

Introduction

- Pseudomonas aeruginosa* is one of the leading nosocomial pathogens causing severe infections including blood-stream infections (BSI), especially in immunocompromised patients¹
- Multi-drug resistant *P. aeruginosa* (MDR-PA) infection rates are reported to be increasing². Furthermore, MDR-PA infections have been associated with increased mortality³
- Identifying patients at increased risk of BSI with a resistant *P. aeruginosa* isolate has important treatment implications.

Objectives

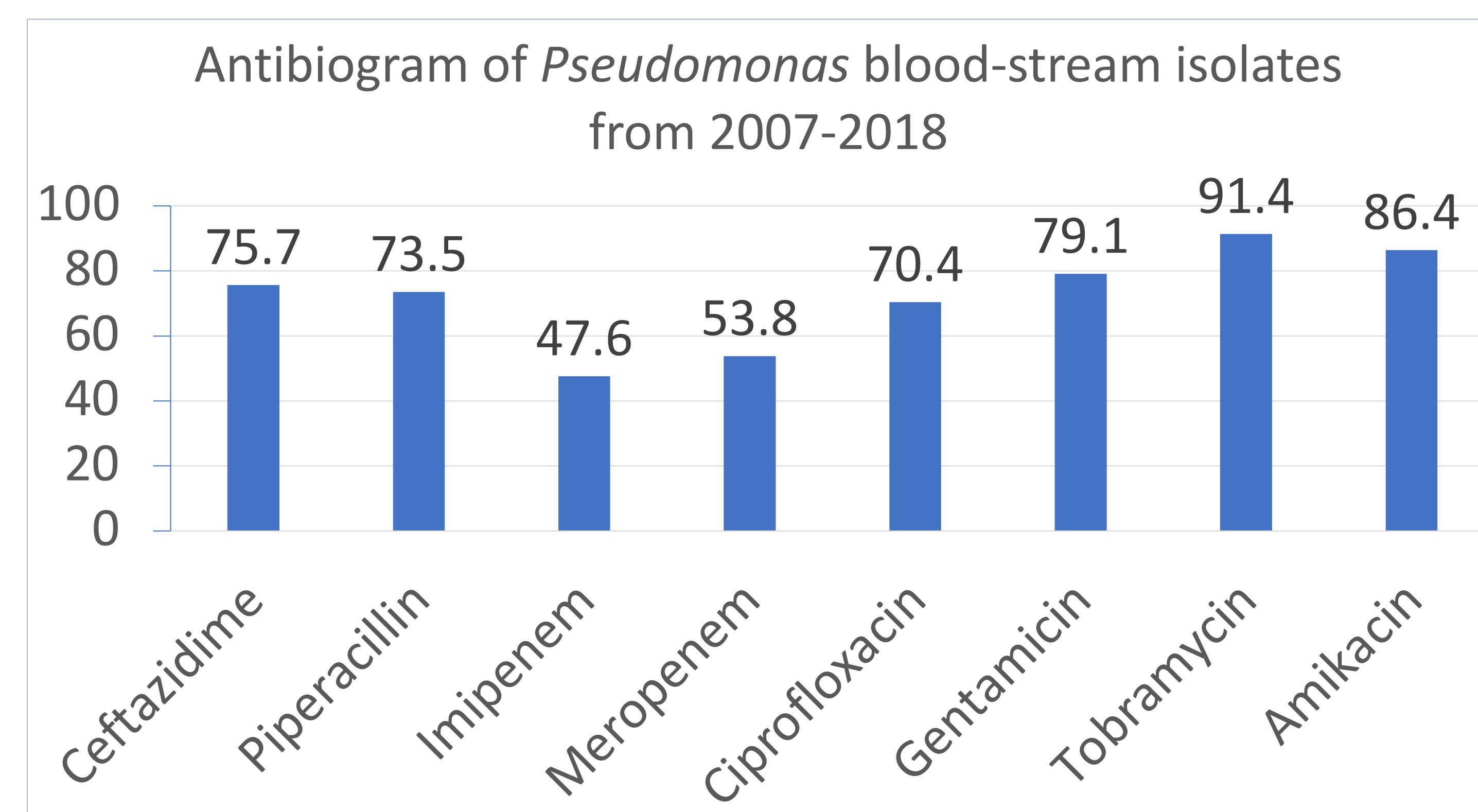
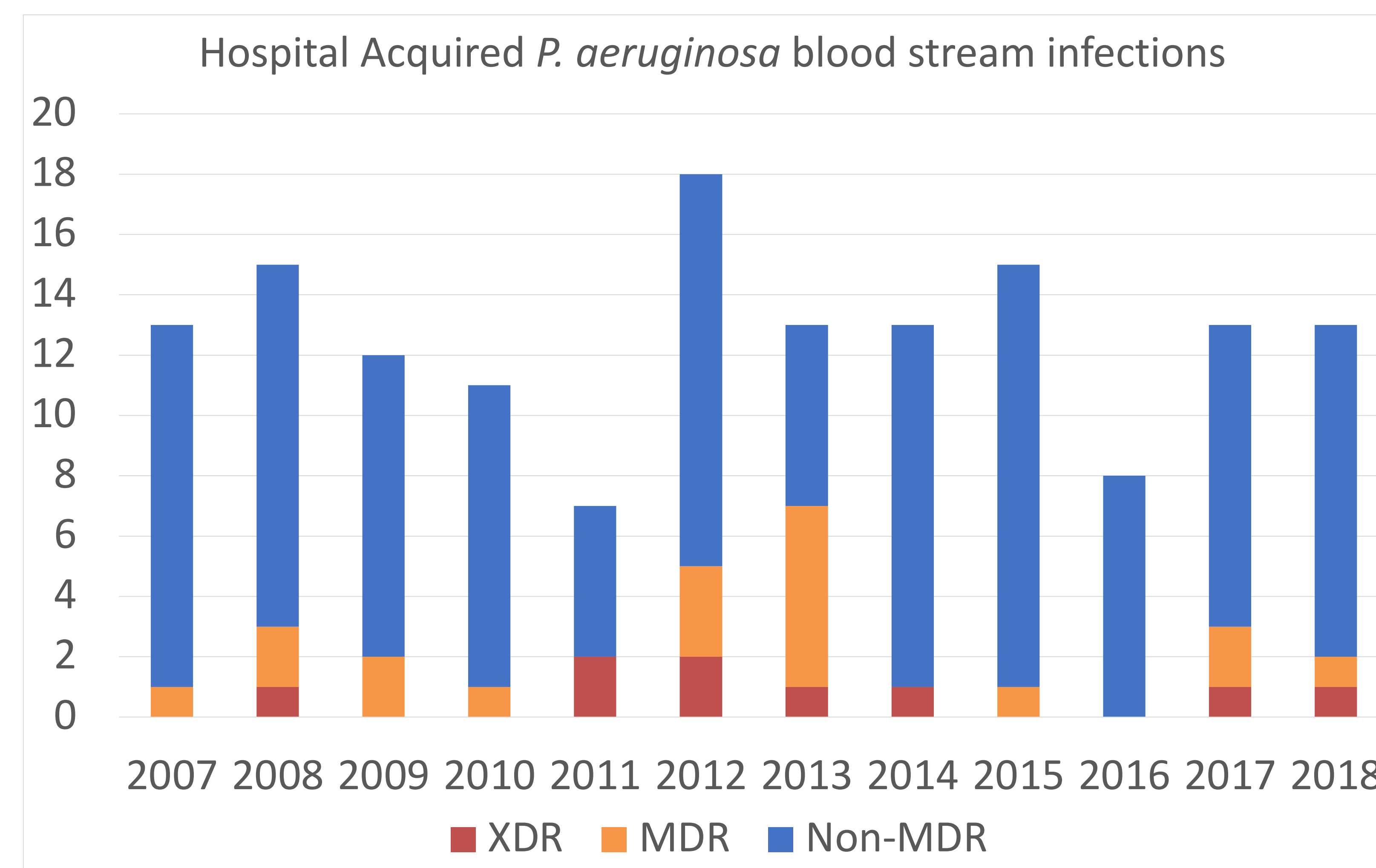
- To describe the incidence, mortality, patient, and microbiological characteristics of *Pseudomonas* species blood stream infections at a large tertiary care hospital
- To identify risk factors associated with mortality and with isolation of MDR strains.

