

Eliminating *Clostridium difficile* from the Healthcare Environment Dr. Michelle J. Alfa

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The bug may be “*très difficile*” but this project is aimed at efficiently eliminating *Clostridium difficile* spores from the healthcare environment thereby reducing the risk of nosocomial transmission of *Clostridium difficile* associated diarrhea (CDAD).

Toxigenic *Clostridium difficile* is a leading cause of nosocomial infections within Canadian Healthcare facilities - 35-95 cases per 100,000 patient days are reported. CDAD is a gastrointestinal infection that impacts more people than all of the other “classic” enteric pathogens combined (e.g. *Campylobacter species*, *Salmonella species*, *Escherichia coli* O157:H7 and *Shigella species*). Although CDAD has been resident in health-care facilities for many years, recent data indicates that the incidence in some geographic locations has dramatically increased, and the number of fulminant cases and CDAD attributable mortality has also increased.

The ability of *C.difficile* spores to survive in the environment has been well documented, particularly in toilet facilities of patients with CDAD. This “toilet reservoir” has been suspected by many to contribute to CDAD infection transmission within healthcare facilities. Many of the currently used cleaning agents for commodes, toilets and environmental surfaces may be good for cleaning but they are known to be non-sporicidal, therefore, this reservoir may persist despite what might be considered appropriate cleaning of the environment. There is little published data on effective surface cleaning methods that combine efficient physical removal of bioburden along with efficient disinfection thereby providing better killing of any residual spores that remain despite the cleaning process. There have been studies using bleach but these were not well controlled and

the findings were not conclusive. Furthermore, bleach at 5000 ppm is corrosive and fumes lead to workplace safety concerns for cleaning staff.

The primary aim of this project is to determine if daily commode treatment with specific formulations of Accelerated Hydrogen Peroxide (AHP) agent at concentrations of 0.5% to 2% can reduce the level of *C.difficile* spores in the toilet environment of patients who have CDAD compared to the routine cleaning method using agents that are known to be non-sporicidal. The study will be multiphase and include:

- 1) Laboratory testing to determine the efficacy of microfibre cleaning cloths in conjunction with specific AHP formulations that are known to provide optimal killing of *C.difficile* spores in a manner that doesn’t result in workplace safety concerns.
- 2) Prospective clinical intervention studies to determine the efficacy of the optimized cleaning/disinfection methods in the toilet facilities of patients with CDAD.

Although the clinical intervention studies will take time to ensure statistically relevant data, rapid publication of the in vitro work should help provide insight for users as to which approaches may be most effective. This exciting study will be jointly funded by Virox and Johnson-Diversey and will provide healthcare facilities with much needed information regarding taking the “difficile” out of *Clostridium difficile* the nosocomial pathogen of the new millennium.

A reference list for this article and a copy of the study when completed can be obtained from Nicole Kenny nkenny@virox.com

“The secret of success is constancy of purpose”

Benjamin Disraeli



Human Avian Influenza – A Sanitation Perspective

Nicole Kenny, Director Technical Services, Virox Technologies Inc.

Many people, certainly the international media, are looking at what is now primarily a viral infection of birds and predicting a doomsday scenario sufficient in scope to remove almost half of humanity from the face of the earth. In the worst case scenario our hospitals will quickly swell beyond a rapidly diminishing capacity, workplaces will be abandoned grinding commerce to a halt, any largish public gathering will be disbursed by public order, transit systems will shut down, face masks will be haute couture, and instead of shaking hands in casual greeting we will bump elbows. The good news is that this doomsday scenario is about as likely as the Chicago Cubs winning the World Series. The bad news is we need to get busy working on a plan for the just-in-case scenario.

Genetics ... What Ya Gonna Do

There's a famous story of a meeting between Marilyn Munroe and Albert Einstein. Munroe: "Imagine if we had children together ... they'd have my looks and your brains. They'd be beautiful and brilliant". Einstein replies, "Ah, but on the other hand they might very well get my looks and your brains and then where would they be?". With genetics, you just can't tell what you're going to end up with. The same holds true for viruses. An influenza virus that is devastating to birds has a huge barrier (the species barrier) to overcome before it can infect humans as well. However, if that virus was commingled with other influenza virus strains, or if the virus were to infect pigs (a short cut to human infectivity) it could eventually become a danger to humans as well. It could happen ... eventually ... certainly not quickly ... maybe not at all.

