

Implementation and regular usage of Ultra-V UV-C is required to reduce infection rates of Clostridium difficile within hospital environment

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Introduction

- Clostridium difficile (C.difficile) is a gram-positive spore forming bacteria that is known to cause hospital-acquired diarrhea [1]
- In the United Kingdom, C.difficile is one of the main pathogens causing hospital outbreaks
- In most cases, transmission of C.difficile occurs during contact with contaminated surfaces in the environment or via hand contact with an infected or colonized person
- Alcohol-wipes and chlorine detergents are not effective enough in eliminating C.difficile spores from the surfaces [2]
- North West Anglia Foundation Trust consists of 800 beds over 3 main sites. The Peterborough city Hospital site had increased rates of C.difficile between 2009-2015
- As such, North West Anglia Trust has focused on implementing new infection prevention and control strategies to reduce the rates of C.difficile

Aim

To implement automated biodecontamination device Ultra-V UV-C throughout one of the North West Anglia Foundation Trust hospitals to reduce rates of C.difficile infection

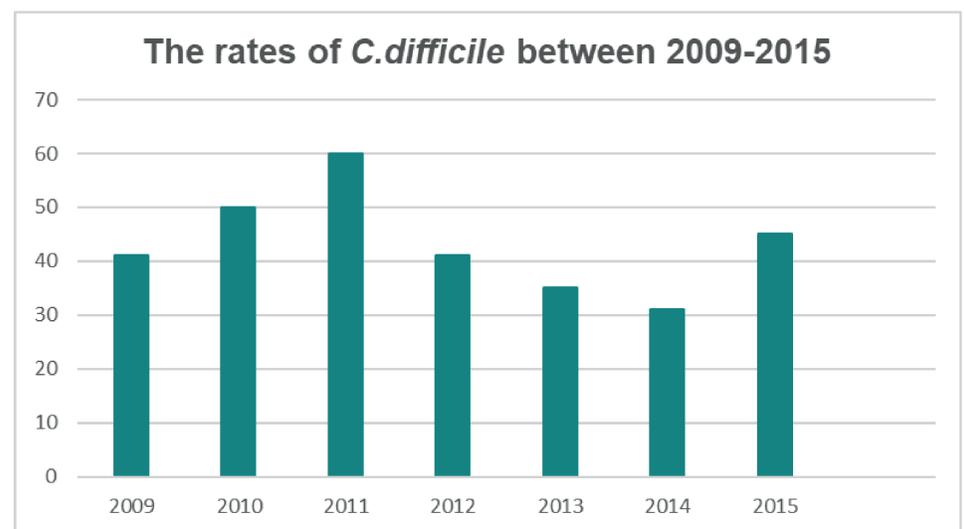
Methodology

- Between 2009 and 2015 there were overall 303 C.difficile cases throughout different wards, including care of the elderly wards, haematology and oncology
- A deep clean programmed using Ultra-V UV-C™ (Inivos) was implemented from April 2015
- Every ward was deep cleaned at least once a year
- High risk areas, such as ICU and NICU, were deep cleaned twice a year
- Side rooms were also decontaminated every time C.difficile or MDRO-positive patient were discharged
- In 2017/18 the deep-clean programme fell behind, especially during winter months, meaning not all in patient areas received UV decontamination during that period
- The deep-clean programme was relaunched in April 2018 for 2018/19
- The programme follows the same format as previously and has been promoted at all levels by the Infection Prevention and Control Team

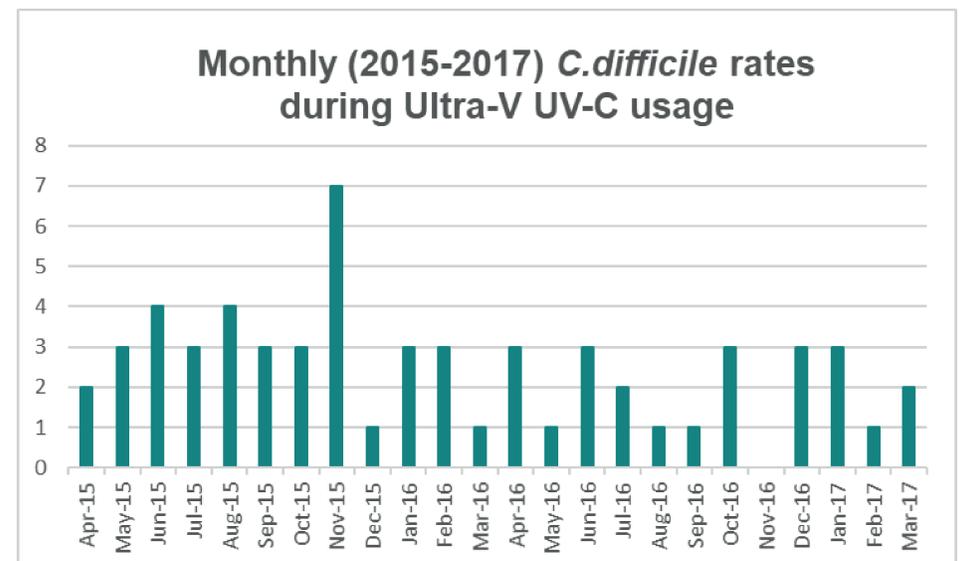


Results

- During the time between 2009 and 2015 the Trust has experienced increased rates of C.difficile, especially in 2011



- From April 2015 a deep-clean programme was introduced
- Throughout 2016 when deep-clean programme using Ultra-V UV-C was run consistently the rates of C.difficile were at their lowest point, reaching 24 cases
- Overall the mean number of cases per month fell from 3.4 in 2014/2015 to 1.9 in 2016/2017



- After March 2017, the deep-clean programme fell behind in winter months, especially in patients wards. Following this delay C.difficile rates increased to 3.9 per month in 2017/2018
- In 2018/19, the deep-clean programme has been successfully completed in all in-patient areas
- Since then C.difficile rates have dropped to 2.3 per month

Discussion and conclusion

- Our Trust has experienced C.difficile outbreaks since 2009
- Implementation of Ultra-V UV-C technology has shown to be powerful in reducing C.difficile levels in the environment
- Overall, proactive deep-clean programme using Ultra-V UV-C is effective in providing and maintaining a safe environment for the patients and healthcare staff

References: [1] Kouhsari E, Abbasian S, Sedighi M, Yaseri HF, Nazari S, Bialvaei AZ, et al. Clostridium difficile infection. Rev Med Microbiol 2018;1. [2] Hughes GJ, Nickerson E, Enoch DA, Ahluwalia J, Wilkinson C, Ayers R, et al. Impact of cleaning and other interventions on the reduction of hospital-acquired Clostridium difficile infections in two hospitals in England assessed using a breakpoint model. J Hosp Infect 2013;84:227-34.