Analysis of Clostridium difficile patterns at Thomas Jefferson University Hospital

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Background
• *Clostridium difficile* infection (CDI) is a healthcare-associated infection (HAI) associated with about half a million infections a year in the U.S.1
• In 2011, 29,000 people died within 30 days off CDI diagnosis.1
• Age > 65, antibiotics, and nursing homes residence stay increase the risk of *C. difficile* infections.1
• *C. difficile* infections negatively impact patient outcomes and hospital reimbursement.1
• A clear understanding of temporal and spatial relationships of CDI cases at Thomas Jefferson University Hospitals is lacking.1

Recent Performance
We analyzed and reviewed CDI data collected by infection control between March 2015 and September 2016 and identified "Opportunity Units" that could benefit from intervention.

Aims
• To analyze CDI patterns at TJUH, particularly in Opportunity Units
• To visually examine the relationship between CDI cases within units
• To provide data analysis to the CDI working group

Heat Mapping an “Opportunity Unit”

Further Analysis
• Huddles and changes were initiated in May 2016. Further analyses including pattern assessments may define additional opportunities for improvement
• Perform root cause analysis on opportunity units and provide feedback to front line providers
• Observe healthcare provider hand hygiene and PPE compliance to understand correlations between CDI within units and hygiene protocol adherence

Proposed Interventions
• Establish a screening program in high risk unit patients
• Reassess terminal cleaning protocol of the room and equipment
• Improve communication of patient CDI status to family members
• Earlier testing of patient at the first sign of loose stool in all units
• Track antibiotic usage, especially in the high risk units

Limitations
• The study population included CDI patients only. Further studies may include case control studies in patients without CDI
• Bed transfers between and within units were not included in the analysis
• Hospital floors have different turnover rates and different patient populations
• Patients on antibiotics are at increased risk of having a CDI. Further analyses which incorporate risk factors for CDI (antibiotic use, age, nursing home stay) are warranted

References