Could It Happen Again?

Almost invariably, when commentators speak of the potential influenza pandemic, they make reference to the 1918 "Spanish Flu" (although it had little to do with Spain, and probably started in the US Army) that killed more than 50 million people worldwide at a time when the world's population was a fraction of what it is today. The Spanish Flu killed only 2-3% of the people who were infected. Compare that with the almost



70% death rate of humans who have become infected with the H5N1 avian flu. Looks bad, right?

The thing is though, in 1918 the germ theory wasn't entirely accepted yet and doctors didn't know about viruses and how to treat them. They certainly didn't have antiviral medications, vaccinations, the World Health Organization, the CDC. There weren't epidemiologist zealots scouring foreign lands looking for pockets of infectious disease, or public health officials ready to slaughter millions of birds at a moments notice. That flu pandemic coincided with another very deadly pandemic - war. More people died from influenza infection during World War 1 than from bullets, bombs, and bayonets. Today, soldiers are looked after with meticulous care and wars are much more sanitary (sanitized even?). Modern healthcare, travel restrictions, health screening, and infection control precautions would make a global pandemic MUCH more difficult for an influenza virus to manage.

Hand Hygiene, Still

Hand washing is still the single most important measure to reduce the risks of transmitting infectious organisms from one person to another. Influenza viruses, thought to be exclusively transmitted by droplets spewed by coughing, sneezing, wheezing infected people, are now known to be as commonly transmitted hand-to-hand-to-face, or surface-to-hand-to-face. Regular hand washing with soap and water, and/or regular use of an alcohol hand rub are necessary all

the time. During flu season, particularly if we are around sick people, it becomes essential.

Surface Sanitation

During an influenza outbreak or pandemic, thorough cleaning of touchable surfaces becomes hyper-important. Viruses will live on environmental surfaces for long enough (hours, days, weeks even) that they can be picked up by passers by and subsequently infect a great many people. Proper cleaning technique with detergent or a non-residual disinfectant will effectively make the surface safe. A wipe-and-dispose technique is appropriate under these conditions ensuring that a soiled cloth does not contaminate a pail of clean ones. Disposable, pre-moistened pop-up wipers are also very useful.

On a note of closure, let me say that the hype about bird flu is more immediately dangerous to society than the virus itself. While it is true that someday we will likely face an influenza pandemic of some sort, it is by no means certain that it will be this particular virus, nor is it certain that it will be any time soon. However the fear generated by all of the media reports will certainly cause a society-wide increase in anxiety, leading to increased blood pressure, heart disease, decreased immune response, and depression. We can only do what we can do. If we wash/disinfect our hands faithfully, clean everything meticulously, employ proper PPE, and avoid snuggling up to people who are coughing, sneezing and wheezing, the risk is very low indeed.

Virox Update

AHP included in New PIDAC Guideline!

Finally, after 8 years in the market Accelerated Hydrogen Peroxide (AHP) has been included in an infection control guideline. The Best Practices for Cleaning, Disinfection and Sterilization In All Health Care Settings written by the Provincial Infectious Diseases Advisory (PIDAC) was published in March. The Guideline has included AHP as an approved disinfectant technology for Sterilization, High Level Disinfection and Low Level Disinfection.

Partnerships in Paediatric Patient Safety Corporate Sponsor

In our continued support of education, Virox will be the event sponsor for the SickKids Foundation 2nd Annual Partnerships in Paediatric Patient Safety: Solutions and Perspectives from Around the World. This event will be held on Friday June 9th at the MaRS Discovery District (101 College St, Toronto). For more information on this event please contact Continuing Education, Faculty of Medicine, University of Toronto at 1-888-512-8173 or by email at ce.med@utoronto.ca.

2nd Annual Partnerships in Paediatric Patient Safety: Solutions and Perspectives from Around the World

Friday, June 9, 2006
MaRS Discovery District
101 College Street, Toronto, ON

Course Directors

Anne Mallow, MD and Polly Stevens, MHSC

For Information

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Entrepreneur of the Year!

