

In SafeHandS



Newsletter of the SafeHandS network

..Information, support and practical solutions to promote health care worker safety in the Asia Pacific

Disclaimer

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Maggy Tomkins; Jeffrey Sheather; Charmaine Turton

Compilation & Publication:
Maggy Tomkins; Gary Wright

Contributions

We encourage members to contribute to *In SafeHandS* by:

- Participating in the 'Member Profile' by providing a brief profile about yourself and a brief example about your experience in improving health care worker safety in your workplace
- Providing information about recent articles, resources or upcoming events related to health care worker safety
- Submitting a question or concern or comment you have about health care worker safety

This issue focuses on:

The 5th International Congress of the Asia Pacific Society of Infection Control

The next issue will be published in March 2012

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Guidelines for contributors can be found on the SafeHandS website

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Editorial: Infection control congress



Peta-Anne Zimmerman RN BN MHSc CICP is an Infection Prevention and Control Consultant with extensive experience in health care facilities in the Asia Pacific region. Ms Zimmerman is currently completing a Doctor of Public Health through the University of Wollongong.

The 5th International Congress of the Asia Pacific Society of Infection Control (APSIC) has just ended in Melbourne, Australia, hosted by the APSIC and the Victorian Infection Control Professionals Association (VICPA). The congress had over 1000 delegates from more than 40 nations. The aim of the meeting was to bring together respected international and regional presenters to update participants on:

"...the latest scientific evidence in relation to emerging infections, surveillance strategies, antibiotic resistance, hospital associated infections and the implementation of evidence based quality improvement strategies." Dr Moi Lin Ling, APSIC President

You may note here that healthcare worker safety is not listed specifically. The conference proceedings did however reflect the importance of the protection of healthcare workers in delivering safe care to our patients and clients as, ultimately, if the safety of our healthcare workforce is not ensured how can safe care be provided?

Healthcare worker safety as it pertains to the prevention of transmission of infectious disease was represented in the Scientific Programme both in oral and poster presentations.

For a change in perspective Professor Martyn Jeggo of the CSIRO Australian Animal Health Laboratory presented an interesting paper on the infection control aspects of Hendra Virus, including prevention of transmission to veterinarians and public health staff, though the greatest take home message was "don't kill the bats, it

is not their fault". This highlighted the need to not only focus upon our healthcare workers in acute care facilities but also those who work outside our walls.

Training of healthcare workers in the protection of themselves and patients was topical as was the challenge of infection prevention with limited resources. The impact of natural disasters, pandemic influenza and emerging and re-emerging infectious disease on infection prevention and provision of care was the topic of a number of sessions, identifying that the lessons learnt from these events must not be ignored and must be integrated into provision of care and protection of one of our most vulnerable resources, our healthcare workers.

There was one dedicated concurrent session on the World Health Organization (WHO) within the region. The WHO regions which cover the APSIC nations are the Western Pacific Regional Office (WPRO) and the South East Asia Regional Office (SEARO). Of all the nations included, there was no representation amongst the list of delegates from the Pacific Island Countries or Territories (PICTs) apart from international consultants who work in these nations. This is something I believe, as one of those consultants, which can and must be rectified for future congresses to improve sustainability in the region.

One of the most moving presentations, though not healthcare worker safety related but worthy of mention, was a video resource presented by the VICPA Executive. The session was titled "How Hospital Associated Infections Can Impact on a Person's Life and

Family". VICPA developed a storytelling video with the assistance and support of a family who shared their experiences and the impact of acquiring a hospital associated infection had on their life. This video moved a number of participants, including myself, to tears. This will be an essential tool for those of us responsible for teaching infection prevention and control. It suggests that such a resource may/could/should be developed with a healthcare worker safety focus.

The one concurrent session which was more obviously related to the area of healthcare worker safety was "Injection Safety and Prevention of Needlestick Injuries – Risks to Patients and Staff". In this session it can happily be noted that the focus was more on the healthcare worker than the patient, with presentations from the Republic of Korea, China and Australia. SafeHandS' own Maggy Tomkins presented the paper "Introducing a Healthcare Worker Safety Program into a Developing Country" which generated interested discussion amongst participants. Welcome to those new SafeHandS members!

Poster presentations which focused on healthcare worker safety looked at injection safety, safe disposal of sharps, occupational exposure management, surveillance of exposure incidents and novel staff vaccination initiatives. The posters represented a number of different countries who have a healthcare worker safety focus within their infection prevention and control programmes. Maggy Tomkins also contributed to the programme with a poster presentation "Health Care Worker Perceptions of 'Health Care Worker Safety'".

The 3rd Edition of the APSIC publication "A Handbook of Infection Control for the Asian Healthcare Worker" by Ling ML, Ching TY and Seto WH was launched at the conference. This is the latest edition of the handy reference tool for the Asian context. Wherever possible

resources from the APSIC conference will be made available to SafeHandS members through the website and newsletter.

The next 6th International Congress of the APSIC will be held in Shanghai, China 10th-13th April 2013. During the closing ceremony Dr Hu Bijie, the Chairman of the Congress, presented a summary of the plans and invited speakers for the meeting and an enticing video of the city. The Congress itself will be held at the Shanghai World Expo Centre. The central theme at APSIC 2013 will be "Strategic Practices for Increasing Microbial Adversities" and there has been specific reference to encouraging new and young researchers to present on recent developments in infection control measures and studies. This does and must include healthcare worker safety.

Challenges to you as SafeHandS members are to consider:

- How can healthcare worker safety be best represented in this theme?
- What research or initiatives have you been involved in which protects healthcare workers from the transmission of infectious disease?
- Why not share your experiences with the rest of the region?
- How can we support members from low- and middle-income settings to attend this meeting?
- How can we support attendance from throughout the region, including the Pacific?

I encourage you to be involved in the region, share your experiences with each other, and learn from each other. There is a vast absence in the literature when it comes to the sharing of both infection prevention and healthcare worker safety experiences from within this region, particularly from low- and middle income country settings. This is an opportunity to start filling that void.

Abstracts from the APSIC Congress

Presentations

Strategies and technologies to reduce needlestick injuries - what works and what's new?

Edmonds D. Australia

<http://www.apsic2011.com/abstract/289.asp>

Introduction: In order to eliminate percutaneous needlestick injuries (NSIs) you need to remove needles or engineer out the risk. NSIs come at a cost, both to the organisation for post exposure management and personal cost to the healthcare worker (HCW). In 2008, prompted by the increasing frequency of HCWs reporting percutaneous injuries, I embarked on a major review of these incidents. This data review prompted me to become a "change agent" with NSI elimination being my primary goal. With Executive support I facilitated the successful introduction of a range of safety engineered devices (SEDs) leading to a downward trend in reported NSIs. This presentation demonstrates what worked and will highlight what SEDs are currently available.

Objectives: To eliminate the occurrence of NSIs by replacing selected non safety devices with SEDs and to embed a sharps safety culture within the organisation.

Method: 1. I reviewed NSI data reported from 2005 and 2008.

2. Devices targeted for replacement were those most frequently involved in NSIs or those that posed the highest risk of blood-borne virus (BBV) transmission.

3. Medical literature review and product evaluation determined the most acceptable, clinically suitable and preferred SEDs available.

4. Selected non safety sharps devices were replaced with SEDs.

5. A comprehensive sharps safety education campaign was implemented to engage staff in the process of changing to safer work practices.

Outcome: All but one of our selected SEDs are now implemented. Ongoing data reviews indicate that the implemented strategies and

technologies have led to a downward trend in reported NSIs. Most importantly less staff have experienced NSIs that pose significant risk of BBV transmission.

Costs of postexposure management of occupational sharps injuries in healthcare workers in the Republic of Korea

Hyang S, Sung W, Jeong S. Korea

<http://www.apsic2011.com/abstract/196.asp>

Background: Costs of post exposure treatment of sharps injuries (SIs) in healthcare workers (HCWs) reported as the economic burden in many countries. This study was conducted to analyze the costs of SIs in HCWs in Korea.

Methods: From October 1, 2005, to February 28, 2006, general information on SIs among HCWs was collected with EPINet™, and the direct costs (laboratory, pharmacy, medical and surgical treatments) and indirect costs (loss of working days) were collected prospectively from 34 hospitals nationwide.

Results: Seven hundred SIs occurred and 505 (72.1%) generated costs. The average costs per SI were: pharmacy 123,091 won (\$129), laboratory tests 66,958 won (\$70), medical services 26,332 won (\$28), and medical treatments 9,377 won (\$10). The average costs of preventive measures were 160,274 won (\$168) for hepatitis B virus (HBV), 127,858 won (\$134) for hepatitis C virus (HCV), and 139,552 won (\$146) for human immune deficiency virus (HIV). Of the laboratory tests, 32.9% were HBV-related, 29.4% HCV-related, and 19.8% HIV-related. Of postexposure prophylaxes, 34.9% were HB immunoglobulin and 31.4% were HBV vaccines. We estimated that 7,057.5 SIs generated costs and that their total cost was 844,587,577 won (\$884,385) annually in Korea.

Conclusions: The costs of SIs among HCWs can be an economic burden in Korea. Preventive measures will be best both health institute and HCWs.

Analysis of the incidents of occupational exposure reported to the hospital and implication for relevant interventions

Xu S. China

<http://www.apsic2011.com/abstract/37.asp>

Objective: To analyze the data of occupational exposure to blood-borne pathogens in the hospital, review the specific situation and suggest the relevant interventions.

