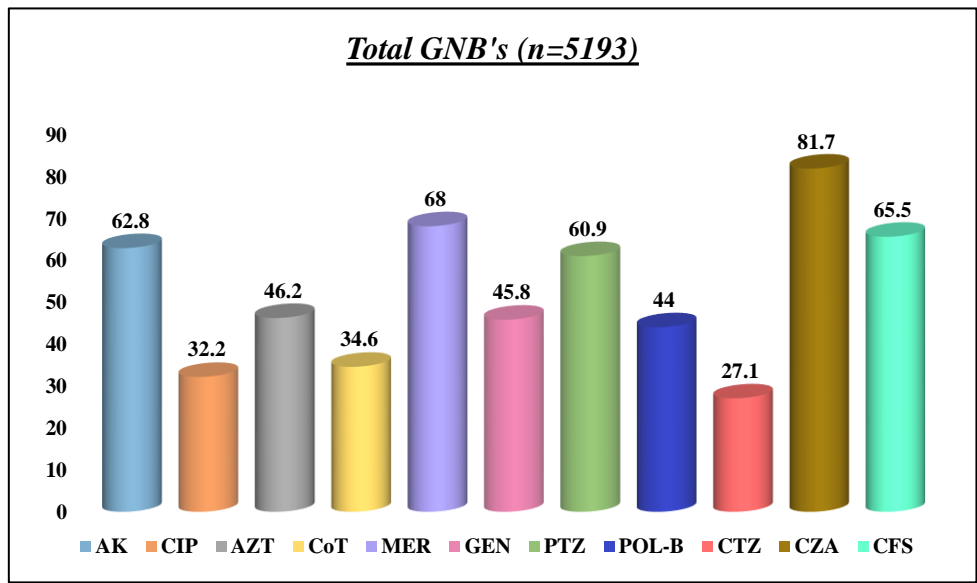
Greetings from Antimicrobial stewardship program committee team,

- Antimicrobial resistance (AMR) results in increased morbidity, mortality and costs of health care.
- Prevention of the emergence of resistance and the dissemination of resistant organisms will reduce these adverse effects and their attendant costs.
- In SVIMS, 28.96% of Multidrug Resistance (MDR) was contributed by *Escherichia coli* followed by *Klebsiella spp*(14.5%), *Pseudomonas spp* (10.8%) and *Acinetobacter spp*(4.54%) among Gram negative bacteria.
- As per our local antibiogram, empirical choice of antibiotic in **ICUs** in our institute is **Cefoperazone + sulbactam**. In case of suspicion of *Pseudomonas spp* infections, empirical choice of antibiotic is **Piperacillin+ Tazobactam**.
- Based on Gram staining report, empirical choice for Gram negative bacilli is **Cefoperazone+ sulbactam**, and for Gram positive bacteria is **Vancomycin** in all ICUs depending on the department.
- In our hospital, Percentage of Methicillin resistance *Staphylococcus aureus* (MRSA) was 44.1%, Methicillin sensitive *Staphylococcus aureus* (MSSA) was 53.1%, Methicillin resistance *Coagulase negative Staphylococcus* (MRCoNS) was 33.1%, Vancomycin resistance *Staphylococcus aureus* (VRSA) was 1.2% Vancomycin resistance *Coagulase negative Staphylococcus* (VRCoNS) was 1.1% and VRE being 11.6%.
- As percentage of Methicillin resistance being high, mandate recommendation for HCWs is to follow standard precautions (Hand Hygiene, Contact precautions) strictly at all times of patient care.
- Carbapenem resistance was noted high in *E.coli*(32.5%) followed by *Klebsiellae spp* (28.2%) followed by *Acinetobacter spp* (19.2%) and *Pseudomonas spp* (15.5%).
- Among isolated MDR Enterobacteriaceae, 23.6% were Carbapenem resistant Enterobacteriaceae (CRE).

**So cautious and judicious prescription of carbapenems is required.**

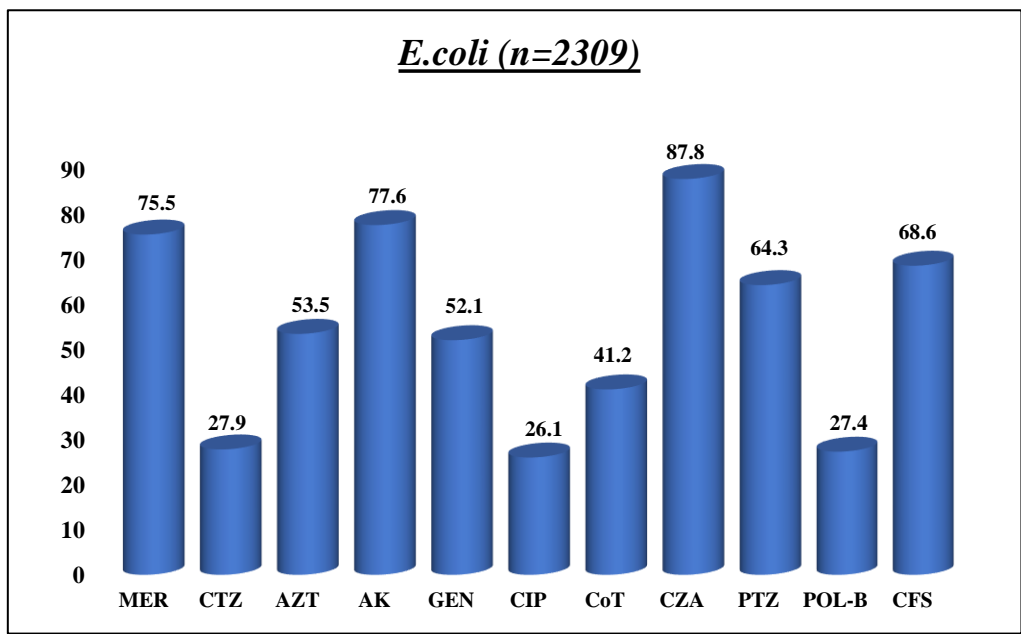
**Note : Empirical therapy should be reviewed once the culture and susceptibility results are ready (usually within 72 hours) and targeted therapy should be started immediately and wherever possible give the narrowest spectrum antibiotic based on culture and sensitivity report, the site of infection and the clinical status of the patient.**

