

REDUCING KLEBSIELLA PNEUMONIAE INFECTIONS IN THE NICU: A MULTIDISCIPLINARY SUCCESS STORY

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Introduction:

Klebsiella pneumoniae is a gram-negative bacilli associated with severe infections particularly in the immunocompromised, elderly and neonatal populations. The Neonatal Intensive Care Unit (NICU) admits infants that have risk factors making them susceptible to opportunistic infections.¹ Prolonged hospital admission coupled with infections can significantly increase morbidity and mortality in newborns.²

Aim

To control and reduce *K.pneumoniae* infections in a NICU with a high rate of *K. pneumoniae* bloodstream infections (BSI) by introducing a multidisciplinary quality improvement initiative to minimise infections.

Method:

TABLE 1: Infection management strategies

Outbreak management

- Retraining staff on infection prevention
- Strict hand hygiene practice (figure 2)
- Patient cohorting
- Isolating by contact precautions

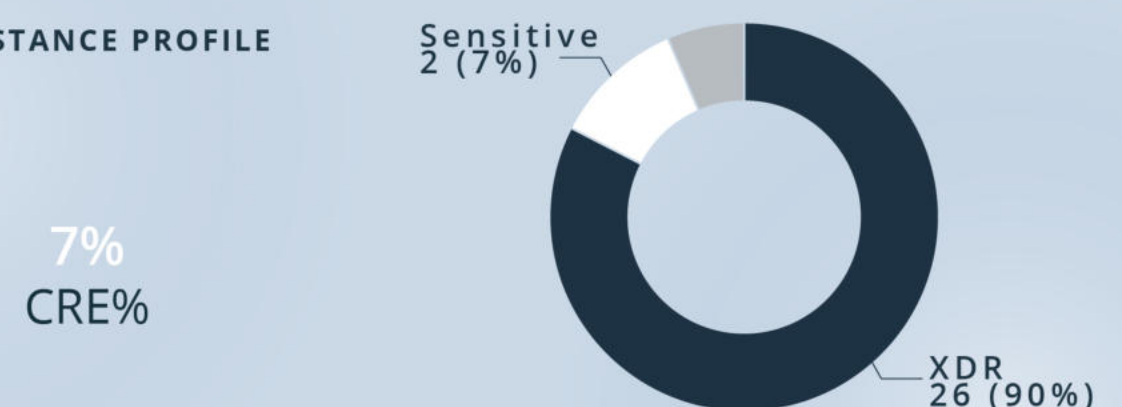
Treatment of infections

- Categorized infections
- Multidisciplinary ward rounds
- Optimising antibiotic therapy



FIGURE 2: Hand hygiene training material

RESISTANCE PROFILE



RESISTANCE PROFILE

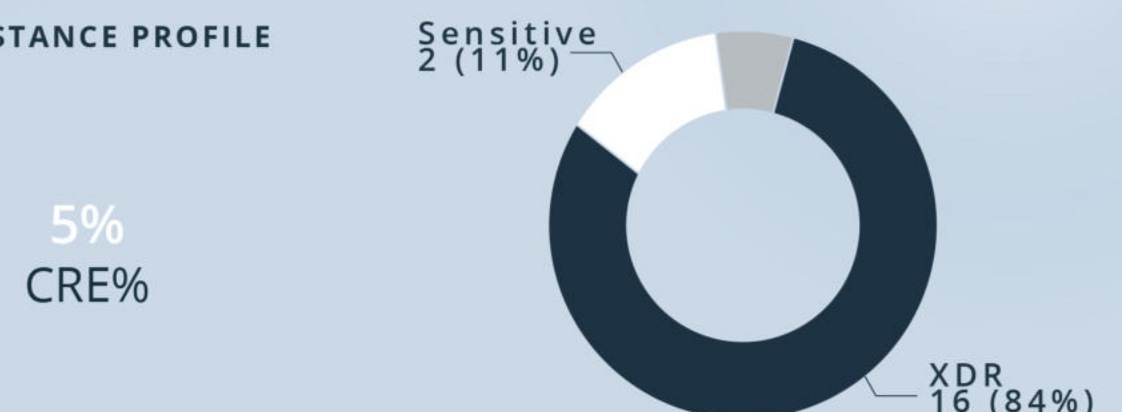


FIGURE 1: Resistance profiles of *Klebsiella pneumoniae* pre-intervention versus post-intervention

Results:

Infection rates for the period May 2023 to April 2024 were compared to those from May 2024 to April 2025.

From May 2023 to April 2024, *Klebsiella pneumoniae* accounted for 36% of NICU BSIs at an incidence rate of 4.92/1,000 patient days with 90% being extensively drug-resistant.

Following targeted infection control:

- BSIs decreased by 58%
- 51% reduction in *Klebsiella pneumoniae* infections
- Incidence fell to 3.69/1,000 patient days
- XDR isolates decreased to 84% (figure 1)
- CRE infection rate decreased from 7% to 5% (figure 1)

Conclusion:

Clinical pharmacists are integral to Antimicrobial Stewardship Programs where they contribute towards optimizing treatment plans, surveillance of infection rates and implementing infection control practices. Coordinated, multidisciplinary infection prevention have shown to heighten awareness of antimicrobial prescribing practices and to reduce neonatal infections.

References

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