Methods: After encountering occupational exposure to blood-borne pathogens the health care workers had filled out the hospital designing forms, and submitted them to the hospital infection control department. Then a statistic analysis had been carried out.

Results: 48 departments reported 230 cases during 2010, 196 cases of sharp injuries and 34 cases of blood/body fluids exposure; 72% of the source of exposure carried blood-borne pathogens, 118 hepatitis B virus, 17 hepatitis C virus and 14 HIV; Doctors was the most exposed group; 73.56% of exposed person worked less than 5 years; 23.34% of exposed person had not received hepatitis B vaccination; Operating room was most vulnerable department; Syringe and suture needles were the main devices, using and depositing needles were the main procedures leading to stabbing; 70.58% of the blood/ body fluids exposed person did not wear the personal protective equipment when exposed. 22.60% of the injured did not wear gloves when injured.

Conclusions: The analysis of the incident of occupational exposure to blood-borne pathogens could help identify the key departments, the target population and the risk factors. It was suggested the future work should focus on conducting interventions measures in turn such as collaboration between departments, strengthening education and training among hospital staff, promoting their occupational health and safety eventually

The role of industry in promoting infection control research - What are the benefits?

Murphy C. Australia

<http://www.apsic2011.com/abstract/230.asp>

In the last decade governments, the media, consumers and in some cases peers in both the developed and developing worlds have expressed increasing concern regarding relationships between healthcare professionals and medical industry. In the main this concern relates to negative perceptions that industry support of or payment to individual clinicians or their professional associations directly affects either the clinician's product selection or their clinical decision making processes. Critics perceive this influence as directly impacting the patient. Professional associations, including the world's oldest, largest and most prestigious infection prevention association, APIC,

have been similarly scrutinized for their strategic, fee-based partnerships with pharmaceutical and medical device manufacturers. Critics have used peer-reviewed and social media to express particular concern about industry-funded research initiatives undertaken by recognized clinical experts on behalf of the professional associations. Their concerns centre on the potential for medical industry to unduly influence prioritization, conduct or interpretation of research and the extent to which findings from such research may be used to directly or indirectly advise other clinicians or legislators or agencies responsible for prioritizing healthcare funding or developing instruments of guidance. The independence of consultants working in research or as advisors to government is also questioned regardless of whether they are working alone or as the nominee of a professional association. Experts report the growing US trend in industry funding of biomedical research with more than 60% of research currently funded by medical manufacturers. Industry funding of the operating budgets of professional medical associations is also rising rapidly. Current estimates suggest that on average between 30-50% of a professional association's operating budget will be sourced directly from industry funding. With expanded budgets professional associations have been able to expand the volume, range and quality of services routinely available to members. The recent global financial crisis inevitably brings even greater scarcity of research funding. Ironically, consumers continue their cry for safe, effective, cost-efficient medical devices and treatments. However, realistically production, registration, marketing and in-use evaluation of new devices and products requires extensive research. Members of associations are accustomed to high levels of service and goods. When asked they are disinclined to relinquish any of these for a reduction in industry-funding. The intent of this presentation is to review medical industry promotion of research and to better understand the perspectives of each of the key stakeholders as well as to identify real and perceived conflicts of interest. A model for strategic partnerships between professional associations and medical industry funders of research will be proposed.

Modern behavioural research and infection control training?

Whitby M. Australia

<http://www.apsic2011.com/abstract/278.asp>

Despite the primacy of the infection control program in many hospitals as the oldest and most established formalised quality and safety initiative, research into the critical and structural elements to optimally influence outcomes has been surprisingly sparse. Early studies focussed on the qualities of

the individual infection control practitioner. The perception of skill, experience and thus expert knowledge by others is essential to influencing compliance. Attitudes and behaviours in practitioners that influence target groups frequently act through social opinion leaders and initiatives specifically directed to these individuals have been delineated. More recently, organisational context has been recognised as pivotal to an effective program. Governance structure, the overt and demonstrable support of senior administrative staff and the ability to drive executive decision making are now seen as essential components to an effective program. These findings do however, beg the question as to how successful programs are identified. Even with the development of numerous indicators allegedly reflecting acceptable levels of healthcare associated infection, this question is yet to be adequately answered.

A different approach to teaching infection control to health care workers in a Philippine tertiary hospital using small group interactive and skills building sessions

Berba R. Philippines

<http://www.apsic2011.com/abstract/198.asp>

Objective: To develop an effective training module on Infection Control (IC) for HCWs. *Methods:* This is an 18-month prospective quality improvement study conducted in a Philippine government hospital with 1500 beds and 5000 HCWs. The new IC training module was creatively developed through focused group discussions with key representatives; identification of unique needs of specific HCW groups; identification of knowledge and practice gaps; evidence-based standardization of IC procedures; step-by-step planning of training stations to maintain an interactive teaching strategy; and training of 63 facilitators. Workshops were evaluated using observed performance of clinical procedures and knowledge scores before and after workshops; and HCAI surveillance during the study period.

Results: The new IC training module consisted of demonstration stations whereby small groups of 10 HCWs moved from one station to the next synchronously. Each HCW was required to perform the specific skills while supervised by the facilitator. Five pilot workshops were conducted involving a total of 670 HCWs. Measurements included knowledge scores and compliance to hand hygiene and sharps disposal over subsequent 12 months. Similar improvements were observed in foley catheter and intravenous line insertions.

Conclusions: A new educational strategy was designed and tested to meet the IC needs of a large tertiary hospital and replace the old ineffective traditional didactic lectures. The teaching approach was mainly through interactive small group discussions and participative skills development stations. Pre- and post-intervention measures

showed this strategy to be effective and feasible in improving knowledge and actual practice of infection control among involved HCWs.

To sustain an effective hand hygiene program, do you need a hand hygiene coordinator?

Lloyde J, Juraja M. Australia

<http://www.apsic2011.com/abstract/143.asp>

Background: March 2009 we appointed a fulltime Hand Hygiene Coordinator (HHC), dedicated to the program. In July 2010, the program lost support and its co-ordinator, which resulted in diminished resources to ensure compliance with the program. Not only did hand hygiene compliance markedly decrease, but healthcare acquired infections (HCAI) increased. With the re-establishment of a HHC, and a supported approach to hand hygiene, there has been increased compliance and decreasing HCAI. *Method:* The unit developed a Hand Hygiene Plan utilising the key performance indicators required at state and national levels. The unit also developed milestones for achieving education (healthcare workers and public), including talking walls, information sheets, PPTs, cleaning and compliance targets. An important component was the personal visibility of an identified person for hand hygiene and transparencies of reports at an individual level, ward level (visible displayed results) and senior executive level.

Results: During the unsupported period from July 2010-November 2010 compliance had decreased by 3%. Since reintroduction, from December 2010-June 2011 overall compliance has increased again by 10%. Also, Staphylococcus aureus HCA bloodstream infection rates, the benchmark for compliance, has decreased per 10,000 occupied bed days from 1.9% in Apr-May 2009, to 1.7% in the unsupported period to 0.08% in Apr-May 11.

Outcome: Evidence clearly indicates that a supported and co-ordinated approach to HCW hand hygiene compliance is needed. Hand hygiene is a measurable key performance indicator. A persistent and active hand hygiene education program is critical, but so is the need for a defined hand hygiene coordinator.

His and hers hand hygiene

Simpson P. Australia

<http://www.apsic2011.com/abstract/29.asp>

Objectives: There is some limited evidence that suggests gender may be an influencing factor for hand hygiene behaviour, indicating male healthcare workers (HCWs) have poorer compliance when compared with female HCWs. This observational study set out to test the null hypothesis that HCWs gender does not influence hand hygiene compliance.

Method: As part of the National Hand Hygiene Initiative (NHHI) audit period one 2011, four hospitals (two large urban and two regional hospitals) from three different states voluntarily

participated in this study. These hospitals, whilst collecting NHHI compliance data, used a modified version of the Hand Hygiene Australia audit tool with gender (female or male) as an additional data field. All data collectors were trained and validated in the '5 Moments for Hand Hygiene' auditing process. *Results:* In total 4019 moments of hand hygiene were observed. Overall female HCWs were compliant 77.7% (2660/3424 moments) and male HCWs were compliant 59.8% (356/595 moments), a significant difference ($p < 0.0001$). When sub-divided into professional groups only nurses demonstrated a statistically significant gender difference, with female nurses compliant 80.5% (2142/2660 moments) and male nurses compliant 69.4% (154/222 moments) ($p = 0.0001$).

Conclusion: The null hypothesis was not accepted and this study demonstrates that inter-gender differences in hand hygiene compliance amongst HCWs exist. When sub-divided into professional groups only nurses showed a significant inter-gender difference, suggesting HCWs profession may also be an important influence on compliance. Overall, the results of this study may suggest that novel gender based educational or promotional approaches may be worthwhile investigating.

Introducing a healthcare worker safety program into a developing country - The Albion Street Centre, SafeHands Program

Tomkins M. Australia

<http://www.apsic2011.com/abstract/290.asp>

Health care worker (HCW) safety includes protection from transmission of infectious diseases and is a special topic within infection control. If HCW do not feel protected from infection, patients may experience discrimination and inadequate care and there may be increased costs to the workplace due to increased attrition, recruitment and training.

SafeHands is a network (funded by AusAID; managed by the Albion Street Centre) which supports HCW in the Asia-Pacific region. SafeHands members have identified they need assistance with training resources, access to publications, policies, tools, information and advocacy for HCW safety. Since 2008, SafeHands has funded nine short demonstration projects in eight countries to provide practical examples of what can be achieved for little funding.