**Percentage of susceptibility to various antimicrobials among isolated Gram-Negative Pathogens**



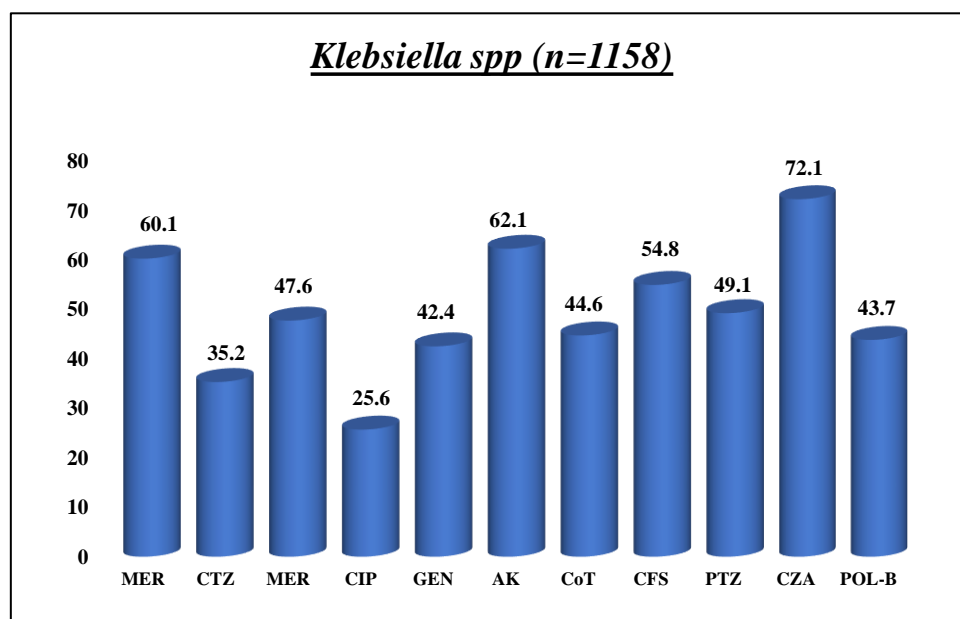
AK-Amikacin, CIP-Ciprofloxacin, AZT-Aztreonam, CoT-Cotrimoxazole, MER-Meropenem, GEN-Gentamicin, PTZ-piperacillin-tazobactam, POL b- polymyxin-b, CTZ- Ceftriaxone, CZA – Ceftazidime avibactam, CFS-Cefoperazone-sulbactam.

**Percentage of susceptibility to various antimicrobials among isolated *E.coli***



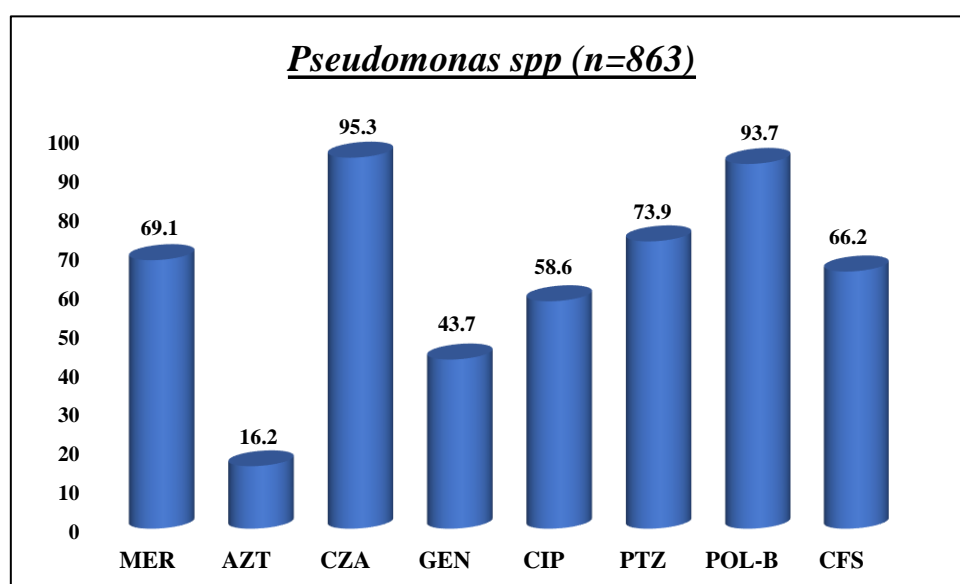
MER-Meropenem, CTZ-Ceftriaxone, AZT-Aztreonam, AK-Amikacin, GEN-Gentamicin, CIP-Ciprofloxacin, CoT-Cotrimoxazole, CZA-Ceftazidime avibactam, PTZ-piperacillin-tazobactam, POL b- polymyxin-b, CFS-Cefoperazone-sulbactam.

