Background

- The prevalence of multi-drug resistant organisms (MDRO) is on the rise globally.
- MDRO infections carry high morbidity and mortality.
- There is a paucity of data on Carbapenem-resistant Klebsiella pneumoniae (CRKP) in the Dominican Republic (DR).
- Evaluating CRKP in various settings will provide data on contrasting epidemiologic risk factors.
- We evaluated the epidemiology of CRKP in three contrasting settings, a 495-bed urban academic center (AC), a 151-bed urban community hospital (CH) and a 200 bed teaching hospital in the DR (DRH).

Methods

- We performed a retrospective cohort study of patients with CRKP cultures from 2014–16 from AC, CH and DRH.
- A comparative evaluation of the epidemiology of CRKP between the cohorts was performed.
- Demographics, co-morbid conditions, antibiotic sensitivity, and outcomes were compared between hospital cohorts.

Results

- Cohort AC had 64 patients, compared to 8 from CH and 8 from DRH.
- AC (59%) and CH (62%) cohorts included more men than the DRH cohort (25%).
- Average age was 62, 66 and 51 respectively.
- History of MDRO, antibiotic use in the past 6 months and hospitalization within the past year were common risk factors (Figure 1).
- Diabetes and end-stage renal disease were common comorbidities at all facilities (Figure 2).
- Charleston Comorbidity Index (CCI) score was highest at AC (6.6) and DRH (6.4) compared to CH (4).
- Mortality was highest in DRH (63%, 6/8) and AC (11%, 7/64) while CH had no deaths.
- Urine was the most common source at AC (67%) and CH (75%) while blood was most common at DRH (62.5%).
- CRKP isolates were susceptible to colistin at varying rates (AC=85%, CH=63%, DRH=80%).

Conclusions

- Prior antibiotic use and hospitalization were common risk factors in all settings.
- Mortality and CCI scores for CRKP was highest at AC and DRH, which are tertiary referral centers.
- CH had less overall mortality and higher rates of colistin resistance.
- Further studies are needed to understand these risk factors.
- Strengthening antimicrobial stewardship and infection control practices in the US and abroad may help curb the spread of resistance in different clinical settings.