Lessons learned and recommendations from the projects:

Experience and practice: Many HCW have no formal skill training but learn poor practices at the workplace. Less experienced staff had more exposures. Needle stick injuries decrease if standard precautions are followed. Skills in HCW safety should be included in undergraduate curricula.

Training: It is important to have an ongoing structured workplace education program. Interactive and experiential training techniques work well.

Unfortunately many HCW still have more confidence in foreign trainers and teaching materials.

Behaviour change: Achieving behaviour change is difficult. Consultation with administrators and infection control committees is important. All staff should be included - not just nurses. Resistance to change increases with length of service. Workplace culture needs to change so safety practices are the norm. People need to be motivated to participate. Regular follow up at the workplace and update for managers must be included.

Monitoring: Monitoring is resource intensive. A monitoring group is helpful to ensure program implementation.

Improvements in safety from infectious diseases can be made for little cost, but require institutional commitment, allocated resources and a change in workplace culture.

Posters

Abstracts not reproduced here

Health Care Worker Safety Management Situation in Indonesia, 2011

Surbakti R. Indonesia

<http://www.apsic2011.com/abstract/151.asp>

A comprehensive staff vaccination program to enhance patient safety

Chan M, Yuen S, Wong C, Lau C, Luk A, Chan C. Hong Kong

<http://www.apsic2011.com/abstract/216.asp>

Sustaining hand hygiene - Difficult but not impossible

O'Grady G, Jamal A, Andresen D, Dalton D. Australia

<http://www.apsic2011.com/abstract/18.asp>

Health care worker perceptions of 'health care worker safety'

Melling P, Graves J, Tomkins M. Australia

<http://www.apsic2011.com/abstract/97.asp>

Insulin pen safety devices

Gillespie E, Barrientos A, Canning E, Sladden J. Australia

<http://www.apsic2011.com/abstract/82.asp>

Clinical pathways pave the way for improving exposure management

Forster C, Harlem T, Janssen M. Australia

<http://www.apsic2011.com/abstract/14.asp>

Surveillance of occupational blood and body fluid exposures among health care workers at the National Cancer Institute of Sri Lanka (NCISL) A prospective study from 2000 to 2010

Patabendige, Silva D, Pinnaduwa A, Botheju W, Nuwanka M. Sri Lanka

<http://www.apsic2011.com/abstract/93.asp>

The effect of the changing activities for the improvement of hand hygiene

ChoN-H, KimM-N, Song Y-G, Jin S-J, Yoon J-H. Korea

<http://www.apsic2011.com/abstract/167.asp>

Hand Hygiene Compliance and Reduction of HAI at University Malaya Medical Centre in Malaysia

Ahmad N, Latif N, Aziz H, Sarijo J, Yusof M, Kamaruzaman A. Malaysia

<http://www.apsic2011.com/abstract/79.asp>

Improvement and benefits of hand hygiene compliance through a bundle of interventions: experience from a medical center in Taiwan

Hung C-T, ChenC-Y, Lin W-R, Lu P-L, Feng M-C, Wu L-C, Chen Y-H. Taiwan

<http://www.apsic2011.com/abstract/148.asp>

Effectiveness of the hand hygiene compliance program at the National Hospital of Pediatrics, Hanoi, Vietnam

Le N, Luc T, Nguyen H. Vietnam

<http://www.apsic2011.com/abstract/23.asp>

The effectiveness of hospital campaign on influenza vaccination uptake of healthcare

workers in Matilda International Hospital, Hong Kong

Lee S. Hong Kong

<http://www.apsic2011.com/abstract/31.asp>

Occupational exposures to blood and body fluids among healthcare workers

Apivanich S, Muntajit T, Somsakul S, Kehachindawat P, Malathum K. Thailand

<http://www.apsic2011.com/abstract/62.asp>

Has clinical practice with operative sharps management reflected current national and international standards?

Goodhand V, Juraja M. Australia

<http://www.apsic2011.com/abstract/101.asp>

An analysis of needle stick injuries occurring in an Indian corporate hospital over a period of 3 years,10 months

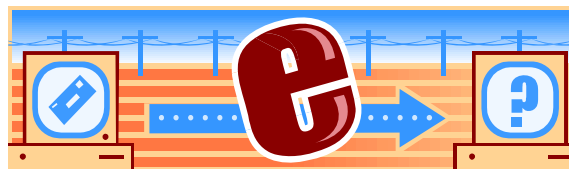
Jaggi N, Narayana E. India

<http://www.apsic2011.com/abstract/132.asp>

Infection control education program: lecture is not enough

Jarayopas J. Thailand

<http://www.apsic2011.com/abstract/144.asp>



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Just email us at: safehands@sesiahs.health.nsw.gov.au



Members of SafeHandS enjoying the 5th International Congress of the Asia Pacific Society of Infection Control (APUSIC) in Melbourne, Australia held from 8-11th November.

Member profile

We provide a profile of one of our SafeHandS members

Name: Gustodio Alves de Jesus

Title Dr (Medical Doctor)

Contact Details Hospital Nacional Guido Valadares, Bidau-Dili, Timor Leste

Describe your current job.

Working as general practitioner (GP) at accident and emergency (A&E) at Hospital Nacional Guido Valadares Dili, Timor Leste

What was your career path that brought you to your current job?

I was working as GP for Obstetrics/Gynaecology department for almost 2 years and currently rotate at A&E before heading to my next rotation.

What do you like most about your job?

Helping others, do my job at best.

What do you like least about your job?

When government does not care much about us (health workers).

What does health care worker safety mean to you?

It means safety for ourselves, patients and those who work with us.

What are you reading at the moment?

Emergency cases scenarios and their management and Daily Bread.

What are you currently listening to?

Christian songs.

What is your favourite saying?

I can do all things through Christ who strengthens me.

Contribute to the newsletter

We welcome member contributions to the newsletter.

We would love to receive:

- * ideas for future topics
- * photos
- * articles
- * case studies
- * teaching materials
- * policies or protocols
- * hints and tips
- * letters
- * member profiles

To contribute, send an email to:

safehands@sesiahs.health.nsw.gov.au

Teaching tools

Glen's story - How hospital associated infections can impact on a person's life and family

Video from The Victorian Infection Control Professionals Association (Australia).
Information from Glenys Harrington, VICPA Video Project Team Coordinator:

“To support infection control professionals in their infection prevention and control initiatives the Victorian Infection Control Professionals Association (VICPA) has developed a storytelling video with the assistance and support of a family who share their experience and the impact that acquiring a hospital associated infection has had on their lives.

The video was launched at The 5th International Congress of the Asia Pacific Society of Infection Control (APSIC), 8–11 November 2011, Melbourne, Australia”
(link to the abstract: <http://www.apsic2011.com/abstract/223.asp>).

“The VICPA Video Project Team would like to share the video with the infection control community. The team request that if you display the video on your hospital web page (intranet or internet), or in your infection control educational material, that the title of the video and VICPA acknowledgement as outlined below be included:

Glen's Story

*How Hospital Associated Infections Can Impact on a Person's Life and Family.
Produced by The Victorian Infection Control Professionals Association (VICPA)”*

The video can be accessed at the following web pages and links:

- Australian Infection Control Association (AICA) <http://www.aica.org.au/>
- Hand Hygiene Australia(HHA)
<http://www.hha.org.au/ForHealthcareWorkers/education.aspx#VideoFiles>
- The Australian Commission on Safety and Quality in Health Care (ACSQHC) - Healthcare Associated Infection (HAI)
<http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/PriorityProgram-03>

The Stop Sticks Campaign

From the National Institute for Occupational Safety and Health (US)

“The STOP STICKS campaign is a community-based information and education program. Its goal is to raise awareness about the risk of exposure to bloodborne pathogens such as HIV, hepatitis B, and hepatitis C from needlesticks and other sharps-related injuries in the workplace. While the campaign materials were developed mainly with operating room and emergency department audiences, the target audience includes clinical and nonclinical health care workers and health care administrators in hospitals, doctor's offices, nursing homes, and home health care agencies.”

The website includes how to conduct a campaign, information, templates for posters and newsletters, a teaching video and how to evaluate the campaign.

<http://www.cdc.gov/niosh/stopsticks/>

Giving safe injections

A PowerPoint presentation from the World Health Organization, International Council of Nurses and Safe Injection Global Network. *Giving safe injections: a guide for nurses and others who give injections* (3Mb)

http://www.who.int/occupational_health/activities/1bestprac.pdf

These are tools which can be accessed online and used in education about infection control and health care worker safety.

Webwatch

An occasional column with information about websites relevant to health care worker safety

Asia Pacific Society of Infection Control

<http://www.apsic.info/>

The Asia Pacific Society of Infection Control (APSIC) now has a website with information about the organisation and its research projects and links to member organisations.

Safe Injection Global Network (SIGN)

<http://SIGNpostOnline.info>

“The new website is a work in progress and will grow to provide an archive of all SIGNposts, meeting reports, field reports, documents, images such as photographs, posters, signs and symbols, and video.”

Australasian Sexual Health and HIV Nurses Association (ASHHNA)

<http://www.ashhna.org.au/>

The peak Australasian sexual, reproductive health and HIV nurses professional organisation.

The website has information about the organisation, resources, information about education courses, a newsletter and “Competency Standards for sexual and reproductive health and HIV nurses”.

Hand Hygiene Australia

<http://www.hha.org.au/>

Information, resources and short online learning packages for different professions.