**Percentage of susceptibility to various antimicrobials among isolated *Klebsiella spp***



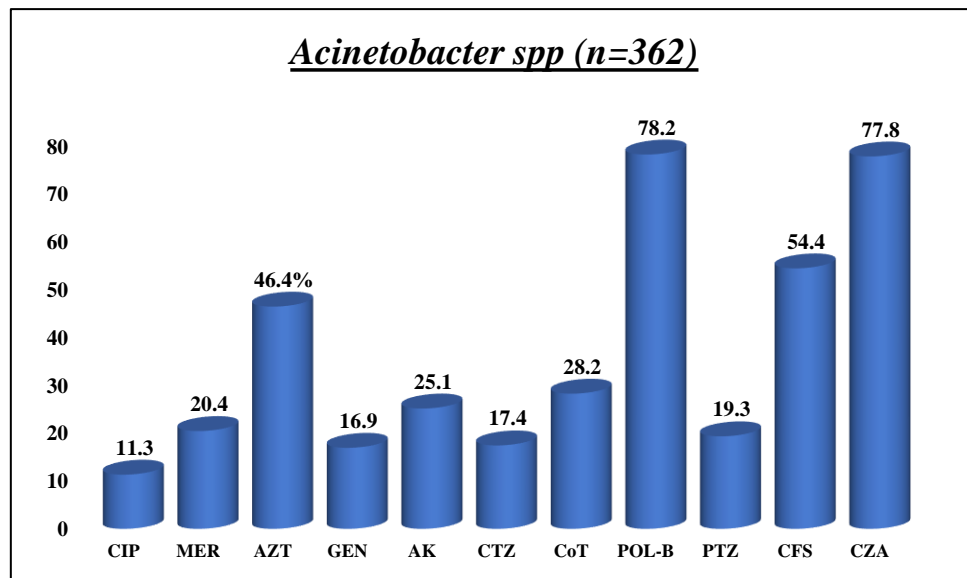
MER-Meropenem, CTZ-Ceftriaxone, AZT-Aztreonam, CIP-Ciprofloxacin, GEN-Gentamicin, AK-Amikacin, CoT-Cotrimoxazole, CFS-Cefoperazone-sulbactam, PTZ-piperacillin-tazobactam, CZA-Ceftazidime avibactam, POL b- polymyxin-b.

**Percentage of susceptibility to various antimicrobials among isolated *Pseudomonas spp***



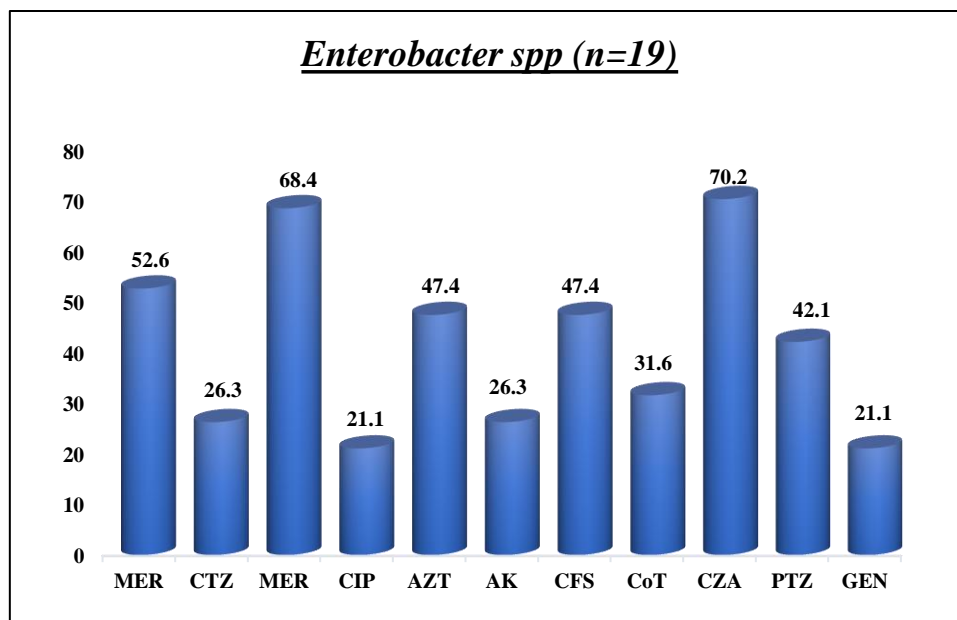
MER-Meropenem, AZT-Aztreonam, CZA-Ceftazidime avibactam, GEN-Gentamicin, CIP-Ciprofloxacin, PTZ-piperacillin-tazobactam, POL b- polymyxin-b, CFS-Cefoperazone-sulbactam.

**Percentage of susceptibility to various antimicrobials among isolated *Acinetobacter spp***



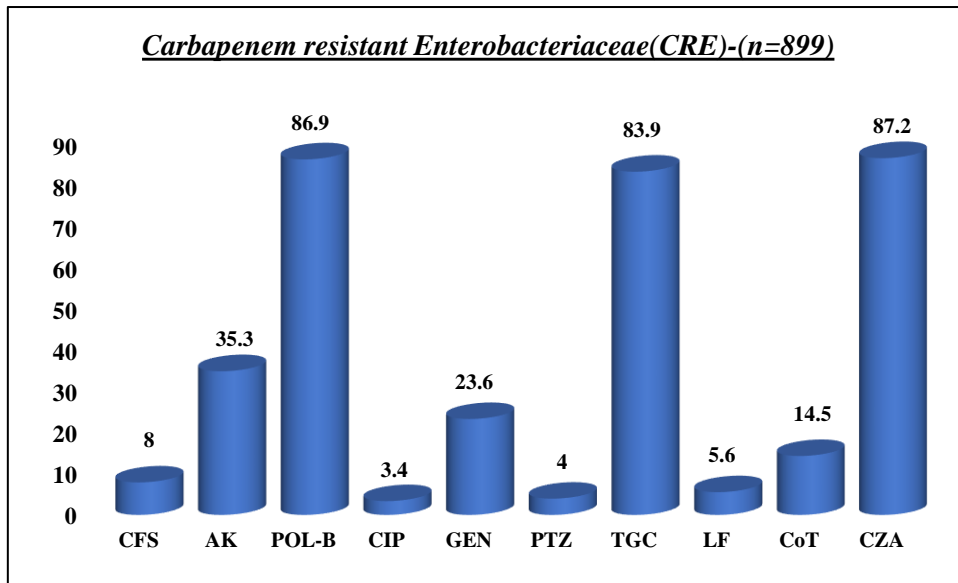
CIP-Ciprofloxacin, MER-Meropenem, AZT-Aztreonam, GEN-Gentamicin, AK-Amikacin, CTZ- Ceftriaxone, CoT-Cotrimoxazole, PTZ-piperacillin-tazobactam, POL b- polymyxin-b, CFS-Cefoperazone-sulbactam, CZA-Ceftazidime avibactam

**Percentage of susceptibility to various antimicrobials among isolated *Enterobacter spp***



MER-Meropenem, CTZ-Ceftriaxone, AZT-Aztreonam, CIP-Ciprofloxacin, POL b- polymyxin-b, AK-Amikacin, CFS-Cefoperazone-sulbactam, CoT-Cotrimoxazole, CZA-Ceftazidime avibactam, PTZ-piperacillin-tazobactam, GEN-Gentamicin.

