

## Infection Control Staffing & Surveillance

Dick Zoutman, MD FRCPC

Professor, Queen's University, School of Medicine with Health Canada and CHICA-Canada

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*"The secret of success is constancy of purpose"*

Benjamin Disraeli

It can be reasonably expected that 220,000 occurrences of nosocomial infections resulting in excess of 8,000 deaths occur in Canadian hospitals each year. To assess infection surveillance and control resources and activities in acute care hospitals for the prevention and control of nosocomial infections and antibiotic resistant pathogens, surveys were mailed in 2000 to infection control programs in all Canadian hospitals with greater than 80 acute care beds. The survey was modeled after the American Study on the Efficacy of Nosocomial Infection Control (SENIC) instrument with new items dealing with resistant pathogens and computerization added.



All hospitals in this survey had infection control professionals (ICP's) on staff. However 40% of infection control programs had fewer ICP's than that recommended by SENIC, and 80% did not meet current Canadian recommendations. In our survey, 40% of Canadian hospitals did not have physicians or doctoral professionals with infection control training who provided service to the infection control program, yet this is viewed as a key requirement of infection control programs. Expert panels have recommended secretarial services for infection control programs, however only 69% of Canadian hospitals presently have such support.

There also were significant computer and

reference resource deficits. One third of infection control programs did not use computers to tabulate data and prepare reports, and a majority did not use statistical software, although these resources have been judged as being essential. One fifth of programs did not have complete sets of the current Health Canada guidelines on preventing nosocomial infections in acute care hospitals.

Twenty three percent of hospitals in our survey were conducting fewer than half of recommended surveillance activities. ICP's and physicians were found to be spending considerably less than the recommended 50% of their time in infection surveillance. Surveillance was heavily based on microbiology reports, whereas active patient and device-related clinical surveillance that is more informative was used less frequently.

As many as 30% and 50% of nosocomial infections are preventable, but to realize this level of prevention the resources must be put in place at each hospital. Recommendations include 1 full time ICP for every 150 beds, and a hospital physician trained in infection control. The cost benefit in terms of patient outcomes, morbidity, and mortality as well as direct and indirect economic costs are well established and strongly support investments in infection control infrastructure.

## Infection Control and Foot Care Equipment

### Jim Gauthier

Infection Control Consultant  
gauthij2@pccchealth.org

In December 1997, Health Canada published Infection Control guidelines on Foot Care by Health Care Providers. (Canada Communicable Disease Report-Supplement Volume 23S8). This document was reviewed, and the following organizations responded to Health Canada with their comments:

**Canadian Podiatric Medical Association,  
Canadian Nurses Association,  
Victorian Order of Nurses Canada,  
Victorian Order of Nurses for Nova Scotia,  
College of Chiropodists of Ontario,  
Ontario Society of Chiropodists,  
Ontario Podiatry Association,  
College of Nurses of Ontario,  
Manitoba Association of Chiropodists,  
Saskatchewan Association of Chiropodists,  
Alberta Podiatry Association**

The document discusses foot care in general, its benefits and potential risks, both of bacterial infection and viral blood borne infections. Because some of this equipment may inadvertently puncture the skin, and contact blood, Health Canada recommended that all foot care equipment be cleaned and sterilized between uses.

### Equipment

The equipment used for foot care is quite varied. Nail nippers are small, plier-like clippers that are used for trimming nails. Various files are used to smooth edges of nails. Small rotary drills (Dremel®)

are used with abrasive bits that come in different shapes. The bits can be sterilized, but the drill motor (inside the handle) and casing can only be wiped with a disinfectant. Callus trimmers are basically disposable razor blades held in a handle. Various probes are also available.

### Cleaning

The cleaning stage is as important as the sterilization stage. No debris must remain on the equipment, as that will interfere with sterilization, regardless of the mechanism used - chemical sterilant, steam or gas. Warm water with a detergent is recommended, and the use of a small brush to clean hinges and grooves. An ultrasonic cleaning device could be used to facilitate removal of debris from the equipment.

### Sterilization

The sterilization step poses some problems. Items must be kept sterile until needed, and the document recommends wrapping sets of equipment to be used. Health Canada recommends dry heat, autoclave (steam under pressure) or chemisterilant with the proper exposure time to ensure sterility. They do not recommend glass bead sterilization, boiling water or microwave ovens.