One and only campaign (US)

<http://www.oneandonlycampaign.org/>

“The One & Only Campaign is a public health campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), to raise awareness among patients and healthcare providers about safe injection practices. The campaign aims to eradicate outbreaks resulting from unsafe injection practices.”

The website contains information and campaign resources.

New movies

In recent months two movies (both from the US) have been released about infectious diseases, one is fiction and one based on a true story.

Contagion

Contagion (Warner Bros pictures) is a film about a new virus which infects and kills people within days and causes a pandemic.

Synopsis:

“An international traveler reaches into the snack bowl at an airport bar before passing her credit card to a waiter. A business meeting begins with a round of handshakes. A man coughs on a crowded bus...

One contact. One instant. And a lethal virus is transmitted.

When Beth Emhoff (Gwyneth Paltrow) returns to Minneapolis from business in Hong Kong, what she thought was jet lag takes a virulent turn. Two days later, she's dead in the ER and the doctors tell her shocked and grieving husband (Matt Damon) they have no idea why.

Soon, others exhibit the same mysterious symptoms: hacking coughs and fever, followed by seizure, brain hemorrhage...and ultimately, death. In Minneapolis, Chicago, London, Paris, Tokyo and Hong Kong, the numbers quickly multiply: one case becomes four, then sixteen, then hundreds, thousands, as the contagion sweeps across all borders, fueled by the countless human interactions that make up the course of an average day.

A global pandemic explodes.

At the U.S. Centers for Disease Control and Prevention, researchers mobilize to break the code of a unique biological pathogen as it continues to mutate. Deputy Director Cheever (Laurence Fishburne) tries to allay the growing panic despite his own personal concerns, and must send a brave young doctor (Kate Winslet) into harm's way. At the same time, amid a rising tide of suspicion over a potential vaccine—and who gets it first—Dr. Leonora Orantes (Marion Cotillard) of the World Health Organization works through the network of connections that could lead back to the source of what they're dealing with.

As the death toll escalates and people struggle to protect themselves and their loved ones in a society breaking down, one activist blogger (Jude Law) claims the public isn't getting the truth about what's really going on, and sets off an epidemic of paranoia and fear as infectious as the virus itself."

<http://contagionmovie.warnerbros.com/index.html#/synopsis>

CDC has established a web page responding to the movie with information about the work of the CDC. <http://www.cdc.gov/24-7/contagion/>

Puncture

Synopsis:

"Mike Weiss (Chris Evans) is a talented young Houston lawyer and a functioning drug addict. Paul Danziger (co-director Mark Kassen), his longtime friend and partner, is the straightlaced and responsible yin to Mike's yang. Their mom-and-pop personal-injury law firm is getting by, but things really get interesting when they decide to take on a case involving Vicky (Vinessa Shaw), a local ER nurse, who is pricked by a contaminated needle on the job. As Weiss and Danziger dig deeper into the case, a health care and pharmaceutical conspiracy teeters on exposure and heavyweight attorneys move in on the defense. Out of their league but invested in their own principles, the mounting pressure of the case pushes the two underdog lawyers and their business to the breaking point.

Brothers and directors Mark and Adam Kassen bring this real-life story to the screen with all the urgency and passion of the subjects themselves. The result is an effective issue-driven drama that finds its footing in a contemporary David and Goliath story."

<http://www.puncture-the-movie.com/>

A trailer and clip from the film can be seen here:
<http://movies.msn.com/movies/movie-synopsis/puncture/>

Coming events

We provide information about conferences and events which may be of interest to readers. For more detailed information, please contact the organisations directly.

International Conference on Emerging Infectious Diseases 11 – 13 March 2012, Atlanta, Georgia, USA

The International Conference on Emerging Infectious Diseases was first convened in 1998; ICEID 2012 marks its eighth occurrence. The conference brings together public health professionals to encourage the exchange of scientific and public health information on global emerging infectious disease issues. The program will include plenary and panel sessions with invited speakers as well as oral and poster presentations on emerging infections. Major topics to be included are current work on surveillance, epidemiology, research, communication and training, bioterrorism, and preventions and control of emerging infectious diseases, both in the United States and abroad.

Abstract submission has closed

For further information visit the website: <http://www.iceid.org/>

Australian Society for Infectious Diseases (ASID) Scientific Meeting 21 – 25 March 2012, Fremantle, Western Australia

The meeting's focus is to explore what the future holds for infectious diseases. Specific topics will include origins and spread of new infectious diseases, how host factors may determine outcome from infection, what tools we can use to predict, diagnose, manage and monitor infections, as well as a range of other topics including malaria, travel-related infections, viral hepatitis, antimicrobial use and abuse, current controversies in infectious diseases and the emergence and spread of multiresistant organisms in the community.

Abstract submission deadline: 27 January, 2012

For further information visit the website: <http://www.asid.net.au>

The Society for Healthcare Epidemiology of America (SHEA) Spring Training Conference. "Advancing healthcare epidemiology and antimicrobial stewardship" 13 – 16 April 2012, Jacksonville, Florida, USA

The newly designed 2012 spring training conference is a hybrid of the traditional SHEA/CDC Training Course in Healthcare Epidemiology – our longstanding 'basic training' course – coupled with a new and stimulating 'advanced epidemiologic methods' track that will be valuable to professionals across the lifespan of a healthcare epidemiology career.

The advanced methods track addresses the complexities of observational study design, survey design and analysis, health economic outcomes, multistate models for outcome studies, risk factor analysis and much more. The conference closes with a prominent leadership meeting addressing the increasingly challenging issues in antimicrobial stewardship and demonstrating various approaches to research within the field.

Learning will occur in a variety of formats including didactic lecture, case-study based practical sessions, statistical methods review, and expert-led research and implementation troubleshooting. In addition, we are pleased to host a competition that will award financial support for the most novel and exciting research proposal using the SHEA Research Network.

We encourage you to join us for this important meeting that emphasizes science and leadership to advance the healthcare epidemiology field and improve practice in all healthcare settings.

For further information visit the website: <http://www.shea2012.org>

Association for Professionals in Infection Control and Epidemiology (APIC), 39th Annual Educational Conference & International Meeting. "Infection Prevention: Improving Outcomes, Saving Lives"

4 – 6 June 2012, San Antonio, Texas, USA

APIC Annual Educational Conference & International Meeting is the largest annual gathering of infection preventionists in the world. It is considered the premier educational opportunity for healthcare professionals in all settings who have responsibility for infection prevention programs. It is the meeting place for infection preventionists of all levels of experience and those in related fields to expand their knowledge bases, establish practical expertise in infection prevention and epidemiology, and network with experts and peers.

Abstract submission deadline: 16 January 2012.

For more information visit the website <http://www.apic.org>

**9th Asia-Pacific Congress of Medical Virology
6 – 8 June 2012, Adelaide, Australia**

The Asia-Pacific Congress of Medical Virology is a triennial international meeting that focuses on diagnostic, public health, research and clinical virology, with emphasis on Asia and the Pacific regions. Many recently emerging virus infections have been centred on our region, and conditions of agriculture and wildlife are such that further examples are likely to occur. Many Asian countries have or are developing a strong public health, diagnostic and research base to address these problems. The 9th Asia-Pacific Congress will review, present and discuss current progress in each of these areas.

Abstract submission deadline: 28 February 2012.

For more information visit the website <http://sapmea.asn.au/conventions/apcmv2012/index.html>

**International Society for Infectious Diseases (ISID), 15th International Congress on Infectious Diseases
13 – 16 June 2012, Bangkok, Thailand**

ISID exists to encourage collaboration between leaders as well as students to find new solutions to the world's infectious diseases. ISID promotes this by bringing together clinicians, researchers, microbiologists and epidemiologists of infectious diseases from all countries of the world to share their commitment and expertise. The end result will be new partnerships, new preventive methods and new therapeutics.

The 15th ICID will be a chance for ongoing collaborative efforts, as well as for individuals, to present and share their experiences fighting infectious diseases. To commemorate the 30th year of our Society we are keen to provide attendees in Bangkok with an outstanding scientific program that will run the spectrum from cutting edge research with clinical implications, to state of the art practices in infectious diseases by a truly international faculty composed of world leaders in their areas. ISID looks forward to working together with our collaborator in Thailand, the Infectious Disease Association of Thailand (IDAT), as well as other organizations to develop 15th ICID.

Abstract submission deadline is 12 February 2012

For more information visit the website: <http://www.isid.org/icid/>

Community and Hospital Infection Control Association – Canada (CHICA). CHICA 2012 – Growing for the future**16 – 21 June 2012, Saskatoon, Saskatchewan, Canada**

As CHICA-Canada and the field of Infection Prevention and Control (IP&C) 'grow for the future', we face new and exciting prospects and challenges. Never before has a National CHICA Conference been held in the Province of Saskatchewan. Leaders across the country are realizing the key role assumed by Infection Prevention and Control Professionals (ICPs) and their programs. And we continue to grow. Over the past several years, CHICA has endeavoured to reinforce the importance and necessity of understanding and correctly applying the basics, or 'foundations', while also recognizing the 'opportunities' and requirements to advance ourselves and reach new heights.

IP&C is growing for the future through many branches: cleaning, disinfection, sterilization and the use of 'green' products; supporting leaders to help them make IP&C a priority; IP&C-specific accreditation standards; antibiotic stewardship; and global IP&C. Changes at home and around the world require ICPs to move forward with initiatives that support the importance of our role.

The 2012 CHICA-Canada National Conference offers healthcare professionals a forum that acknowledges where we have come from, recognizes the development we have achieved, and identifies our growth for the future.