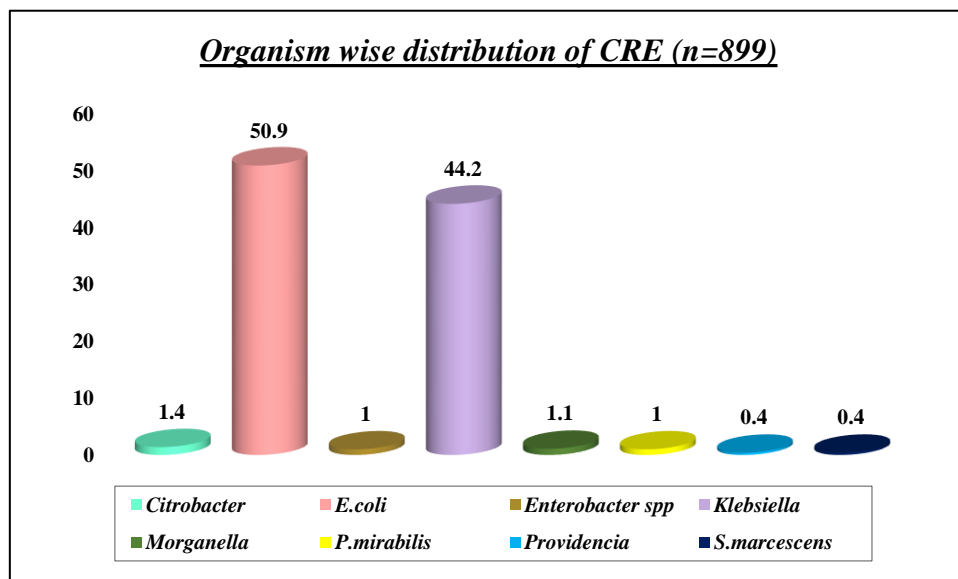
**Percentage of susceptibility to various antimicrobials among isolated *Carbapenem resistant Enterobacteriaceae (CRE)***



CFS-Cefoperazone-sulbactam, AK-Amikacin, POL b- polymyxin-b, CIP-Ciprofloxacin, GEN-Gentamicin, PTZ-piperacillin-tazobactam, TGC=Tigecycline, LF-Levofloxacin, CoT-Cotrimoxazole, CZA-Ceftazidime avibactam.

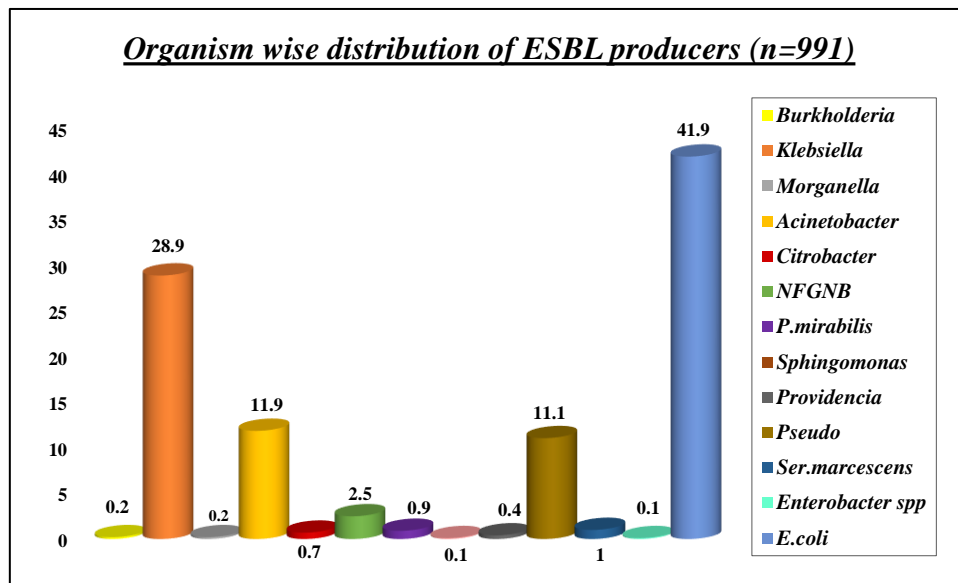
Around 87% of the CRE isolates were sensitive to Ceftazidime avibactam followed by Polymyxin b(86%) & Tigecycline(84%), followed by Amikacin(35%), followed by Gentamicin(24%) and others.