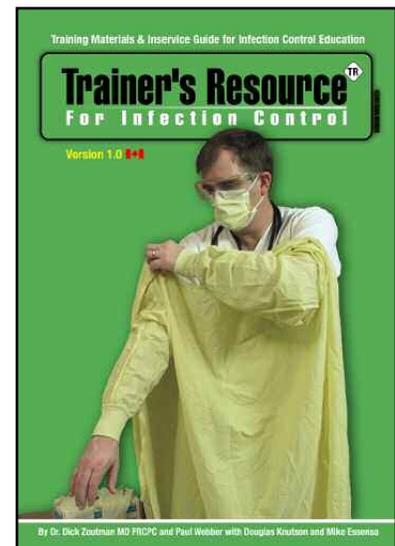
### Chemical Sterilants

During our investigation into foot care equipment, we found some outside foot care providers who were using 3% Hydrogen Peroxide as a disinfectant. This only provides intermediate level disinfection at best, plus, there would be issues with loss of activity of the peroxide product. Other providers had small tabletop autoclaves to process the equipment. These also need to be checked

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## Trainer's Resource – Worth The Wait

It's been 3 years in the works (including an extended interruption thanks to the SARS outbreak), but the Trainer's Resource for Infection Control is every bit as remarkable as the creators said it would be. At the 2002 CHICA conference in St. John's, Dr. Dick Zoutman and Paul Webber introduced the start of this educational project. It contains PowerPoint slides on infection control topics, and an invaluable electronic image library depicting infection control activities – images that can be used in posters, on web sites, and in custom PowerPoint presentations. We at Virox salute Dick Zoutman and Paul Webber for sticking with it, and congratulate them on an excellent result. Information on the Trainer's Resource for Infection Control can be obtained from Paul Webber, paul@webbertraining.com.





## Virox Patron Member Scholarship Winners



**Congratulations to:**

**Front Row:** Geri Gauthier, Nancy Lawrence-Naylen, Deb Kenny, Carol Whyman, Susan Dolan  
**Back Row:** Faye Penner, Jo-Ann Vandierendonck, Diane Weinwurm, Ed van der Gugten, Linda Adam



## Conference & Education

### Spring/Summer Schedule

**Virox will be participating in the following functions:**

**May 11th & 12th**

University Health Network Nursing Forum 2004 in Etobicoke

**June 6th to 10th**

APIC Conference in Phoenix Arizona

**June 15th**

TPIC Education Meeting in Toronto

**June 17th**

HANDIC Education Day in Hamilton

**June 27th to 29th**

Canadian Association for Laboratory Animal Science in Hamilton

**September 14th & 15th**

Algoma Public Health in Sault Ste. Marie

**September 20th & 21st**

CSAO in Toronto



## CHICA Conference Memories

CALGARY 2004



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 International Federation of Infection Control

### Moira Walker

CHICA-Canada Representative to IFIC

The International Federation of Infection Control (IFIC) is an umbrella organization of 53 infection prevention & control societies in more than 46 countries around the globe. The goal of IFIC is to minimize the risk of infection within the healthcare setting worldwide through development of a network of infection control organizations for communication, consensus building, and sharing expertise.

By 1978, national infection control associations had been created in the United States (APIC), in Canada (CHICA), and in the United Kingdom (ICNA), and interest in a worldwide infection control organization was growing. That year a conference was held at the European office of the World Health Organization (WHO) in Copenhagen, entitled "The Role of the Infection Control Nurse in the Surveillance, Prevention and Control of Hospital Associated Infections". Consensus reached at that conference, "to establish a multidisciplinary, international association for the control of hospital-acquired infections" ultimately led to the inauguration of IFIC on August 31, 1987.

The 2003 IFIC Congress was held on the extraordinary, Mediterranean island of Malta (preceded by conferences and workshops in Egypt, Croatia, South Africa, Turkey, the UK, and Slovenia). More than 350 participants traveled

from 48 countries to make the Malta meetings a tremendous success. Several of those attending from developing nations were able to do so thanks in large part to scholarships provided by IFIC member societies and other contributors. Scholarship applicants were asked to complete a project and describe the results in a poster or oral presentation.

