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BACKGROUND

- Clostridium *difficile* (*C. difficile*) is an anaerobic bacteria first isolated in 1935. *C. difficile* infections cause colitis by producing toxins that damage the lining of the colon. These infections can cause significant illness with potential death. *C. difficile* is now recognized as a major cause of antibiotic-associated colitis.
- Research over the past decade has focused greater attention on the role of environmental contamination on the rate of healthcare acquired infections. Research indicates that these organisms can survive for long periods on environmental surfaces, and they are extremely resistant to average disinfectants.¹ The spores of the *C. difficile* bacterium can survive on surfaces for several months. In one study, these spores persisted for at least 5 months.²
- *C. Difficile* is typically isolated from the skin and hands of infected patients. However, research demonstrates that room surfaces and equipment are easily contaminated. Caregivers will then touch a surface they believe is clean, and inadvertently spread the organism to other equipment, room surfaces and to the patient.

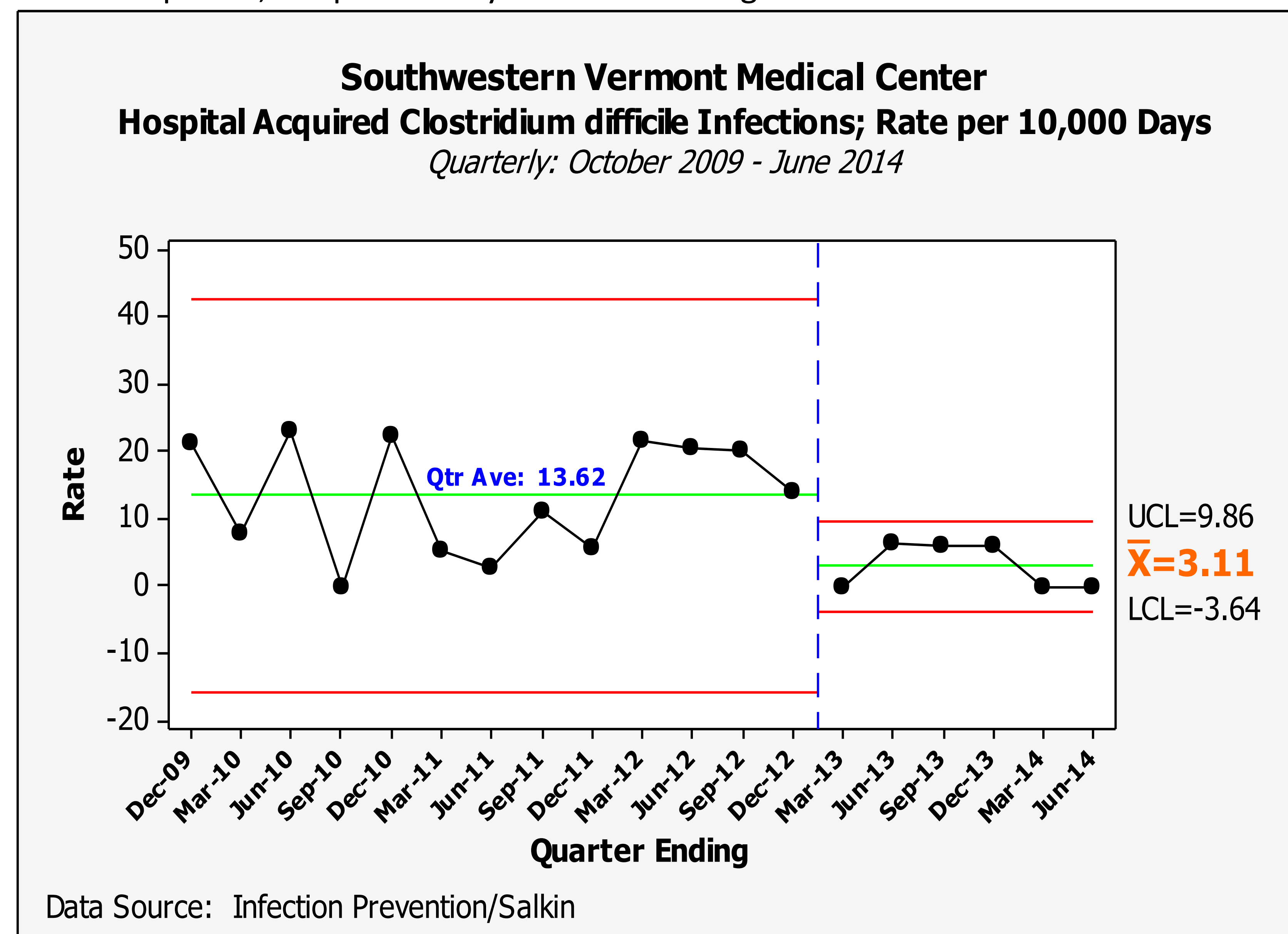
GOAL

- In view of the significance of *C. difficile* infections to hospitalized patients, SVMC set out to decrease this rate their rate of infections.
- SVMC's ultimate goal is to provide each admitted patient a room that is free from contamination with pathogens.

INTERVENTION

Hydrogen Peroxide Fogging

- In 2012, Southwestern Vermont Medical Center researched the various technologies for enhanced room disinfection including UV light disinfection systems and hydrogen peroxide fogging technology.
- We chose hydrogen peroxide fogging based its ability to infiltrate all areas of the room and its effectiveness on all types of surfaces including fabric.
- The start up phase began in May, 2012. During that time the challenges of staff education and working with the increase in room turnover were evident.
- In November 2012, we developed a tight system to utilize the equipment.
- Since December, 2012 our rate of hospital acquired *C. Difficile* infections have decreased to 3.11 cases per 10,000 patient days from an average of 13.62 cases.