**Percentage of organism wise distribution of *Carbapenem resistant Enterobacteriaceae (CRE's)***



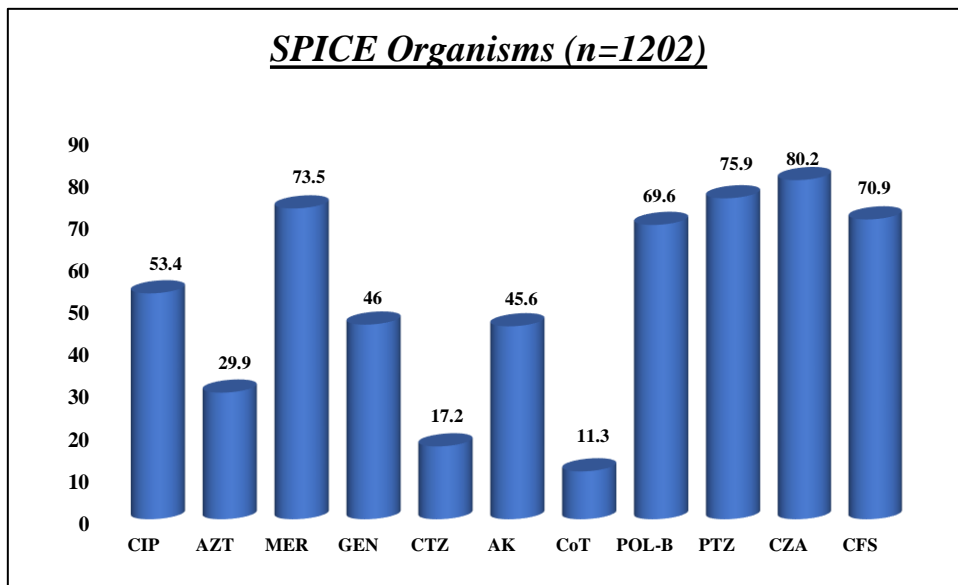
Around 51% of CRE's were contributed by *E.coli*, followed by *Klebsiella* (44%), followed by others.

**Percentage of organism wise distribution of Extended spectrum Beta-lactamase (ESBL) producers.**



Around 42% of ESBL's were contributed by *E.coli* followed by *Klebsiella* (29%), followed by *Acinetobacter* (12%), followed by *Pseudomonas* (11%), followed by others.

**Percentage of susceptibility to various antimicrobials among isolated SPICE organisms.**

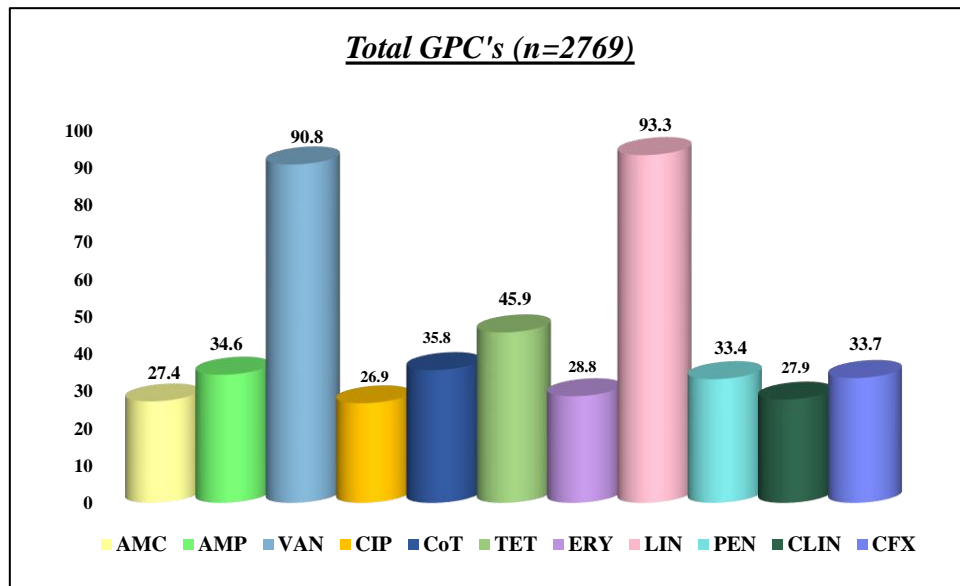


**SPICE (*Serratia*, *Pseudomonas spp*, *Proteus spp* – *Providencia* – *Morganella*, *Citrobacter*, *Enterobacter spp*)**

CIP-Ciprofloxacin, AZT-Aztreonam, MER-Meropenem, GEN-Gentamicin, CTZ-Ceftriaxone, AK-Amikacin, CoT-Cotrimoxazole, POL B-Polymyxin b, PTZ-Piperacillin+Tazobactam, CZA-Ceftazidime avibactam, CFS- Cefoperazone+Sulbactam.

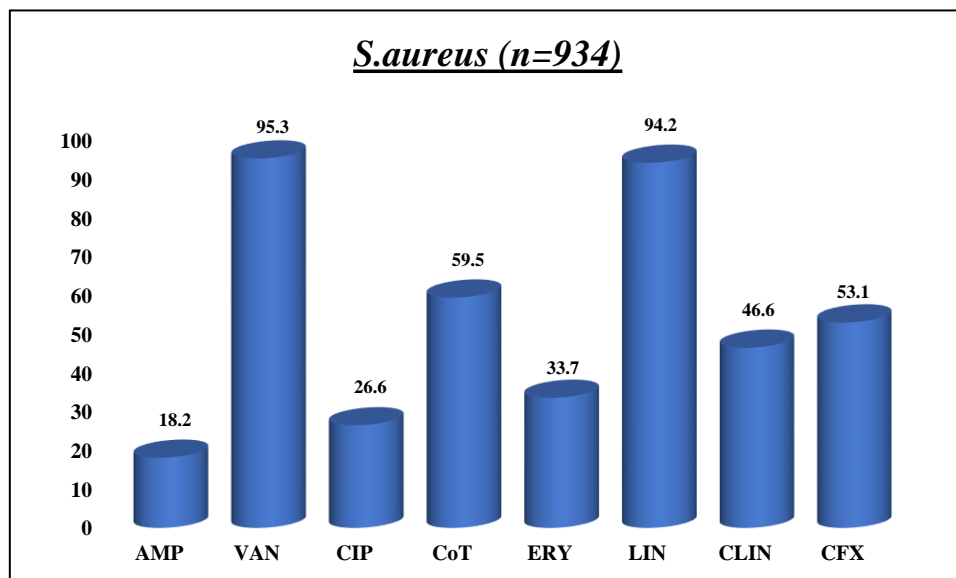
*SPICE* organisms shared higher susceptibility to Ceftazidime avibactam followed by Beta lactam - Beta lactamase inhibitors & Carbapenems followed by Polymyxin b followed by Ciprofloxacin, followed by Amikacin and others.