Methods

- Cases of *P. aeruginosa* bacteremia were prospectively identified at the University of Alberta, Edmonton, Alberta, Canada by the infection prevention and control surveillance program between January 1, 2007 and December 31, 2018.
- Patient charts were retrospectively reviewed to collect microbiological, clinical, and epidemiological information.

Results

- 148 cases of *P. aeruginosa* BSI were identified over a 12-year period between January 2007 and December 2018.
- Incidence of *P. aeruginosa* BSI was 0.47 per 10,000 patient days. 66.9% of cases were male. Mean age was 60 years. Average length of stay (LOS) prior to bacteremia was 42 days. 30-day mortality was 36.4%.
- Risk factors for increased 30-day mortality included the following:
 - Pulmonary source of infection (OR 4.26, $p < 0.001$)
 - Extremely drug resistant *Pseudomonas aeruginosa* (XDRPA) (RR 3.09, $p < 0.0001$)
 - Diabetes (OR 2.24, $p < 0.05$)
- Significant risk factors for bacteremia with an MDR-PA or XDR-PA were the following:
 - LOS >28 days (OR 4.22, $p < 0.001$)
 - Hemodialysis (OR 8.92, $p < 0.000001$)



Conclusion

- The incidence of *P. aeruginosa* BSI as well as the rate of MDR-PA and XDR-PA BSI have remained stable at our centre between 2007 and 2018.
- P. aeruginosa* BSI alone confers a high mortality rate of 36.4%. XDR-PA but not MDR-PA was an additional significant risk factor for mortality.

Key Points

- Risk factors for MDR-PA and XDR-PA identified in this study may be useful to identify patients at risk in clinical practice
- Identifying patients at risk for bacteremia with MDR-PA or XDR-PA may help guide appropriate empiric antimicrobials

References

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- Matos ECO de, Andriolo RB, Rodrigues YC, Lima PDL de, Carneiro IC do RS, Lima KVB. Mortality in patients with multidrug-resistant *Pseudomonas aeruginosa* infections: a meta-analysis. Rev Soc Bras Med Trop. 2018 Aug;51(4):415-20.