On Thursday April 6th a proud group of employees, lead by Randy Pilon, President & CEO attended The Oakville Excellence in Business awards ceremonies. When the envelope was opened Virox was named the Entrepreneur of the Year for 2005!

Two Research Posters to be Presented at the 2006 CHICA Conference

Navid Omidbakhsh, Director of Research & Development at Virox will be attending the CHICA Conference in London to present two posters. Navid's posters are titled "A high-level disinfectant based on accelerated hydrogen peroxide: evaluation of microbial activity, human and environmental safety and materials compatibility" and "Broad-Spectrum Microbicidal Activity, Toxicological Assessment and Materials Compatibility of a New Generation of Accelerated Hydrogen Peroxide (AHP) Based Environmental Surface Disinfectant".

AHP product to launch in US Summer 2006!

In anticipation of the launch of the first AHP-based environmental surface disinfectant Virox, in partnership with JohnsonDiversey, is working with two prominent US Hospitals in two separate infection control studies. One study will focus on what effects a well trained environmental services department has on nosocomial infections while the second study is looking at alternative disinfectant chemistries for combating *Clostridium difficile*. Both studies will take place over a 6-month period and will conclude with published articles.

Website Update: www.virox.com

MEMBER SECTION LAUNCHED! Do you want to be sure you get all the updates on Virox? Interested in being included on all of the invitations to all Virox's FREE education seminars? Log on to www.virox.com and click the Member's Sign-Up icon to enrol!

Virox prides itself on being a resource tool to the infection control community so please check out our website frequently as new links will be posted regularly.

Conference & Education Spring Schedule

Virox will be participating in the following functions:

May 6th – 10th – CHICA Annual Conference in London

May 10th – 11th – BC CIPHI Annual Conference in Kamloops

May 24th – 26th – AIPI Annual Conference in Quebec City

June 1st – 4th – OSAP (Organization for Safety and Asepsis Procedures) in Tucson Arizona

June 2nd – CHICA-Manitoba Chapter Education Day in Winnipeg

June 6th – 9th – SPOABC (School Plant Officials Association of BC) in Penticton

June 6th – 7th – CHICA-Northwestern Ontario in Thunder Bay

June 9th – SickKids Partnerships in Paediatric Patient Safety in Toronto

June 11th – 15th – APIC in Tampa Florida

June 15th – CHICA-HANDIC in Hamilton

June 26th – 28th – CIPHI National Conference in Regina

Virox is very excited about participating in so many conferences & education days. We wish the best to all of the various organizers and would like to thank them for their dedication and effort in organizing these very important educational opportunities. We look forward to attending and talking to all of the participants.

The difference between the impossible and the possible lies in a person's determination.

- Tommy Lasorda



Leading APIC and the Profession to Its Preferred Future

Kathy L. Warye, APIC Executive Director

For a professional association to remain effective and relevant, it must find a balance between addressing the immediate concerns of its membership with charting a path for the profession's future growth and success. Nearly two years ago at its first Futures Summit, APIC developed a strategy to create such a balance. That strategy—Vision 2012—represents a bridge from the present to a preferred future for the profession, the practice and the Association. Put simply, Vision 2012 is intended to position APIC as the leader in infection prevention and control by practitioners, policy makers, health care executives and consumers.

Everything APIC does—including the examples outlined in this article—is developed with an emphasis on keeping members on the leading edge of developments related to both clinical issues—like MRSA—and management issues—like surveillance technology. The ultimate goal is to position them as leaders in infection prevention and control.

Specifically, what are we doing? Here are just a few APIC initiatives that are designed to move the profession forward and to secure our destiny as a matter of choice rather than chance:

Developing Standards for Public Reporting

APIC considers the need for standards and measures so important that the Association made a clear commitment in Vision 2012 to ensure that appropriate standards are set by which infection prevention and control programs are developed, managed and evaluated. This means playing an integral role at all levels of our health care system—from the crafting of voluntary consensus standards to the development of state and federal legislation. It is a key opportunity to build greater awareness of the profession and what institutions must do to prevent and reduce HAIs.