Abstract submission deadline is 24 February 2012

For more information visit the website: http://www.chica.org/conf/pdf12/conference_prelim2012.pdf

**Hong Kong Infection Control Nurses' Association. 5th International Conference of Infection Control Hong Kong
24 – 26 August 2012, Hong Kong**

For more information visit the website: <http://www.hkicna.org/>

**Australian Infection Control Association (AICA) Conference. "Building, Believing, Balancing & Beyond..."
8 – 10 October 2012, Sydney, Australia**

Abstract submission deadline is 14 May 2012

For more information visit the website: <http://www.aica.org.au>

6th International Congress of the Asia Pacific Society of Infection Control. Strategic Practices for Increasing Microbial Adversities.**10 – 13 April 2013, Shanghai, China**

For more information visit the website: <http://www.apsic2013.org>

Current resources

In this section, we list abstracts of recent relevant articles and any new resources such as policies, protocols and training materials about health care worker safety in the Asia-Pacific Region. We may include resources from other regions if they can inform local practice. SafeHandS can provide most of the articles on request.

Title Reducing needle stick injuries in healthcare occupations: an integrative review of the literature

Author Yang L, Mullan B

Source *ISRN Nursing* 2011;2011:315432. Full text: <http://www.isrn.com/isrn/nursing/2011/315432/>

Country Australia

Abstract Needlestick injuries frequently occur among healthcare workers, introducing high risk of bloodborne pathogen infection for surgeons, assistants, and nurses. This systematic review aims to explore the impact of both educational training and safeguard interventions to reduce needlestick injuries. Several databases were searched including MEDLINE, PsycINFO, SCOPUS, CINAHL and Scencedirect. Studies were selected if the intervention contained a study group and a control group and were published between 2000 and 2010. Of the fourteen studies reviewed, nine evaluated a double-gloving method, one evaluated the effectiveness of blunt needle, and one evaluated a bloodborne pathogen educational training program. Ten studies reported an overall reduction in glove perforations for the intervention group. In conclusion, this review suggests that both safeguard interventions and educational training programs are effective in reducing the risk of having needlestick injuries. However, more studies using a combination of both safeguards and educational interventions in surgical and nonsurgical settings are needed.

Title Use of a systematic review to inform the infection risk for

Author Smith A

Source *Australasian Physical and Engineering Sciences in Medicine* 2011 Oct 21 [Epub, ahead of print]

Country Australia

Abstract Many microorganisms responsible for hospital-acquired infections are able to stay viable on surfaces with no visible sign of contamination, in dry conditions and on non-porous surfaces. The infection risk to biomedical staff when servicing biomedical devices is not documented. An indirect approach has been used to examine the different aspects that will affect the risk of infection including a systematic review of microbial contamination and transmission relating to biomedical devices. A systematic review found 58% of biomedical devices have microbial contamination with 13% having at least one pathogenic organism. These microbes can persist for some months. Occupational-infections of biomedical service staff are low compared to other healthcare workers. A biomedical device with contaminated surface or dust was identified as the source of patient outbreaks in 13 papers. The cleaning agent most tested for removal of micro-organisms from devices was alcohol swabs, but sterile water swabs were also effective. However, manufacturers mainly recommend (74%) cleaning devices with water and detergent. Biomedical engineers and technicians have a small risk of being exposed to dangerous micro-organisms on most biomedical devices, but without skin breakage, this exposure is unlikely to cause ill-health. It is recommended that biomedical staff follow good infection control practices, wipe devices with detergent, sterile water or alcohol swabs as recommended by the manufacturer before working on them, and keep alcohol hand rubs accessible at all benches.

- Title** **A comprehensive situation assessment of injection practices in primary health care hospitals in Bangladesh**
- Author** Chowdhury A, Roy T, Faroque A, Bachar S et al
- Source** *BMC Public Health* 2011 Oct 10.11(1):779 **Full text:** <http://www.biomedcentral.com/1471->
- Country** Bangladesh
- Abstract (edited)** *Background:* Understanding injection practices is crucial for evidence-based development of intervention initiatives. This study explored the extent of injection use and injection safety practices in primary care hospitals in Bangladesh.
Methods: The study employed both quantitative and qualitative research methods. The methods used were - a retrospective audit of prescriptions (n = 4320), focus group discussions (six with 43 participants), in-depth interviews (n = 38) with a range service providers, and systematic observation of the activities of injection providers (n = 120), waste handlers (n = 48) and hospital facilities (n = 24)...
Results: As many as 78% of our study sample (n = 4230) received an injection... Nearly one-third (29.8%; n = 36/120) of injection providers reported needle-stick injuries in the last 6 months with highest incidences in Rajshahi division followed by Dhaka division. Disposal of injection needles, syringes and other materials was not done properly in 83.5% (n = 20/24) of the facilities. Health providers' safety concerns were not addressed properly; only 23% (n = 28/120) of the health providers and 4.2% (n = 2/48) of the waste handlers were fully immunized against Hepatitis B virus. Moreover, 73% (n = 87/120) of the injection providers and 90% (n = 43/48) of the waste handlers were not trained in injection safety practices and infection prevention. Qualitative data further confirmed that both providers and patients preferred injections, believing that they provide quick relief. The doctors' perceived injection use as their prescribing norm that enabled them to prove their professional credibility and to remain popular in a competitive health care market. Additionally, persistent pressure from hospital administration to use up injections before their expiry dates also influenced doctors to prescribe injections regardless of actual indications.
Conclusions: ... In a context where a high level of injection use and unsafe practices were reported, immediate prevention initiatives need to be operated through continued intervention efforts and health providers' training in primary care hospitals in Bangladesh.
- Title** **Conventional and sharp safety devices in 6 hospitals in British Columbia, Canada**
- Author** Stringer B, Astrakianakis G, Haines T, Kamsteeg K et al
- Source** *American Journal of Infection Control* 2011 November 39 (9): 738-745
- Country** Canada
- Abstract** *Background:* Reengineered sharp safety devices have been recommended to reduce occupational percutaneous injury risk in health care facilities. We conducted this study just over 1 year after passage of legislation requiring the use of sharp safety medical devices to assess the frequency of safety and conventional sharp device use and whether safety features were being activated to cover sharp points after safety devices were used and before disposal.
Methods: Approximately equal numbers of sharps disposal containers from various wards in 6 nonprofit adult and pediatric British Columbia hospitals were audited by paired research assistants, wearing protective clothing.
Results: In the 699 audited sharps containers, 7% (1,690/25,910) of all devices were conventional devices, specifically 2% (96/4,702) of all phlebotomy devices, 7% (1,240/17,705) of all syringes, and 10% (354/3,503) of all intravenous catheters. In addition, 94% (4,344/4,602) of all safety phlebotomy devices, 95% (2,955/3,119) of all safety intravenous devices, and 80% (13,050/16,420) of all safety syringes had been activated before disposal.
Conclusion: More than 1 year after legislation was passed mandating the use of sharp safety devices in British Columbia hospitals, the risk from sharps remains excessive because of the ongoing use of conventional sharp devices and nonactivation of safety devices.

Title **Effectiveness of seasonal influenza vaccination in healthcare workers: a systematic review**

Author Ng A, Lai C

Source *Journal of Hospital Infection* 2011 December 79(4): 279-286

Country China, Hong Kong SAR

Summary Vaccination is considered a key measure to protect vulnerable groups against influenza infection. The objectives of this review are to determine the effect of influenza vaccinations in reducing laboratory-confirmed influenza infections, influenza-like illnesses (ILIs), working days lost among vaccinated HCWs, and associated adverse effects after vaccination. Twenty-two healthcare-related databases and internet resources, as well as reference lists, and the bibliographies of all of the retrieved articles were examined. All randomized controlled trials (RCTs) comparing the effectiveness of any kind of influenza vaccine among all groups of HCWs with a placebo/vaccine other than the influenza vaccine/no intervention were included in the review. Only three RCTs matched the inclusion criteria. There is a limited amount of evidence suggesting that receiving influenza vaccination reduces laboratory-confirmed influenza infections in HCWs. No evidence can be found of influenza vaccinations significantly reducing the incidence of influenza, number of ILI episodes, days with ILI symptoms, or amount of sick leave taken among vaccinated HCWs. There is insufficient data to assess the adverse effects after vaccination. There is no definitive conclusion on the effectiveness of influenza vaccinations in HCWs because of the limited number of related trials. Further research is necessary to evaluate whether annual vaccination is a key measure to protect HCWs against influenza infection and thus increase their confidence in the vaccine. In the mean time, the direction of promoting influenza vaccination to HCWs can be shifted from staff protection to patient protection, with accurate information to address concerns and misconceptions.

Title **Universal to standard precautions in disease prevention: Preliminary development of compliance scale for clinical nursing**

Author Lam S

Source *International Journal of Nursing Studies* 2011 December 48(12): 1533-9

Country China, Hong Kong SAR

Abstract *Background:* The Center for Disease Control and Prevention revised the infection control practice from Universal Precautions to Standard Precautions in 1996. Although the practice of Standard Precautions has been implemented for almost 15 years in clinical settings, recent local research still adopts the Universal Precautions Scale to measure the compliance with the current infection control practice of general frontline nursing staff and students. Despite the scale's sound psychometric properties, that its items may not be sensitive and comprehensive enough to reflect the current compliance of frontline staff to Standard Precautions is questionable.

Aim: The present study aims to develop a Compliance with Standard Precautions Scale (CSPS) for use by the general frontline nurses and nursing students in clinical settings.

