

The Distribution of Methicillin-resistant *Staphylococcus aureus* (MRSA) and Carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) in the Academic Complex Central Hospital in KwaZulu-Natal (KZN), South Africa (SA)



Rexe N¹, Kajee A², Singh R^{1,2}, Swe-Swe Han K^{1,2}

¹School of Laboratory Medicine and Medical Sciences, Nelson R. Mandela School of Medicine, University of Kwa-Zulu Natal
²Department of Medical Microbiology, National Health Laboratory Service, Inkosi Albert Luthuli Hospital, Kwa-Zulu Natal, South Africa



INTRODUCTION

- Antibiotic resistance (AR) is estimated to be responsible for over 700,000 deaths every year, a number that could rise to 10 million in 2050 [1].
- The ESKAPE pathogens are widely recognized as a leading cause of AR [2].
- Methicillin-resistant *Staphylococcus aureus* (MRSA) infections cause significant morbidity and mortality, affecting millions of people every year [2].
- The prevalence of carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) has been alarming, resulting in increased healthcare-associated infections and limited treatment options [3].

AIM

- To determine the prevalence of MRSA and CRPA from January 2020 to July 2023 at an academic referral hospital in KwaZulu-Natal.

METHODS

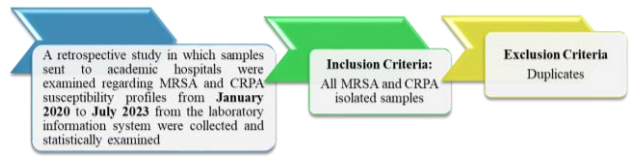


Figure 1: Flow diagram of methods used

RESULTS & DISCUSSION

- The study found a prevalence of MRSA of 20.9% (292/1399), 18.0% (264/1470), and 17.0% (248/1459) for the years 2020, 2021, and 2022 respectively.
- The prevalence of CRPA was 13.2% (107/813), 12.7% (129/1019), and 13.9% (134/965) for 2020, 2021 and 2022 respectively.

RESULTS & DISCUSSION

- From January 2023 to the present, 17.8% (151/846) of MRSA cases and 13.3% (69/519) of CRPA cases have been identified (Fig. 2).

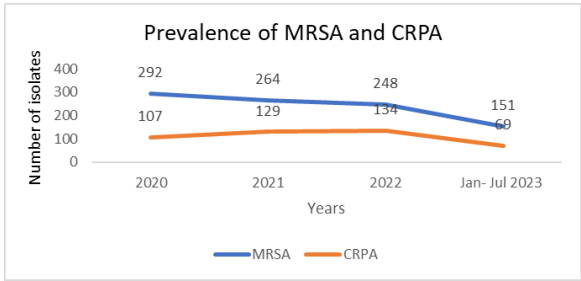


Figure 2: Number of MRSA and CRPA 2020 and 2023

- Infections associated with MRSA and CRPA were mostly in ICU (Fig 3&4).

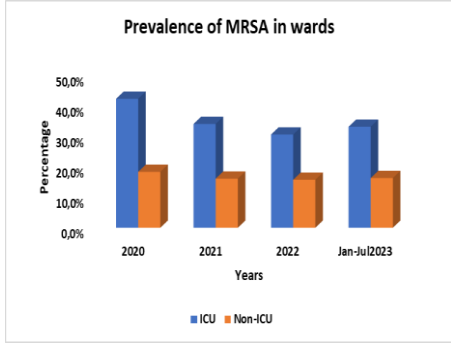


Figure 3: Prevalence of MRSA

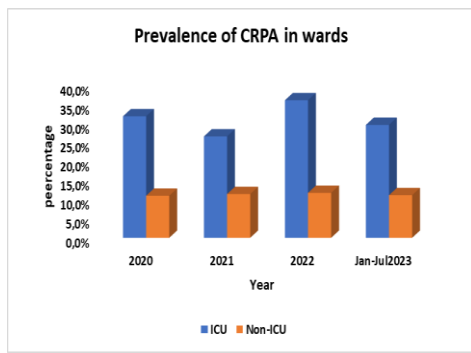


Figure 4: Prevalence of CRPA

RESULTS & DISCUSSION

- Our data suggest that Neonates and infants are the most common carriers of MRSA and CRPA (Table 1&2).

Table 1: Prevalence of MRSA from 2020 to 2023 in different age groups

Age category	2020 (%)	2021 (%)	2022 (%)	07/2023 (%)
Neonates (0-1 mth)	56,5	45,3	43,6	0,0
Infants (1 mth-1yr)	22,2	16,7	22,6	39,6
Child (1-12 yrs)	10,0	10,0	9,0	12,7
Young Adult (13-19 yrs)	26,8	14,3	18,3	20,4
Mid-Aged Adult (20-39 yrs)	20,0	20,0	18,8	16,5
Adults (40-59 yrs)	17,8	17,6	18,8	16,1
Elderly (60+)	20,7	13,7	11,9	13,8
No age captured	14,3	10,5	15,2	0,0

Table 2: Prevalence of CRPA from 2020 to 2023 in different age groups

Age category	2020 (%)	2021 (%)	2022 (%)	07/2023 (%)
Neonates (0-1 mth)	20,6	25,0	27,3	0,0
Infants (1 mth-1yr)	15,2	21,8	36,5	32,0
Child (1-12 yrs)	15,2	13,4	17,8	11,8
Young Adult (13-19 yrs)	31,0	13,2	8,1	3,4
Mid-Aged Adult (20-39 yrs)	11,4	11,2	11,8	9,3
Adults (40-59 yrs)	13,0	14,0	8,4	13,3
Elderly (60+)	7,4	6,3	10,4	15,1
No age captured	0,0	0,0	0,0	0,0

CONCLUSION

- Our study suggests the gradual increase in CRPA calls for ongoing surveillance.
- The misuse of antibiotics in ICU and the neonate population is evident, therefore improved antimicrobial stewardship, novel drugs, infection prevention, control programs are needed for improved patient care.

REFERENCES

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