

Presentation Number 3-021

Correlation of Annual Precipitation with Dengue Infections in Puerto Rico Veterans Affairs Facilities, 2007-2010

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Issue: Dengue, transmitted by the *Aedes* mosquito, is endemic in Puerto Rico (PR), but 2007 and 2010 were recognized as epidemic years. In 2010, dengue became a nationally reportable disease; therefore, dengue surveillance in PR VA facilities increased. We investigated dengue cases in conjunction with yearly precipitation and the hurricane season.

Project: Outpatient and emergency department visits with dengue ICD-9 diagnosis codes from 1/2007-12/2010 were identified using VA's ESSENCE system. The VA National Patient Care Database identified additional inpatient cases from 10/2009-12/2010. Standardized case reviews were performed and grouped into 4 accepted dengue categories: lab-positive, lab-indeterminate, suspected, or not dengue-related. Annual case counts, patient's residence location, visit date, and published rainfall data were examined. Location of cases in 2010 was compared to the CDC's weekly Dengue report.

Results: Chart reviews revealed 65 cases of dengue in 2007, 13 cases in 2008, 30 cases in 2009, and 173 cases in 2010. Cases that occurred during hurricane season (June-Nov) were 53/65 cases in 2007, 9/13 cases in 2008, 17/30 cases in 2009 and 142/173 cases in 2010. Case patient's residence were mapped each year and visually compared to the percent of normal precipitation (Figure 1). Increased precipitation levels did not directly overlap with case locations except for 2010 when precipitation levels reached 150-300% of normal. The majority of 2010 VA dengue cases occurred during hurricane season, in coastal areas, particularly San Juan, and correlated with the CDC report.

Lessons Learned: The majority of dengue cases occurred in coastal areas of PR and especially on the northern coast which receives more annual rainfall than other parts of the island. Case counts correlated with precipitation levels in 2010 and increased rainfall across most of PR in 2010 may have contributed to the epidemic. Case counts appear to be highest during hurricane season. Additional resources aimed at limiting spread of dengue may be

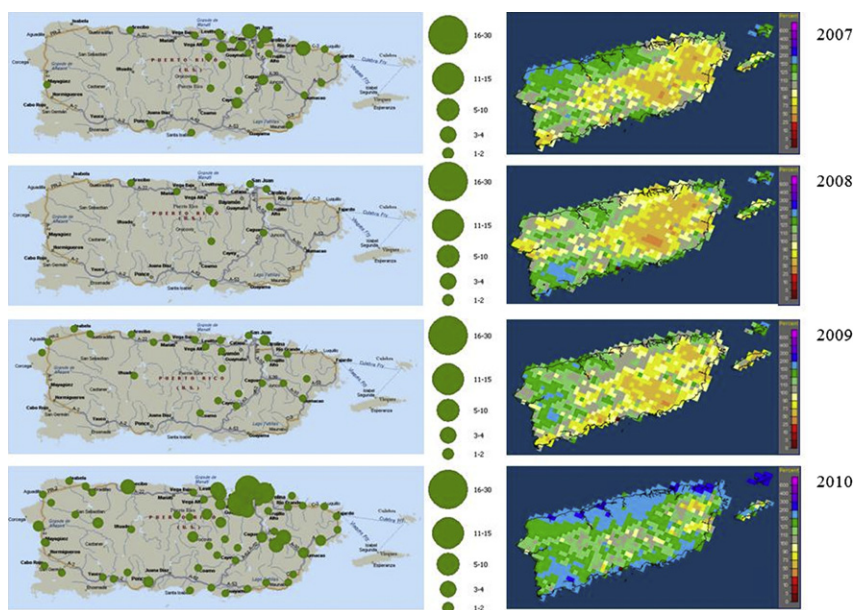


Figure 1: Location of VA Puerto Rico dengue cases based on city of residence (left) and percentage of normal precipitation based on the Advanced Hydrologic Prediction Service (water.weather.gov/precip) for Puerto Rico (right), 2007-2010.

needed during these months as well as in areas with highest rainfall. Improving dengue awareness among patients and providers may help prevent further spread of dengue especially during times of increased rainfall.

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Knowledge and Practice of HCW regarding *Clostridium difficile* Infection and Contact Precautions in an Academic Medical Center

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Background/Objective: The objective of this study was to evaluate HCW's knowledge of contact precautions (CP) and their practices with respect to caring for patients with CDI.

Methods: We sent nurses an email requesting that they participate in a web-based survey. The survey comprised 20 questions asking about job type, PPE use, availability of supplies for CP, and practices with patients (pts) who have diarrhea or who have confirmed CDI. Descriptive statistics and Chi-square analyses were computed.

Results: The response rate was 20% (n = 359). Respondents (R) identified themselves as nurses (79.5%, n = 285), nurse aides (17.5%, n = 63) and no response (3%, n = 11). R reported washing their hands with soap and water (47.9%), washing first with soap and water and then applying alcohol gel (47.3%), and applying alcohol gel only (4.8%) after caring for pts with CDI. Those who wash with soap and water do so for a specific period of time (71.7%) as defined by singing a song like *Row Your Boat* or reciting the ABC's. Most R reported that they use the following precautions when caring for pts with CDI: 1) don gloves before entering the room (82.7%); 2) use soap and water after removing gloves (82.9%); 3) don isolation gowns before entering a room (86.6%); 4) remove gowns before leaving the room (95.4%). Of the R, 94.0% reported that they always used CP when caring for patients with CDI but only 59.7% reported using CP when caring for patients with diarrhea of unknown origin ($p < 0.001$). Of the R, 35.4% reported telling a physician when a patient has diarrhea and 44.6% reported telling a physician and requesting an order for *C. difficile* testing (44.6%) when pts have diarrhea. R were less likely to take action (e.g., inform a physician) after the first diarrheal stool (17.2%) than they were if pts had >1 diarrheal stool in 12 hours (57.5%; $p < 0.001$). Most R reported that they place pts in CP when their tests are positive for CDI (96.8%).

Conclusions: Nursing staff reported using practices when they care for pts with confirmed CDI that were consistent with guidelines but only about 60% of the nursing staff who responded reported using CP for pts with diarrhea of unknown origin. If HCWs use of CP for pts with diarrhea of unknown origin while diagnostic tests are pending, they may help decrease spread of *C. difficile*. We will use this information when designing education for nursing staff regarding CDI and CP.

Environment of Care/Construction/Remediation

Presentation Number 11-109

Are Your HROs Infection Controlled?

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Issue: Eliminating healthcare acquired infections (HAI) has become a priority for many healthcare systems. Although improvements in hand hygiene compliance and reinforcement of isolation practices are beneficial in decreasing adverse patient outcomes, the spread of pathogens continue to be problematic. Therefore, examining the role of the environment of care and the effectiveness of cleaning processes appears to be a reasonable next step. Although patient rooms are terminally cleaned at discharge, are all high risk objects (HROs) being thoroughly cleaned?

Project: Using P.C. Carling and colleagues' study from 2008 as a guide, Infection Control staff dusted 14 HROs in rooms on eight inpatient units with an iridescent powder prior to the rooms being terminally cleaned. Following