Methods: The current study employed a recognized instrumentation design. In addition, a preliminary assessment of reliability and validity was described. The CSPS was developed through the modification of the Universal Precautions Scale through five steps: reviewing the infection control guidelines, modifying the items of the Universal Precautions Scale, examining the relevance and adequacy of new items by an expert panel, verifying the linguistic and grammatical issues, and examining the understandability of the items and acceptability of the entire instrument by stakeholders. Internal consistency was examined using Cronbach's alpha statistic.

Results: The original 15-item Universal Precautions Scale was revised to the 20-item CSPS, in which 13 items were revised in wording and concept, 2 items were deleted, and 7 items were added. The 20-item new scale obtained the overall content validity index of 0.90, and 100% understandability and acceptability in face validity, and Cronbach's alpha of 0.73.

Conclusion: With the explicit justification on each generated item and the satisfactory results of the psychometric testing, the CSPS is a preliminary reliable and valid instrument in measuring the compliance with Standard Precautions of frontline nurses and nursing students in clinical settings.

- Title** **An evaluation of hospital hand hygiene practice and glove use in Hong Kong**
- Author** Chau J, Thompson D, Twinn S, Lee D, Pang S
- Source** *Journal of Clinical Nursing* 2011 May 20(9-10): 1319-28
- Country** China, Hong Kong SAR
- Abstract** *Aim:* To identify omissions in hand hygiene practice and glove use among hospital workers in Hong Kong.
Background: Hospital-acquired infection is the commonest complication affecting hospitalised patients. Even though research evidence suggests that hand hygiene and proper glove use are the most important ways to prevent the spread of disease and infection, compliance with both are reported to be unacceptably low.
Design: An observational study of hospital workers in one acute and two convalescence and rehabilitation hospitals in Hong Kong was conducted. The participating clinical areas included the medical and surgical wards, accident and emergency department and intensive care unit.
Methods: Hand hygiene practice and glove use amongst 206 hospital health and support workers, stratified according to years of working experience, were observed.
Results: The number of observed episodes for hand hygiene was 1037 and for glove use 304. Compliance with hand hygiene was 74.7% and with glove use 72.4%. In approximately two-third of episodes, participants washed their hands after each patient contact; though, 78.5% failed to rub their hands together vigorously for at least 15 seconds. The major break in compliance with glove use was failure to change gloves between procedures on the same patient. In 28.6% of observed glove use episodes, participants did not wear gloves during procedures that exposed them to blood, body fluids, excretion, non-intact skin or mucous membranes. Significant differences in performance scores on antiseptic hand rub were found between the two types of hospital and on glove use between the three groups of work experience: ≤ 5, 6-10, >10 years.
Relevance to clinical practice: Education and reinforcement of proper hand hygiene practice and glove use among hospital health and support workers is needed.

- Title** **Inactivation and Survival of Hepatitis C Virus on Inanimate Surfaces**
- Author** Doerrbecker J, Friesland M, Ciesek S, Erichsen T et al
- Source** *Journal of Infectious Diseases* 2011 December 204(12): 1830-8
- Country** Germany
- Abstract** *Background.* Hepatitis C virus (HCV) cross-contamination from inanimate surfaces or objects has been implicated in transmission of HCV in health-care settings and among injection drug users. We established HCV-based carrier and drug transmission assays that simulate practical conditions to study inactivation and survival of HCV on inanimate surfaces.
Methods: Studies were performed with authentic cell culture derived viruses. HCV was dried on steel discs and biocides were tested for their virucidal efficacy against HCV. Infectivity was determined by a limiting dilution assay. HCV stability was analyzed in a carrier assay for several days or in a drug transmission assay using a spoon as cooker.
Results: HCV can be dried and recovered efficiently in the carrier assay. The most effective alcohol to inactivate the virus was 1-propanol, and commercially available disinfectants reduced infectivity of HCV to undetectable levels. Viral infectivity on inanimate surfaces was detectable in the presence of serum for up to 5 days, and temperatures of about 65-70°C were required to eliminate infectivity in the drug transmission assay.
Conclusions: These findings are important for assessment of HCV transmission risks and should facilitate the definition of stringent public health interventions to prevent HCV infections.

Title **Are glove perforations equivalent to sharp injuries: results from a study in maxillofacial surgery**

Author Chhabra S, Chhabra N, Thapar D

Source *International Journal of Infection Control* 2011. 7(4)
Full text: <http://www.ijic.info/article/view/8286/6619>

Country India

Abstract The objective of the present study was to remove the ambiguity in usage of terms Glove perforations (GP) and Sharp injuries (SI) equivalently. A 6 months prospective study was conducted involving the use of double gloving practice for the procedures needing medical sharps in maxillofacial surgery. Total of 270 procedures were performed. GP's and SI's were analysed. The data revealed total of 400 GP's including 290 outer GP and 110 inner GP and 80 SI. Out of 80 SI, 65 were superficial and 15 were deep injuries. Out of total 270 patients, 25 were high risk patients. Only 5 significant exposures were observed which were a part of high risk patient group. This study concludes: Every GP is not always SI but every SI is a GP. Risk of SI increases with inner GP but it is also not necessary that every inner GP leads to SI. A modified surveillance and a new algorithm are also proposed which can be a part of guidelines for occupational safety and health.

Title **Infection control in non traditional dental settings**

Author Singh A, Purohit B

Source *International Journal of Infection Control* 2011. 7(3)
Full text: <http://www.ijic.info/article/view/6159/6145>

Country India

Abstract Dental camps, i.e. travelling dental clinics, contribute to the delivery of public oral health care delivery in India. Dental camps are organized to create awareness in the public so that dental disease can be treated and prevented. The availability and versatility of portable dental equipment make possible the delivery of dental treatment in wide variety of nontraditional settings. However, inadequacies of Infection Control in these settings can be life-threatening for the both the patient and dental professional, and requires greater attention than do the treating of dental caries or of periodontal disease.

Title **Knowledge, attitude, and practices about biomedical waste management among healthcare personnel: A cross-sectional study**

Author Mathur V, Dwivedi S, Hassan M, Misra R

Source *Indian Journal of Community Medicine* 2011 Apr-Jun; 36(2): 143–145
Full text: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3180941/?tool=pubmed>

Country India

Abstract *Background:* The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well.

Objective: The objective was to assess knowledge, attitude, and practices of doctors, nurses, laboratory technicians, and sanitary staff regarding biomedical waste management.

Setting: The study was conducted among hospitals (bed capacity >100) of Allahabad city.

Participants: Medical personnel included were doctors (75), nurses (60), laboratory technicians (78), and sanitary staff (70).

Results: Doctors, nurses, and laboratory technicians have better knowledge than sanitary staff regarding biomedical waste management. Knowledge regarding the color coding and waste segregation at source was found to be better among nurses and laboratory staff as compared to doctors. Regarding practices related to biomedical waste management, sanitary staff were ignorant on all the counts. However, injury reporting was low across all the groups of health professionals.

Conclusion: The importance of training regarding biomedical waste management needs emphasis; lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

Title Knowledge, attitude and perceived adherence with universal precaution among health care workers in the obstetrics and gynaecology department of an Indonesian teaching hospital

Author Sari Y, Ibrahim K, Haroen H, Afriandi I et al

Source *International Journal of Infection Control* 2011. 7(4)
Full text: <http://www.ijic.info/article/view/5465/6621>

Country Indonesia

Abstract Health care workers (HCWs) are at a high risk of occupational blood-borne infections, which may be increased in low and middle income countries by low adherence to Universal Precautions (UP). A baseline survey of Knowledge, Attitudes and Perceived adherence (KAP) was executed to design evidence-based tailor made interventions. A cross-sectional, descriptive study using self-administered questionnaires was conducted among HCWs in the obstetrics and gynecology department of an Indonesian teaching hospital from September-October 2007. The survey included 524 HCWs with a response rate of 72% (n=377). The results indicated that the level of knowledge regarding hand washing, personal protective equipment, medical waste disposal and post exposure prophylaxis was high, over mean score of 71.8. However, level of knowledge regarding instrument processing and medical sharps disposal was low. Perceived adherence was low as reported by majority of respondents (95%). There was significant association between knowledge and attitude ($r=0.235$; $P < 0.001$); knowledge and perceived adherence ($r=0.314$; $P < 0.001$); attitude and perceived adherence ($r=0.233$; $P < 0.001$). This study suggest tailor made interventions were needed to improve adherence to UP.

Title Prevalence of HBV and HBV vaccination coverage in health care workers of tertiary hospitals of Peshawar, Pakistan

Author Attaullah S, Khan S, Naseemullah, Ayaz S et al

Source *Virology Journal* 2011 June 6. 8: 275. Full text: <http://www.virologyj.com/content/8/1/275>

Country Pakistan

Abstract *Background:* Hepatitis B Virus (HBV) may progress to serious consequences and increase dramatically beyond endemic dimensions that transmits to or from health care workers (HCWs) during routine investigation in their work places. Basic aim of this study was to canvass the safety of HCWs and determine the prevalence of HBV and its possible association with occupational and non-occupational risk factors. Hepatitis B vaccination coverage level and main barriers to vaccination were also taken in account.

Results: A total of 824 health care workers were randomly selected from three major hospitals of Peshawar, Khyber Pakhtunkhwa. (Edited). HCWs in the studied hospitals showed 2.18% prevalence of positive HBV. Nurses and technicians were more prone to occupational exposure and to HBV infection. There was significant difference between vaccinated and non-vaccinated HCWs as well as between the doctors and all other categories. Barriers to complete vaccination, in spite of good knowledge of subjects in this regard were work pressure (39.8%), negligence (38.8%) un-affordability (20.9%), and unavailability (0.5%).

