To assess risk factors for B. cenocepacia colonization and/or infection during an outbreak without an identifiable point source in non-CF patients hospitalized in a 738-bed adult tertiary care hospital from June–December 2017.

**METHODS**

- Clinical isolates identified as B. cenocepacia complex using VITEK 2 were speciated as B. cenocepacia by sequencing the recA allele and genotyped by pulsed field gel electrophoresis (PFGE).
- Case patients (17 colonized or 2 infected) were those with their first positive culture for the B. cenocepacia outbreak strain (recA 365, PFGE 17-A) from June–December 2017.
- 2 infected patients were excluded because their cultures (1 blood and 1 intra-abdominal abscess) were positive on hospital admission; thus suitable controls and the exposure window could not be ascertained.
- Control subjects had negative respiratory cultures for *Burkholderia* spp. within 10 days of respective cases’ culture dates and were hospitalized on the same unit at the same time as cases.
- Cases were matched (1:3) to controls.
- Demographic and clinical characteristics of cases and controls were compared using Mann Whitney U and Fisher’s exact tests.
- Potential risk factors included selected procedures, devices, and medication exposures.
- Risk factors were assessed during two exposure windows:
  - 5 days prior to case’s first positive culture index date
  - All days between hospital admission and index date
- Risk factors were analyzed using exact conditional logistic regression.

**RESULTS**

- The incidence of *B. cenocepacia* rec A 365 is shown in Figure 1.
- For infection control strategies implemented during outbreak, see Poster # 1252.
- Overall, 17 cases and 41 controls were included in the study:
  - No suitable controls could be found for 2 cases; these cases were included in the analysis as a sensitivity analysis without their inclusion did not change the findings.
  - All included cases’ first positive culture was a respiratory tract sample.
  - Cases and controls had similar baseline demographic and clinical characteristics (Table 1).
- Only exposure to mechanical ventilation within 5 days of the index date was significantly associated with case status (Table 2).
- Cases had longer median length of hospitalization than controls (56 vs 33 days, p<0.002).
- For additional clinical details, see Poster # 1252.
- Two (12%) cases died within 30 days of their index date.
- No point source was identified.

**SUMMARY AND CONCLUSIONS**

- This was one of the first hospital-associated *B. cenocepacia* outbreaks in non-CF patients not attributable to a point source and the first known identification of recA 365 *B. cenocepacia*.
- The results of this case-control study led to reinforcement of best practices regarding ventilator care and disinfection, which appeared to lead to attenuation of the outbreak cycle.
- Limitations: Small sample size precluded adjustment for multiple covariates. Because incubation period for *B. cenocepacia* is unknown, the 5 days prior to detection may not best define the risk window.
- Conclusions: Matched case control studies can help identify risk factors during complex outbreaks without a discernible point source.
- Future studies should examine the latency period of *B. cenocepacia*, including the potential for intracellular locations, to better elucidate incubation periods and exposure windows.
- Whole genome sequencing should be utilized to better characterize transmission patterns.

**REFERENCES**


**ACKNOWLEDGEMENTS**

Special thanks to Dr. John Lipuma for his insight into *Burkholderia* and its complex transmission patterns. Special thanks also to the Clinical Microbiology Laboratory at Columbia University Irving Medical Center.