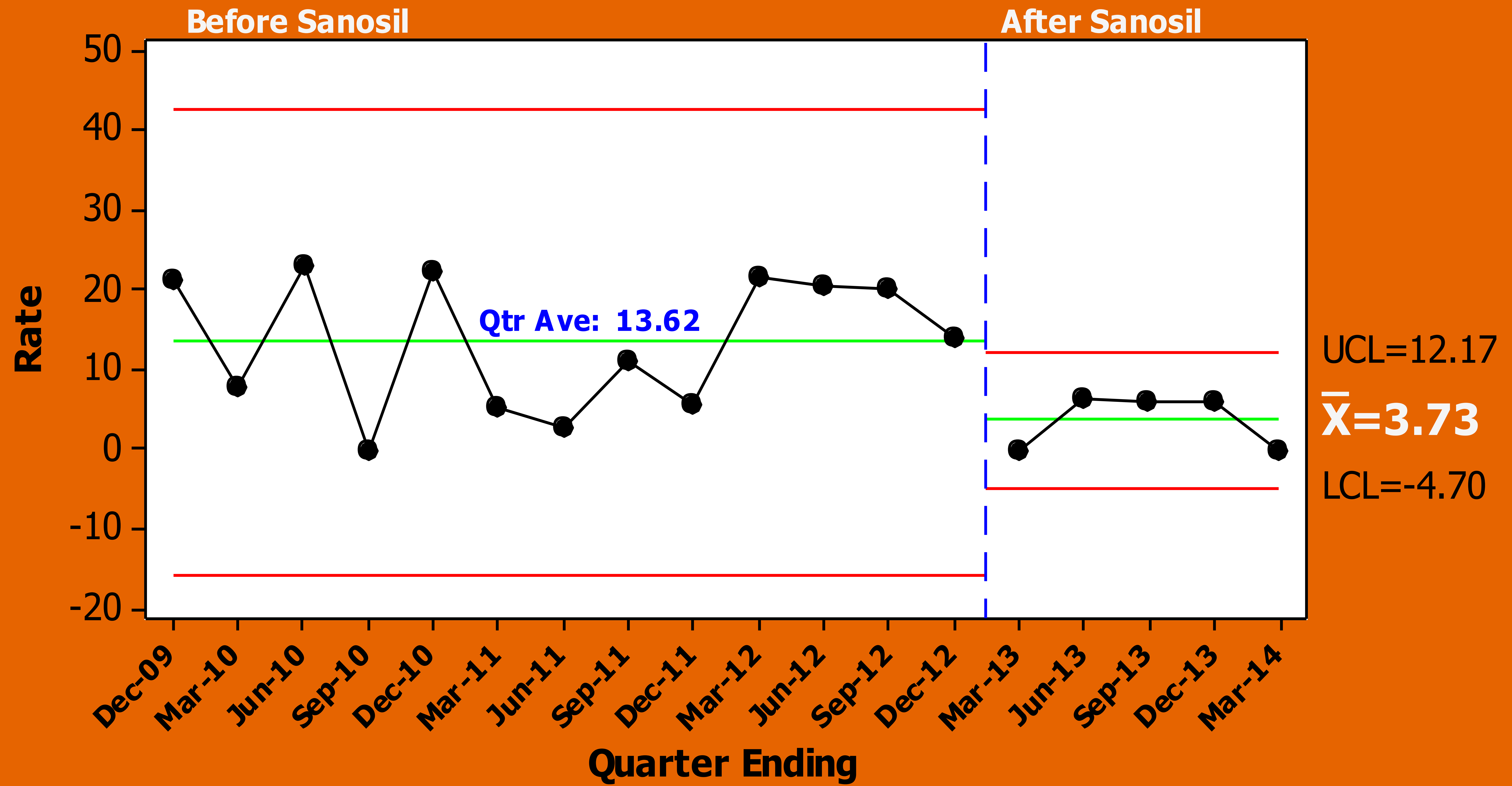
DISCUSSION

- These results would not have happened without the cooperation and hard work by the Environmental Service staff in collaboration with the clinical nursing staff.
- The process requires a team effort of Environmental Service, Nursing and Access Services.
- The room is cleaned in the usual manner with a disinfectant solution. Fogging process with the "Halo Fogger" takes an additional hour.
- The total turn around time for the room is 2 hours.
- The Environmental Services Department requires proficiency in operating the equipment.
- The nursing staff responsible for bed placement are a critical part of the team effort.

REFERENCES

1. Weber, D.J., Anderson, DJ, Sexton, DJ, Rutala, W A. Role of the environment in the transmission of Clostridium *difficile* in health care facilities: American Journal of Infection Control 2013;41:5105-5110.
2. Kim, KH, Fekety R, Batts DH, Brown D, Cudmore M, Silva J et al. Isolation of Clostridium *difficile* from the environment and contacts of patients with antibiotic-associated diarrhea. J. Infect Dis 1981; 143:42-50.
3. Otter, J: Lecture and personal discussion; APIC NE April 24, 2014

Southwestern Vermont Medical Center Hospital Acquired Clostridium difficile Infections; Rate per 10,000 Days *December 2009 - March 2014*



Data Source: Infection Prevention/Salkin