Conclusions: Special preventive measures (universal precaution and vaccination), which are fundamental way to protect HCW against HBV infection should be adopted.

Title High coverage and safety of influenza A (H1N1) 2009 monovalent vaccination among health care personnel in Thailand

Author Kiertiburanakul S, Malathum K, Watcharananan S, Bunupuradah P et al

Source *American Journal of Infection Control* 2011 August 39(6): 525-528

Country Thailand

Abstract We aimed to report the coverage and safety of the influenza A (H1N1) 2009 monovalent vaccination (Panenza; Sanofi Pasteur, Val de Reuil Cedex, France) among health care personnel (HCP) in a university hospital setting in Thailand. The hospital set up a system to vaccinate HCP and did surveillance of the adverse effects (AEs). During a 4-week period, 6,210 (78.7%) HCP were vaccinated. There were 82 reported nonserious AEs among 32 HCP. The most common AE was fatigue/uncomfortable feeling (24%).

- Title** **Influence of type of uniform and days of usage in microbiological contamination of nurses uniform in a university hospital**
- Author** Guillen-Grima F, Aguinaga-Perez A, Nunez-Cordoba J, Sara C
- Source** Poster presentation: International Conference on Prevention & Infection Control, Geneva, Switzerland. 29 June – 2 July 2011. *BMC Proceedings* 2011, **5** (Suppl 6): 317
- Country** Spain
- Abstract** *Introduction / objectives:* Nurse uniforms can act as a reservoir of infections, with the areas around the pockets, cuffs and aprons the most contaminated. The aim of this study is compare the contamination of Standard nurse's uniform consisted of a dress, pinafore apron with the "scrub dress" type of uniform, as well as to measure the influence of the number of shifts as uniform was used in its contamination.
Methods: Microbiological cultures were collected from uniforms of 88 nurses (58 using traditional uniform and 30 using scrub dress) in an university hospital, during their work in one month period. Cultures were obtained using Count-tact plates (BioMérieux) plates (25 cm²) The culture media were incubated for five days at room temperature. After the incubation period bacterial count and type of bacteria colonizing the uniform were evaluated by microbiologist. Reading was provide in cfu colony forming units. Student T , and correlation were computed with SPSS v.17.
Results: The average count was 42,82 fcu/cm² . There was no differences in the count between both types of uniform.(P=0,504). There was a positive correlation between the number of days and microbiological count. (r=0,224, P=0,036). The average count was 44,36 cfu/cm in those nurses using the uniform for 1 or 2 shifts, and 65,20cfu this difference was statistically significant. (P=0,031).
Conclusion: There are no differences in microbiological contamination between standard or scrub uniform. The main differences in contamination appeared in those nurses that used the same uniform for more than 2 shifts. Hospital should provided nurses with enough uniforms to change before every shift or at least every 2 shifts.

- Title** **The role played by contaminated surfaces in the transmission of nosocomial pathogens**
- Author** Otter J, Yezli S, French G
- Source** *Infection Control and Hospital Epidemiology* 2011 July 32(7): 687-99
- Country** United Kingdom
- Abstract** Studies in the 1970s and 1980s suggested that environmental surface contamination played a negligible role in the endemic transmission of healthcare-associated infections. However, recent studies have demonstrated that several major nosocomial pathogens are shed by patients and contaminate hospital surfaces at concentrations sufficient for transmission, survive for extended periods, persist despite attempts to disinfect or remove them, and can be transferred to the hands of healthcare workers. Evidence is accumulating that contaminated surfaces make an important contribution to the epidemic and endemic transmission of *Clostridium difficile*, vancomycin-resistant enterococci, methicillin-resistant *Staphylococcus aureus*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and norovirus and that improved environmental decontamination contributes to the control of outbreaks. Efforts to improve environmental hygiene should include enhancing the efficacy of cleaning and disinfection and reducing the shedding of pathogens. Further high-quality studies are needed to clarify the role played by surfaces in nosocomial transmission and to determine the effectiveness of different interventions in reducing associated infection rates.

Title **Effectiveness of low-temperature domestic laundry on the decontamination of healthcare workers' uniforms**

Author Lakdawala N, Pham J, Shah M, Holton J

Source *Infection Control and Hospital Epidemiology* 2011 November 32(11): 1103-8

Country United Kingdom

Abstract *Objective:* Most professionals in the healthcare environment wear uniforms. For the purpose of this study, we concentrated on nurses' uniforms. In the United Kingdom, many nurses are expected to launder their uniforms at home by using a domestic washing machine that frequently has low-temperature wash cycles. We have investigated whether the use of low-temperature wash cycles results in a microbiologically acceptable product to wear on the wards. *Methods:* We have assessed the bioburden on uniforms before and after laundry and the effectiveness of low-temperature wash cycles and ironing on removal of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Acinetobacter baumannii*. We did not assess the role of tumble drying.

Results: We demonstrate contamination of uniforms by gram-negative bacteria after wash, the removal of MRSA at low-temperature wash cycles in the presence of detergent, and the eradication of gram-negative bacteria after ironing.

Conclusions: Our conclusions are that laundry in a domestic situation at 60°C (140°F) for 10 minutes is sufficient to decontaminate hospital uniforms and reduces the bacterial load by more than 7-log reduction, that items left in the pockets are decontaminated to the same extent, that the addition of either a biological detergent or a nonbiological detergent is beneficial in removing MRSA from experimentally contaminated swatches, and that uniforms become recontaminated with low numbers of principally gram-negative bacteria after laundry but that these are effectively removed by ironing.

Title **Measuring healthcare worker hand hygiene activity: Current practices and emerging technologies**

Author Boyce J

Source *Infection Control and Hospital Epidemiology* 2011 October 32(10): 1016-28

Country USA

Abstract Monitoring hand hygiene compliance and providing healthcare workers with feedback regarding their performance are considered integral parts of multidisciplinary hand hygiene improvement programs. Observational surveys conducted by trained personnel are currently considered the "gold standard" method for establishing compliance rates, but they are time-consuming and have a number of shortcomings. Monitoring hand hygiene product consumption is less time-consuming and can provide useful information regarding the frequency of hand hygiene that can be used to give caregivers feedback. Electronic counting devices placed in hand hygiene product dispensers provide detailed information about hand hygiene frequency over time, by unit and during interventions. Electronic hand hygiene monitoring systems that utilize wireless systems to monitor room entry and exit of healthcare workers and their use of hand hygiene product dispensers can provide individual and unit-based data on compliance with the most common hand hygiene indications. Some systems include badges (tags) that can provide healthcare workers with real-time reminders to clean their hands upon entering and exiting patient rooms. Preliminary studies suggest that use of electronic monitoring systems is associated with increased hand hygiene compliance rates and that such systems may be acceptable to care givers. Although there are many questions remaining about the practicality, accuracy, cost, and long-term impact of electronic monitoring systems on compliance rates, they appear to have considerable promise for improving our efforts to monitor and improve hand hygiene practices among healthcare workers.

Title **Transmission of 2009 pandemic influenza A (H1N1) Virus among healthcare personnel—Southern California, 2009**

Author Jaeger M, Patel M, Dharan N, Hancock K et al

Source *Infection Control and Hospital Epidemiology* 2011 December 32(12): 1149-57

Country USA

Abstract *Objective:* In April 2009, 2009 pandemic influenza A (H1N1) (hereafter, pH1N1) virus was identified in California, which caused widespread illness throughout the United States. We evaluated pH1N1 transmission among exposed healthcare personnel (HCP) and assessed the use and effectiveness of personal protective equipment (PPE) early in the outbreak.
Design: Cohort study. *Setting:* Two hospitals and 1 outpatient clinic in Southern California during March 28–April 24, 2009.
Participants: Sixty-three HCP exposed to 6 of the first 8 cases of laboratory-confirmed pH1N1 in the United States.
Methods: Baseline and follow-up questionnaires were used to collect demographic, epidemiologic, and clinical data. Paired serum samples were obtained to test for pH1N1-specific antibodies by microneutralization and hemagglutination-inhibition assays. Serology results were compared with HCP work setting, role, and self-reported PPE use.
Results: Possible healthcare-associated pH1N1 transmission was identified in 9 (14%) of 63 exposed HCP; 6 (67%) of 9 seropositive HCP had asymptomatic infection. The highest attack rates occurred among outpatient HCP (6/19 [32%]) and among allied health staff (eg, technicians; 8/33 [24%]). Use of mask or N95 respirator was associated with remaining seronegative. Adherence to PPE recommendations for preventing transmission of influenza virus and other respiratory pathogens was inadequate, particularly in outpatient settings.
Conclusions: pH1N1 transmission likely occurred in healthcare settings early in the pandemic associated with inadequate PPE use. Organizational support for a comprehensive approach to infectious hazards, including infection prevention training for inpatient- and outpatient-based HCP, is essential to improve HCP and patient safety.