In October this year Porec, Croatia will play host to the 5th IFIC Congress. Porec is a beautiful, historic city, and it is hoped that as many as 25-30 scholarship recipients will be able to attend, primarily from developing nations. Each scholarship is an amount of approximately \$500US to cover hotel, registration, meals and some transportation expenses. Conference details can be found on the IFIC web site [www.ific.narod.ru](http://www.ific.narod.ru).

The need for infection control across national boundaries and in all aspects of health care is increasing. IFIC and it's member societies are working together towards attainment of IFIC's goals to promote infection control and better healthcare throughout the world.

**Infection control professionals fluent in Spanish, French, Urdu, and other world languages are needed to help develop infection control education materials for healthcare professionals in developing nations.**

**Applicants will require good knowledge of infection control basics, an ability to assemble a PowerPoint presentation, and internet/email access.**

**Please contact Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com).**

## What's new at Virox?

### Finally On the Move!

Our much anticipated move to our new corporate headquarters in Oakville Ontario finally came to pass on May 7th. The new ISO, GMP and EPA licensed facility features a train-



ing facility, a larger manufacturing area including a clean room for sterile packaging, and a significant increase in the size of the lab. The expansion of our laboratory capacity matches our expanded research into AHP Infection Control Technologies, including the much anticipated introduction of two new sterilants later this year.

### Launch of an Infection Control Seminar Series

Virox is committed to supporting continued education and providing educational opportunities for the infection control professionals in Canada. We are extremely proud and excited to introduce a New Seminar Series that will commence in July. The seminars will be held monthly and conducted by well-known and respected people from the infection control community. The topics will be relevant to current events or changes to health care and infection control. To learn more about the seminars please contact Nicole Kenny at 905-813-0110 or [nkenny@virox.com](mailto:nkenny@virox.com)

## Infection Control in the United Kingdom Today

Lauren Tew, RN, BSc(Hons), PGDip(HE), RNT

Co-ordinator, Education Committee, Infection Control Nurses Association

Infection prevention and control has not been a priority in most healthcare providers until recently, as evidenced by the average number of beds per ICN running at 800+ when the National Audit Office (NAO) surveyed infection control teams' resources (NAO, 2000).

But the tide is turning and there have been many influences in recent years emphasising the need for improvement in this situation. Raising the quality of public services has been a pivotal aspect of the current government's strategies. It has introduced measurement of standards, scoring against targets and publication of results throughout the public sector, not just in healthcare.

In 1999 the NHS Executive published its Controls Assurance Standards (NHS Executive, 1999). There are now more than 20 standards covering such areas as Medicines Management, Product Liability, Transport, Food Hygiene, Finance, Risk Management, as well as Infection Control. The standards contain criteria against which healthcare providers assess and evidence their compliance. This compliance is audited both internally and externally and results monitored centrally. Board accountability is a central tenet of all these standards that identify where responsibilities for compliance lie.

Following close on the heels of Controls Assurance came the Clinical Negligence Scheme for Trusts (CNST, 2000). Healthcare providers' insurance premiums are substantially reduced if evidence is

available indicating the reduction of risks such as healthcare associated infections.

The Infection Control Nurses Association, in partnership with the Association of Domestic Managers, published an audit tool to investigate the management of environmental hygiene in healthcare. The value of this tool was soon recognised by the Department of Health who have since developed it (NHS Estates 2000). Patient Environment Action Teams visited all hospital trusts, scoring from a patient's eye view the acceptability of not only environmental cleanliness but also signage, parking, food etc. The results now make national news headlines annually.

A facet of infection prevention and control developed in the US, but generally overlooked in the UK, is surveillance. Its importance is gradually being realised, with mandatory reporting of MRSA bacteraemia, *Clostridium difficile* and infection-related incidents a recent development. A voluntary system, the Nosocomial Infection National Surveillance Scheme, (PHLS 2000) has produced benchmarking information against which infection control teams can assess their individual hospital's performance.

Three-yearly reviews by the Commission for Hospital Audit and Inspection, of which examination of the management of infection prevention and control are a part, have also been widely publicised.

