Sodium Hypochlorite Bleach for The Control And Prevention of *Clostridium difficile* in Healthcare Facilities

The following published sources provide documentation regarding the efficacy of sodium hypochlorite solutions as a disinfectant for vegetative bacterial spores such as Clostridium difficile:

http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf
In its *Preventing Transmission of Infectious Agents in Healthcare Settings 2007*, the CDC indicates ***Also, since C. difficile may display increased levels of spore production when exposed to non-chlorine-based cleaning agents, and the spores are more resistant than vegetative cells to commonly used surface disinfectants, some investigators have recommended the use of a 1:10 dilution of 5.25% sodium hypochlorite (household bleach) and water for routine environmental disinfection of rooms of patients with C. difficile when there is continued transmission. In one study, the use of a hypochlorite solution was associated with a decrease in rates of C. difficile infections.*** (See Pages 60 & 61; also see Pages 21 & 22)

http://www.cdc.gov/ncidod/dhqp/id_cdifffaq_hcp.html#9
CDC's *Information for Healthcare Providers* recommends hypochlorite bleach products for controlling C. difficile. ***Hospital cleaning products can be used for routine cleaning. Hypochlorite-based disinfectants have been used with some success for environmental surface disinfection in those patient-care areas where surveillance and epidemiology indicate ongoing transmission of* C. difficile*. Consult the aforementioned guidelines for use conditions for generic sources of hypochlorite-based products (e.g., household chlorine bleach) for disinfection of environmental surfaces. Note: EPA-registered hospital disinfectants are recommended for general use whenever possible in patient-care areas. At present there are no EPA-registered products with specific claims for inactivating* C. difficile *spores, but there are a number of registered products that contain hypochlorite. If an EPA-registered proprietary hypochlorite product is used, consult the label instructions for proper and safe use conditions.***

www.infeksiyon.org/docs/pdf/makale3.pdf
In *The Challenges Posed by Reemerging Clostridium difficile Infection*, Blossom and McDonald from the CDC's National Center for Preparedness, Detection, and Control of Infectious Diseases, advocate a **10% (5000 ppm) solution of sodium hypochlorite**: ***Because C. Difficile spores have the ability to survive on dry surfaces for several months, special attention needs to be given to environmental cleaning of care areas that accommodate patients with CDAD. At present, the only available products that are reliably sporicidal contain at least 5000 parts per million of sodium hypochlorite.***

www.journals.uchicago.edu/doi/abs/10.1086/511791
Infection Control And Hospital Epidemiology, (February 2007, Vol. 28, No. 2), reports on a study conducted at Barnes Jewish Hospital, a 1,400-bed, university-affiliated tertiary care facility: The study involved switching from the daily use of a quaternary ammonium cleaner in the MICU and the SICU to a **1:10 solution of household bleach to water (approximately 5,000 ppm available chlorine)**. Additionally, the nursing station, staff restroom, staff conference room, and waiting room were cleaned daily with the same sodium hypochlorite solution. The study's conclusion: ***The results presented herein show the effectiveness of environmental cleaning with a bleach solution in both a MICU and SICU during an outbreak of CDAD.***

http://www.biomedcentral.com/1471-2334/7/61
BioMed Central publishes a study involving the implementation of an educational program in the use of a **10% (1:10) bleach solution** by housekeeping staff at Cleveland Veterans Affairs Medical Center that significantly reduced rates of environmental surface contamination of C. difficile.

www.medscape.com/viewarticle/573464
In *The Changing Epidemiology of Clostridium difficile Infection: An Interview with Gonzalo M. Bearman, MD, MPH*, hospital epidemiologist Bearman vouches for the efficacy of **sodium hypochlorite** over quaternary ammonium against C. difficile: ***The importance of environmental contamination with C. difficile spores cannot be overlooked. All touchable surfaces and all equipment in the room should be cleaned thoroughly at the time of patient discharge using a hospital-approved disinfectant. Sodium hypochlorite is preferred over quaternary ammonium products.***