**Percentage of susceptibility to various antimicrobials among isolated Gram-Positive Pathogens**



AMC-Amoxy-clav, AMP-Ampicillin, VAN-Vancomycin, CIP-Ciprofloxacin, CoT-Cotrimoxazole, TET-Tetracycline, ERY-Erythromycin, LIN-Linezolid, PEN-Penicillin, CLIN-Clindamycin, CFX-Cefoxitin.

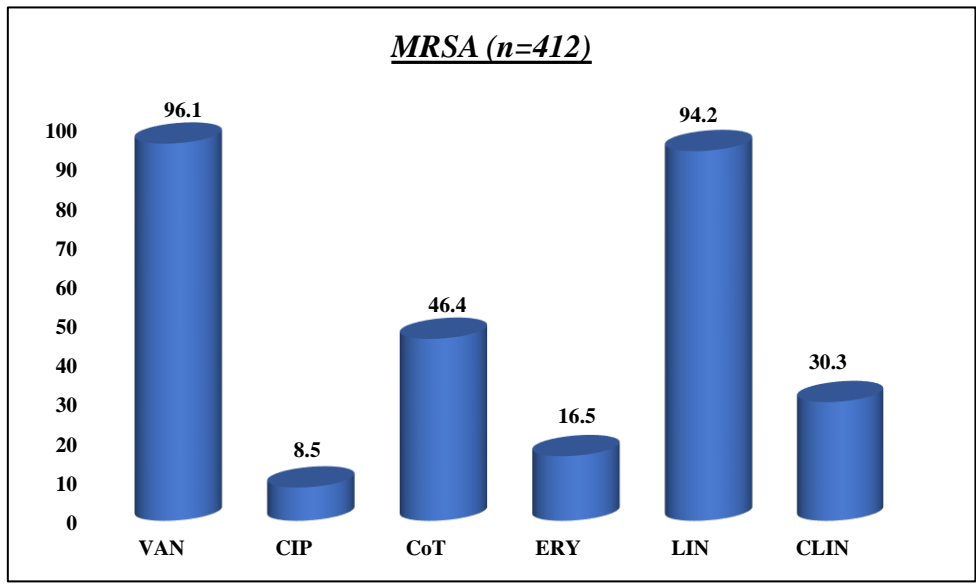
**Percentage of susceptibility to various antimicrobials among isolated *S.aureus***



AMP-Ampicillin, VAN-Vancomycin, CIP-Ciprofloxacin, CoT-Cotrimoxazole, ERY-Erythromycin, LIN-Linezolid, CLIN-Clindamycin, CFX-Cefoxitin.

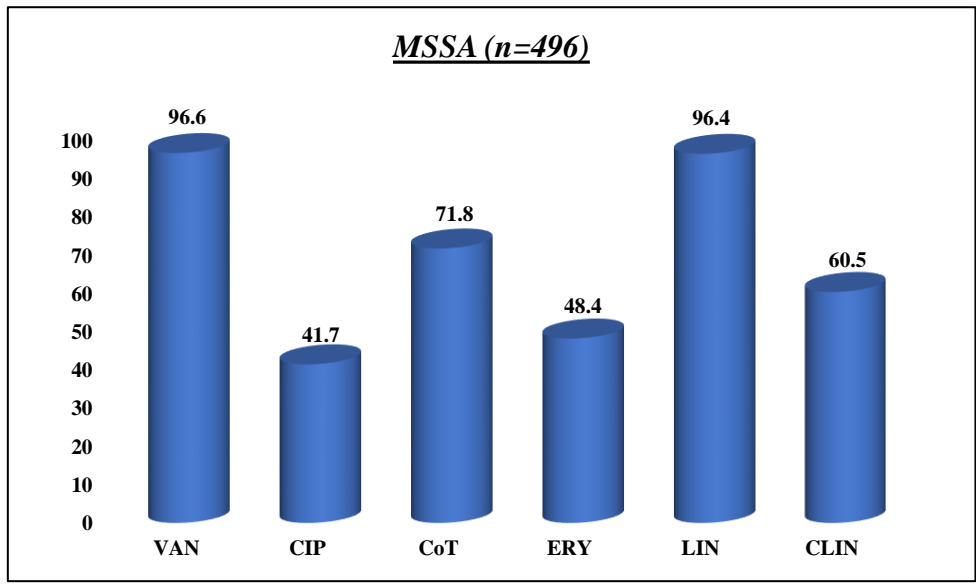


**Percentage of susceptibility to various antimicrobials among isolated *Methicillin resistant Staphylococcus aureus (MRSA)***



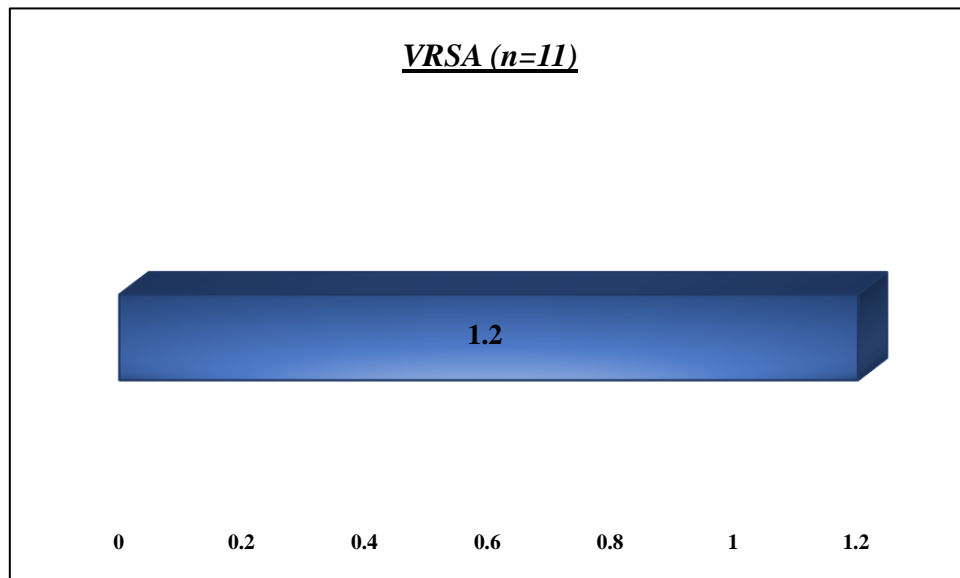
VAN-Vancomycin, CIP-Ciprofloxacin, CoT-Cotrimoxazole, ERY-Erythromycin, LIN-Linezolid, CLIN-Clindamycin.