Amongst the government imperatives

improving the public sector, healthcare professionals themselves are now examining their clinical practice. The Department of Health commissioned Thames Valley University to develop evidence-based guidelines for the prevention and control of healthcare associated infections (Pratt et al. 2001).

There has never been a time when more evidence has been collected, compliance audited or boxes ticked. Into this melée of number crunching come the newly created Consultant Nurses. Part of the Government's plan to raise the esteem of the nursing profession and enhance retention, there are now Consultant Nurses championing many varied roles within infection prevention and control and public health, taking their colleagues' case to the highest management and academic levels.

The Government has responded to public opinion and re-invented the role of Matron. The Modern Matron has infection prevention and control responsibilities including, for example, the maintenance of environmental hygiene. The nurses in these high profile positions will need to work closely with their hospital's ICNs.

Another change in healthcare has been the amalgamation of several bodies into one body, the Health Protection Agency, responsible for communicable disease control, radiation protection, laboratory services and the management of chemical incidents. The role of the nurse in

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## Infection Control and Foot Care Equipment

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weekly with biological challenges to ensure sterility is being met.

Chemical sterilants have immersion times that vary, and some products have issues with ventilation. There exists at least one chemical sterilant (Accel Chemosterilant) that does not require special ventilation and that requires a comparably short immersion time. Equipment must be thoroughly rinsed after immersion, with sterile water, if sterility is to be maintained. Then, the equipment has to be stored in such a manner that it does not become contaminated. This may be difficult in the smaller settings.

### Stainless Steel & Autoclaves

We were also surprised to find that equipment tended to be stainless steel, which does not survive in an autoclave very well. Surgical steel equipment was harder to come by, and in many cases, disposable equipment was purchased. Also, in some facilities, equipment would be dedicated to a patient, and sent home with them on their discharge.

Health Canada summarizes this document by indicating that providers of foot care implement these recommendations into their daily practice so that infections associated with foot care can be prevented.

## Infection Control in the United Kingdom Today

Continued from page 5

this Agency will be dynamic and innovative and many hospital ICNs are taking up these newly-created posts.

The Infection Control Nurses Association ([www.icna.co.uk](http://www.icna.co.uk)), recognising the changing scenarios in which its members were working, described ICNs' role in the form of competencies (ICNA, 2000). These, along with the companion document enabling self-assessment against the competencies (ICNA 2001) have been used to facilitate professional development, role profiling and development of course curricula (Tew et al., 2002). Review of these documents is currently underway in order to reflect the current situation. Occupational standards for those working in public health are nearing completion.

Infection prevention and control in the UK has undergone many changes over recent years. Much more is now known about the standard of the service offered by this speciality to the UK's healthcare system. In some cases this has meant that resources have been forthcoming to develop the service, but this is not always so. Systematic assembly and analysis of appropriate information will provide evidence of the contribution of infection control and public health teams to the population's well-being. As audit and inspection become the norm teams will need to clearly identify their priorities or be over-run by clipboards and tick boxes.

## Lethal Effects of Heat on Bacterial Physiology and Structure

A.D. Russell

Cardiff University, Wales

High temperatures have profound effects on the structural and physiological properties of sporulating and non-sporulating bacteria, with membranes, RNA, DNA, ribosomes, protein and enzymes all affected. Nevertheless, it is apparent that no one single event is responsible for cell death. The induction of intracellular heat-shock proteins and the activation of extracellular alarmones in vegetative cells exposed to mildly lethal temperatures are important cell responses. In bacterial spores, several factors contribute to the overall resistance to moist (wet) and dry heat; the latter, but not the former, induces mutations. Heat resistance develops during sporulation, when spore-specific heat-shock proteins are also produced. Heat sensitivity is regained during germination of spores.

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*Without dreams,  
without risks, only a trivial  
semblance of living  
can be achieved."*

Mihaly Csikszentmihalyi

2815 Bristol Circle, Unit 4, Oakville, Ontario L6H 6X5  
Tel: (905) 813-0110 • Toll Free: 1-800-387-7578 • Fax: (905) 813-0220  
E-mail: [info@virox.com](mailto:info@virox.com) • Website: [www.virox.com](http://www.virox.com)