Building the Business Case for Infection Prevention

In April, APIC brought together a diverse group of thought leaders to explore the economics of infection prevention. There is increasing evidence that HAIs cost many institutions millions in unreimbursed expense. We are now working with key stakeholders to complete the business case. The goal is to shift the perspective of CEOs and CFOs from the traditional view of infection control as a cost center to the understanding that infection prevention can be a significant partner in profitability. We will present outcomes from these various initiatives at this year's Annual Conference and create a tool kit for members to begin to calculate the cost of HAIs in their institutions.

Addressing the Changing Environment

Also in April, we held a conference on surveillance technology. We thought it was important to help members understand how developments in surveillance technology could impact their practice, what options were available and how to leverage the use of surveillance technology to advance infection prevention and control within the institution. We are also helping members stay abreast of emerging and reemerging diseases. On August 14-16, APIC and Joint Commission Resources will co-convene "MRSA: A Time for Action" to present the latest advancements in the management of this increasingly challenging type of infection. During the conference, ICPs and health care leaders will present proven strategies to reduce MRSA, discuss the state of the art in MRSA surveillance and developments in some state legislatures toward requiring active surveillance. The conference will highlight the unique challenges of sports-related MRSA and best practices from the United States and the Netherlands.

Creating a Comprehensive Approach to Education

This year, APIC launched Education for the Prevention of Infection (EPI), the umbrella brand for what will become a comprehensive portfolio of educational offerings for the infection prevention

expert. The EPI curriculum will support the hierarchy of educational needs that the professional in this field requires from the novice ICP through seasoned expert.

Driving the State-of-the-Science

As part of Vision 2012, APIC will play a strong role in supporting research related to the prevention of infection and related adverse events. Recently, The Research Foundation—a division of APIC—awarded a \$100,000 grant to the Ohio State University Medical Center (OSUMC) to conduct a study on healthcare-associated infection (HAI) data. The study will compare HAI data collected through traditional infection control surveillance methods and from administrative databases, which contain billing data and ICD-9 codes.

Playing a Leadership Role in Emergency Preparedness

Deadly natural disasters and the threat of an influenza pandemic continue to dominate news headlines. As the first line of defense, ICPs need the most up-to-the-minute information to respond appropriately. In a joint project with the CDC and SHEA, APIC is participating in building out a communications network of ICPs and epidemiologists that would operate in a variety of natural disaster situations. APIC is also a primary participant in the Working Group on Pandemic Influenza Preparedness, which has successfully advocated for pandemic preparedness plans and appropriations at the federal level. As part of this effort, APIC will conduct a second survey in collaboration with the Trust for America's Health to explore hospital preparedness challenges at the state level.

Promoting Zero Tolerance for Healthcare Associated Infections

Finally, embedded in all of APIC's initiatives is the commitment to zero tolerance for healthcare-associated infections. As clearly articulated by APIC President Kathy Arias, MS, CIC, "Zero tolerance is not a number—it's a culture in which health care providers strive to

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Infection Control in New Zealand

Jane Barnett, Infection Control Nurse Specialist, Christchurch Hospital, Canterbury, New Zealand
 (Jane Barnett is co-ordinator of the new Webber Training South Pacific Teleclass Series.)

Influenza pandemic planning has occupied many governments worldwide in recent months. No more so than here in New Zealand, where the Ministry of Health has already committed significant funds in anticipation of a devastating pandemic. As a small nation with a population base of just over 4 million, are they right in taking this cautious approach to protecting the country against what is considered a major health threat? Critics have suggested that the health dollar could have been better spent elsewhere in an already overstretched system. However, the business sector in this country is vulnerable to any outside threat whether this is a pandemic or other natural disaster. The impact (albeit a positive one!) of the recent Lions Tour in New Zealand which generated \$135m GDP in a very short period, is just one example of how outside influences can impact on these small islands.

Nationally, Infection Control staff, have been called upon to give advice to the ministry on what personal protective equipment or PPE should be ordered in preparation for a pandemic, whether it is of an avian form or not. Issues to overcome have related to where it will be stored and who should control and turnover this stock. The stocks of Tamiflu have also been pre-ordered by the Ministry which will be sufficient for 21% of the population.

Our physical location near Asia is a key factor in the Ministry's approach with pandemic planning. Strategies are already in place should a case of suspected avian influenza enter our borders. Plans include ceasing of social gatherings and closure of schools to reduce transmission within New Zealand. This is a different approach to the one being adopted by other countries where the social and business implications of

closing schools and group gatherings on larger economies are considerable.