**Percentage of susceptibility to various antimicrobials among isolated *Methicillin sensitive Staphylococcus aureus (MSSA)***

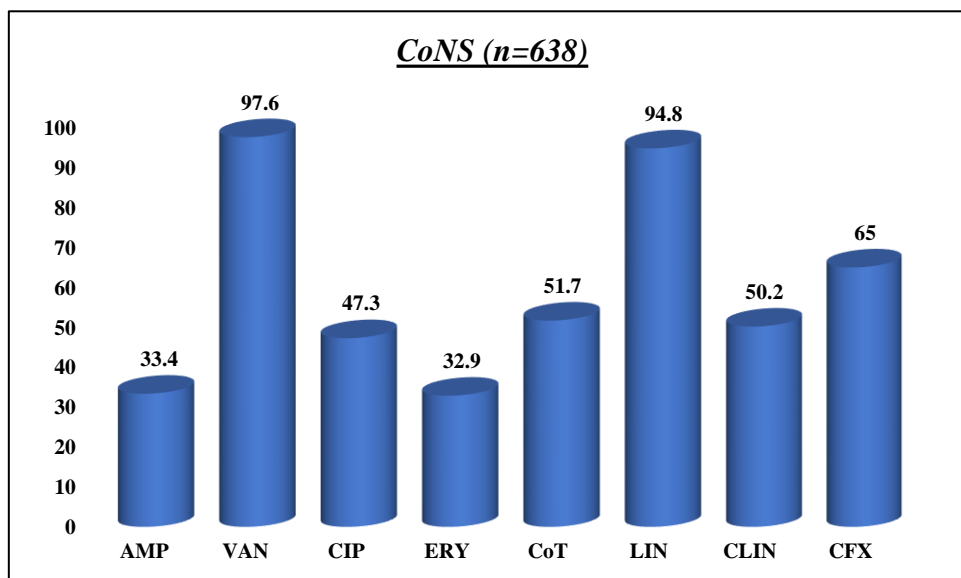


VAN-Vancomycin, CIP-Ciprofloxacin, CoT-Cotrimoxazole, ERY-Erythromycin, LIN-Linezolid, CLIN-Clindamycin.