Title **Do nurse and patient injuries share common antecedents? An analysis of associations with safety climate and working conditions**

Author Taylor J, Dominici F, Agnew J, Gerwin D

Source *BMJ Quality and Safety* 2011. Published Online First: 19 October

Country USA

Abstract *Background:* Safety climate and nurses' working conditions may have an impact on both patient outcomes and nurse occupational health, but these outcomes have rarely been examined concurrently.
Objective: To examine the association of unit-level safety climate and specific nurse working conditions with injury outcomes for both nurses and patients in a single hospital.
Research design: A cross-sectional study was conducted using nursing-unit level and individual-level data at an urban, level-one trauma centre in the USA. Multilevel logistic regressions were used to examine associations among injury outcomes, safety climate and working conditions on 29 nursing units, including a total of 723 nurses and 28 876 discharges.
Measures: Safety climate was measured in 2004 using the Safety Attitudes Questionnaire (SAQ). Working conditions included registered nursing hours per patient day (RNHPPD) and unit turnover. Patient injuries included 290 falls, 167 pulmonary embolism/deep vein thrombosis (PE/DVT), and 105 decubitus ulcers. Nurse injury was defined as a reported needle-stick, splash, slip, trip, or fall (n=78). Working conditions and outcomes were measured in 2005.
Results: The study found a negative association between two SAQ domains, Safety and Teamwork, with the odds of both decubitus ulcers and nurse injury. RNHPPD showed a negative association with patient falls and decubitus ulcers. Unit turnover was positively associated with nurse injury and PE/DVT, but negatively associated with falls and decubitus ulcers.
Conclusions: Safety climate was associated with both patient and nurse injuries, suggesting that patient and nurse safety may actually be linked outcomes. The findings also indicate that increased unit turnover should be considered a risk factor for nurse and patient injuries.

Title **Guide to infection prevention for outpatient settings: Minimum expectations for safe care**

Author Centers for Disease Control and Prevention (CDC)

Source <http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html> May 2011

Country USA

Abstract The transition of healthcare delivery from acute care hospitals to outpatient (ambulatory care) settings, along with ongoing outbreaks and patient notification events, have demonstrated the need for greater understanding and implementation of basic infection prevention guidance. [This guide] distills existing infection prevention guidance from the Centers for Disease Control and Prevention (CDC) and the Healthcare Infection Control Practices Advisory Committee (HICPAC)."

"By highlighting existing CDC and HICPAC recommendations, this summary guide: 1) provides basic infection prevention recommendations for outpatient (ambulatory care) settings; 2) reaffirms Standard Precautions as the foundation for preventing transmission of infectious agents during patient care in all healthcare settings; 3) provides links to full guidelines and source documents, which readers can reference for more detailed background and recommendations."

The guidelines provide recommendations for administration, education and training, surveillance and reporting, hand hygiene, personal protective equipment injection safety, cleaning and disinfection/sterilisation of environmental surfaces and medical equipment, and respiratory hygiene/cough etiquette in ambulatory care settings

Title **Hand hygiene campaigns in a low resource context: a Vietnam perspective**

Author Salmon S, Nguyen V, McLaws M-L, PittetD, Kilpatrick C, Le T, Truong A

Source International Conference on Prevention & Infection Control, Geneva, Switzerland. 29 June – 2 July 2011. *BMC Proceedings* 2011, 5 (Suppl 6): O22.
Full text: <http://www.biomedcentral.com/content/pdf/1753-6561-5-S6-O22.pdf>

Country Viet Nam

Abstract *Introduction / objectives:* Bach Mai tertiary hospital is a 1900 bed facility in Viet Nam. Previous hospital hand hygiene programs proved unsuccessful which prompted the director to launch an intensive hand hygiene campaign on 5th May 2009 to reduce health-care associated infection (HAI) using World Health Organization (WHO) tools.

Methods: A review of hand hygiene compliance rates before and after a two-month campaign. The campaign launched a practical hand hygiene protocol including provision of soap/water and alcohol-based hand rub (ABHR); education and communication materials; and a 20-hour hand hygiene training course for link nurses. Daily audits were done by accredited link nurses in 29 clinical departments. Compliance data was analyzed and results distributed.

Results: In 2007, 2526 hand hygiene observations showed compliance rates of 14.0% (95%CI 12.7%>15.5%). After the 2009 campaign the rate improved significantly ($p<0.0001$) to 47.0% (1806/3840) (95%CI 45.4%>48.6%). Factors impeding compliance included inappropriate glove use and access to soap/water and ABHR.

Conclusion: The campaign improved compliance by three-fold, however compliance remains less than optimal. Commitment to improving compliance is needed from hospital leadership levels. Current research conducted by the University of New South Wales, Bach Hospital Hanoi and WHO aims to improve hand hygiene and reduce HAIs using standardised surveillance tools. We believe that this will provide evidence of the impacts of hand hygiene on patient safety in a sample of health care facilities in Viet Nam.

Please pass along this information to colleagues who may be interested in health care worker safety issues

What is SafeHandS?

SafeHandS is a 'virtual' network designed to link and support health care workers across the Asia-Pacific region who are caring for people with HIV and other communicable diseases. We know that health care workers are essential in responding to HIV and other communicable diseases. Without health care workers, there is no health system. We want this network to provide information, support and practical solutions to help health care workers in resource limited settings to feel safe and encouraged to provide optimal care.

SafeHandS is a forum where health care workers can share issues and ideas. We can encourage and learn from each other to find practical solutions to improve health care worker safety in resource limited settings.

SafeHandS is being funded by the Australian Agency for International Development (AusAID) and coordinated by the Albion Street Centre (ASC). ASC is a public health care facility based in Australia for the treatment, care and support of people living with or affected by HIV and other communicable diseases.

We are pleased to report that at the end of November 2011, we had over 300 members of SafeHandS, working in 39 countries.

Become a member

Benefits of SafeHandS membership include:

- Receiving a newsletter (In SafeHandS) every 3 months
- Participating in a moderated group email discussion e-list for posting questions, comments and issues
- Access to a clearinghouse of new resources and publications produced by different organisations about health care worker safety (links are posted on the website)
- Access to resources developed by SafeHandS
- Joining a database of expertise

Membership is free. To join, you can either:

- Go to our website: <http://www.uow.edu.au/health/safehands/index.html>, or
- Send an email to: safehands@sesiahs.health.nsw.gov.au

You can elect to receive a hard copy of the newsletter by post. However, this will be a shorter version than the electronic version. We encourage members to receive the newsletter by email to reduce our postage costs.

Tell your colleagues!

Teleclass education update for 2012

For more than a decade the Teleclass Education initiative has intended to bring the best possible infection prevention and control information, to the widest possible audience, with the fewest barriers to access. Organising an international lecture series, never a simple task, has at times required a herculean effort. But Teleclass Education remains a wholly volunteer-run programme, and again the groups of volunteers around the globe have pulled together another fine line-up of topics that will be presented by the best of the best experts.

Live teleclasses are delivered over the telephone, the presenters' slides and handouts having been provided in advance. The lectures are recorded and the recordings are posted to the programme web site - www.webbertraining.com - for repeated and unlimited access. Recordings and handouts are also available on DVD for those without easy access to the internet. For most people in the Southern Hemisphere, access to these lectures is free.

The 2012 Teleclass Education schedule will include the following lectures:

- Optimizing Environmental Hygiene: The Key to *C. difficile* Control
- Infection Control Strategy for Multidrug-Resistant Gram Negative Bacilli
- The Role of Fomites in Disease Transmission in Public Environments
- Surgical Site Infections – Advancing the Prevention Agenda
- Behavioural Change in Infection Prevention and Control
- Outbreaks of Vaccine Preventable Diseases: Communicating the Science & Closing the Gaps
- The Biofilm Hypothesis of Chronic Infection
- Hygiene in the Home and Everyday Life Settings
- Achievements in Improving Injection Safety Worldwide
- Human Waste Disposal - Assessing the Risks of Differing Management Solutions
- Water and Infection Control in Healthcare
- Critique and Use of the Scientific Evidence – Sharpening Skills
- Innate Resistance to Sporicides and Potential Failure to Decontaminate
- Implementing Change: The Technical & Socio-Adaptive Aspects of Preventing Catheter-Associated Urinary Tract Infection
- Central Line Associated Infection in ICU
- Managing Urinary Catheters and CAUTIs
- *Clostridium difficile* Infection: Lessons From the Quebec Experience
- Meet the Press – Tips and Techniques for Dealing with the Media
- Keeping the Hand Hygiene Agenda Alive: Acting on Data and the Influence of Global surveys
- Emerging Carbapenem Resistance: What Do We Do Now?
- Bug Basics – Essential Microbiology for Everyone
- Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care
- Economic Impact of Healthcare-Associated Infections in Low and Middle Income Countries
- Hand Hygiene Initiatives in Australia
- Infection Prevention Challenges in Global Travel
- Patient Empowerment in Infection Control
- Top 10 Must-Do's for the Elimination of Hospital-Associated Infections
- Processing Medical Devices in Settings with Limited Resources
- Successes & Challenges in Developing and Implementing Bundles in Infection Prevention
- The Hand is Quicker Than a Sneeze in the Spread of Disease
- Inspiring Mature Minds – Adult Education for Infection Prevention and Control
- The Role of Education in Low and Middle Income Countries
- Meningococcal Disease and the New Zealand Experience - Where to From Here
- Reduce, Reuse, Recycle – Implications for Infection Prevention and Control
- Healthcare Workplaces - Moving from Discord to Patient-Centered
- Measuring Impact: Key to Infection Control Scale-Up and Sustainability
- Surface Disinfection and Microbial Resistance
- New Developments in Infection Control for Renal Dialysis
- Commissioning Infection Prevention Services
- Microfibre Cleaning in Healthcare: Is it Really All it's Cracked Up To Be?

Contact info@webbertraining.com anytime for more information.

Thanks for your support of Teleclass Education.