Education is now at the forefront of our approach and as Infection Control practitioners we have a responsibility to send out the correct messages which includes the fundamentals of hygiene. It is equally important to cascade this information to the general public as well as to healthcare staff. We now need to look at ways of doing this and using the local and national press which has carried messages about handwashing, as well as publishing leaflets and information in telephone books will assist with this.

The NZ public is relatively unused to emergency planning as we live in a country prone to earthquakes and other natural disasters so adding pandemic planning (not to mention the paracetamol!) to our emergency list is not a big deal!





CHICA-Canada, 30 Years Old and Going Strong!

Karen Hope, President, CHICA-Canada

In 1976, a small number of Canadian infection control practitioners envisioned an autonomous organization to promote infection control knowledge and practice in Canada. On November 25, 1976, the Canadian Hospital Infection Control Association was established with a membership of just 39 ICPs. Thirty years (and many outbreaks) later, CHICA-CANADA (now known as Community and Hospital Infection Control Association – Canada) boasts over a thousand members from multidisciplinary backgrounds, all committed to improving the health of Canadians by promoting excellence in the practice of infection prevention and control.

As both known and new infectious diseases (resultant from globalization and an evolving health care system) continue to challenge us, the need for leadership in the field of infection prevention and control is essential. Resources have been concentrated around some key strategic directions to ensure that the organization remains responsive to unanticipated challenges while also developing long term goals.

Services have been continually expanding to meet the needs of the membership, and are apparent through several initiatives related to education. As a response to the urgent need for entry level training for novice ICPs, an online Basic Infection Control Course has been developed thanks to the expertise of an Education Advisory Committee and the fundraising efforts of the CHICA membership as a whole. This course increases accessibility and augments a number of other educational programs available to ICPs. Next steps include expanding the number of institutions acting as providers for the Basic Course, developing

programs for advanced professional development, and establishing mentorship programs.

CHICA-Canada members have also been active in the development of a consensus document outlining core competencies for health care workers. This was generated as a result of the SARS outbreak, where gaps in knowledge related to infection prevention and control were identified. The document can be found in the 2006 Spring Issue of the Canadian Journal of Infection Control.

Another way that CHICA-Canada meets the needs of a growing and geographically diverse membership, is through the availability of an interactive website (www.chica.org). Resources available on the website include but are not limited to education, research and professional opportunities, conference updates, membership, partnership and chapter information. To be unveiled at the 2006 National Conference is a redeveloped site that will be even more dynamic, user-friendly, and fluid.

As part of the organization's goal to expand influence and national profile, CHICA-Canada has formed an alliance with the Canadian Patient Safety Institute (CPSI), the Canadian Council of Health Services Association (CCHSA) and the Public Health Agency of Canada (PHAC) and formalized that relationship with a Memorandum of Understanding. The mandate of the of the group will be to enhance the safety of health care services for all Canadians through a national, comprehensive and collaborative focus on patient safety and infection prevention and control

CHICA-Canada is proud of its relationships with industry partners. Industry members have been instrumental in establishing many of the promotions responsible for raising the organization's

profile, among them the National Infection Control Week poster contest and the Virox Patron Member Scholarship Fund. Efforts are being directed toward further cultivating these strong industry alliances to create value for all.

CHICA-Canada also actively promotes research in areas related to infection control. In 2005, a Research Fund Competition was sponsored and two projects were funded. One project looked at the efficacy of common disinfectants in the prevention and control of Norovirus outbreaks, and the other at a quality assurance package to improve compliance with hand hygiene and aseptic technique in a neonatal environment.

So as we celebrate CHICA-Canada's 30th anniversary, I can only guess at the extraordinary events to come that will define the organization's next 30 years!

Leading APIC and the Profession to Its Preferred Future

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prevent as many healthcare-associated infections as possible. We may never eliminate every infection, and many cannot be prevented. But ICPs should accept nothing less than the very lowest rates of infection and actively promote zero tolerance for the adverse outcomes of health care." This goal is central to our preferred future and will inform all of our decisions as we make Vision 2012 a reality.

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