**Percentage of Resistance among isolated *Vancomycin resistant Staphylococcus aureus* (VRSA)**

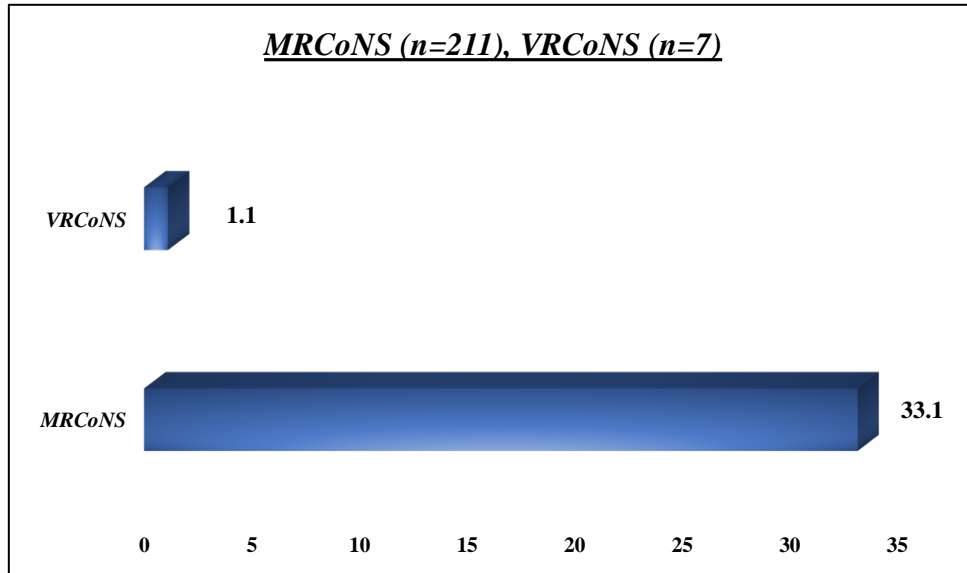


**Percentage of susceptibility to various antimicrobials among *Coagulase negative staphylococcus spp. (CoNS)***

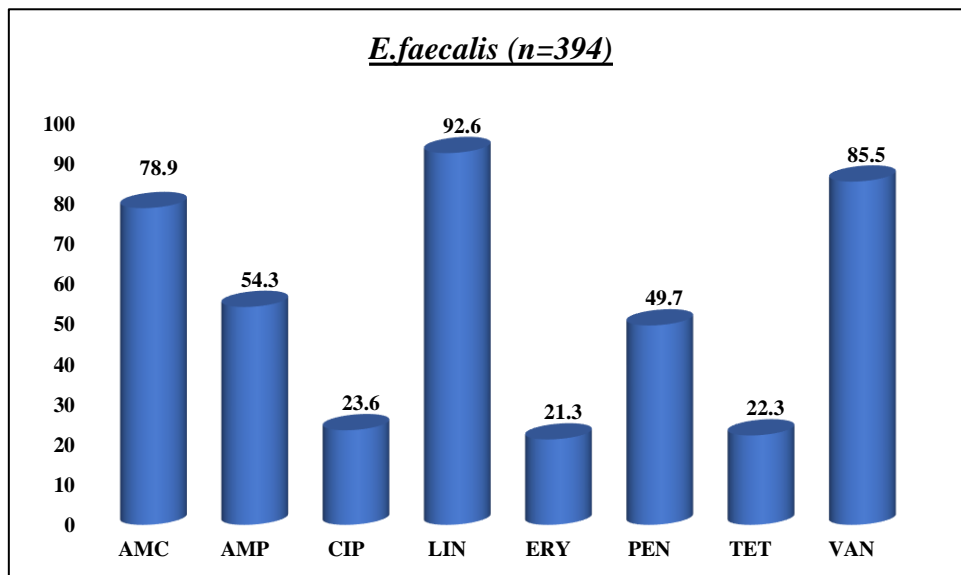


AMP-Ampicillin, VAN-Vancomycin, CIP-Ciprofloxacin, ERY-Erythromycin, CoT-Cotrimoxazole, LIN-Linezolid, CLIN-Clindamycin, CFX-Cefoxitin.

**Percentage of Resistance among isolated Methicillin resistant Coagulase negative staphylococcus spp. (MRCoNS) & Vancomycin resistant Coagulase negative staphylococcus spp. (VRCoNS)**

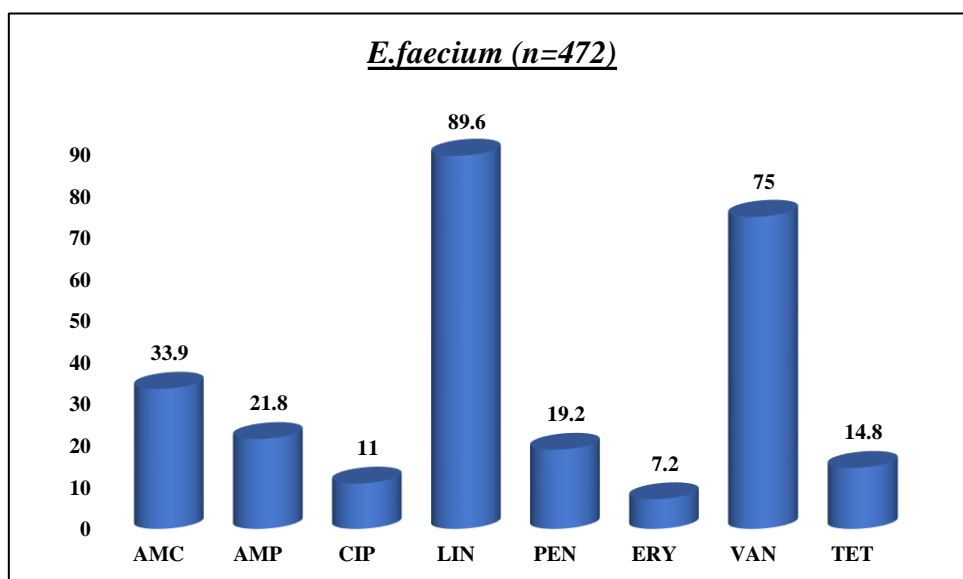


**Percentage of susceptibility to various antimicrobials among *E.faecalis***



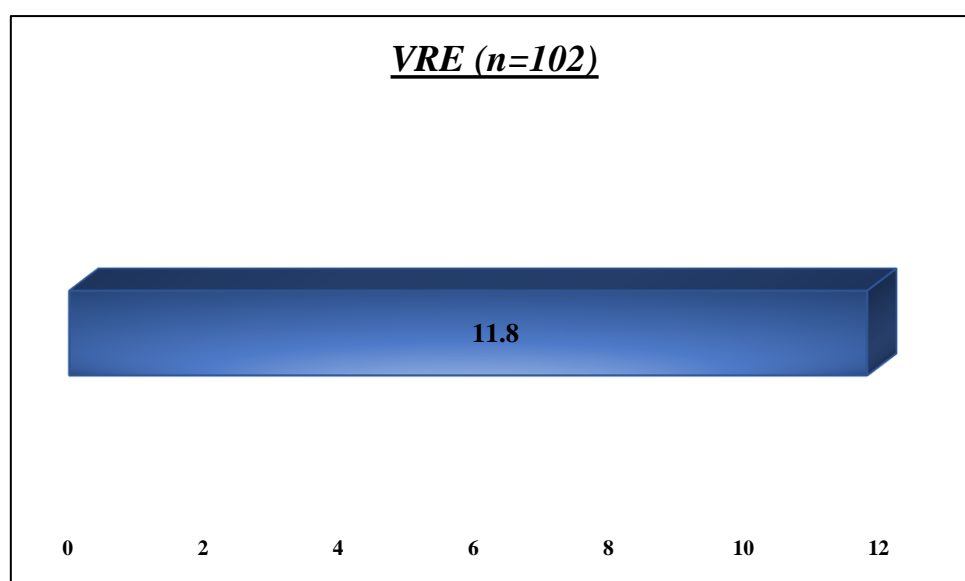
AMC-Amoxy-clav, AMP-Ampicillin, CIP-Ciprofloxacin, LIN-Linezolid, ERY-Erythromycin, PEN-Penicillin, TET-Tetracycline, VAN-Vancomycin.

**Percentage of susceptibility to various antimicrobials among *E.faecium***



AMC-Amoxy-clav, AMP-Ampicillin, CIP-Ciprofloxacin, LIN-Linezolid, PEN-Penicillin, ERY-Erythromycin, VAN-Vancomycin, TET-Tetracycline.

**Percentage of Resistance among isolated *Vancomycin resistant Enterococcus (VRE)***



## Percentage of resistance among Gram positive isolates

