

REPORT

Subject : **THE 2nd INTERNATIONAL CONFERENCE ON PREVENTION & INFECTION CONTROL (ICPIC)**
25th – 28th JUNE, 2013 | GENEVA, SWITZERLAND

Submitted by : Florence Chng

Designation / Department : Director of Nursing, Assisi Hospice
Infection Control Advisor, Khoo Teck Puat Hospital

Date : 10th -13th April 2013

A) Background

ICPIC provides a unique platform to foster knowledge-sharing and exchange experiences around prevention of healthcare-associated infection and the control of antimicrobial resistance among countries around the world. This conference have encouraged and facilitated the attendance of healthcare workers from nations with limited resources. There were 718 abstracts submitted from 80 countries, 97 were selected for oral and 487 for poster presentations.

The conference provides 3 distinguish awards for participants from all over the world to showcase their research, improvement and innovative projects:

- ICPIC Clip awards where participants were able to vote for their favourite clip.
- ICPIC Implementation Academy Awards
- ICPIC Innovation Academy Awards

There were also opportunities to attend daily the Meet the Expert Sessions and Satellite Symposia programme and a special Plenary session and round table discussion on “MERS-Cov: latest news from Arabian peninsula and beyond”.

B) Programme objective

- To exchange experiences around the prevention of healthcare-associated infection and control of antimicrobial resistance and patient safety

Topic highlights:

Decrease of MRSA in the UK

National Infection Control interventions, including a hand hygiene campaign, in context of a high profile political drive, can successful reduce selected HCAI.

Regional Trends in France of ESBLE and MRSA hospital-based infections from 2007 to 2011

French national MDRB-RAISIN Network includes a large percentage of French healthcare facilities. MRSA incidences decreased significantly from 2007 to 2011 likely related to improved surveillance efforts of network.

ESBLE incidences increase significantly:

- Spread of ESBL producing *E coli* in HCF but also in the community
- The need to increase and re-inforce measures to reduce the transmission of these bacteria through contact precautions and excreta management.

National One Week Audit of MRSA Admission Screening – NHS Hospitals

- The current policy of 'universal' screening is unlikely to be cost-effective.
- The screening high-risk specialities was, however cost-effective of current prevalence.
 - While not preventing mist transmission, it prevented mist infections and deaths, so generated most health benefits.
- However substantial uncertainty exists with the probability of any one strategy being the most cost-effective.
- Greater certainty is choosing between strategies that require better evidence on the effectiveness of isolation and decolonization.

Hand Hygiene

The science continues with assessing the efficacy of agents used for hand hygiene action in real life.

Multiple approaches:

- Alcohol-based handrub at point of care
- Education of HCWs
- Monitoring compliance
- Feedback performance
- Enhance safety climate around hand hygiene
- Monitoring infection rates and cross-transmission of multi resistant pathogens
- Demonstrate cost effectiveness

Interventions

- System change
- Education of healthcare workers
- Monitoring and feedback of performance
- Reminders in the work place
- Administrative support
- Leadership and culture

Direct Observation of Hand Hygiene Compliance

Advantages

- Accurate evaluation of staff practices at the point of care, include appropriateness of technique and glove use
- Allowing analysis of compliance stratified by HCP or hand hygiene indication
- Standardized method available
- Essential for feedback to show local reality: gaps & progress
- Helpful for educational purposes to understand key indications

Disadvantages

- Technically difficult
- Resource demanding and time consuming
- Inter-observer reliability
- Possible Hawthorne Effect – covert observations difficult to conduct

Environmental issues and new challenges for environmental control

- Hospital surfaces are frequently contaminated with important healthcare associated pathogens.
- Contaminated surfaces serve as source of HCW hands & gloves contamination.
- Admission to a room previously occupied by a patient with resistant pathogen increases the risk of transmission to the next patient admitted to the room,
- Improved cleaning and disinfection of room surfaces decreases the risk of healthcare-associated infections.

New Approaches for Environment control

- Reducing environmental contamination by monitoring cleaning practises
- Newer liquid disinfectant/cleaners for surfaces
- Coating surfaces with antimicrobial metals
- Applying products with long term antimicrobial activity to suppress contamination of surfaces
- No-touch Decontamination

Copper Alloys as Antimicrobial surfaces

- Environmental surfaces or medical equipment coated with copper alloys have been shown to
 - Have sustained antimicrobial activity

- Reduce levels of bacterial contamination of surfaces in clinical settings when compared with usual equipment
- Reduce healthcare-associated infections and colonization caused by MRSA and VRE.
- No-touch room decontamination systems
 - Hydrogen peroxide vapour technology
 - Aerosolized hydrogen peroxide
 - Gaseous ozone
 - Saturated steam devices
 - Alcohol – based fogging
 - Mobile ultraviolet (UV) light devices

Prediction and Emerging Viruses

Some emerging infectious diseases have shaped global directions

- HIV
- SARS & H5N1
- H1N1 Pandemic

The world is currently experiencing two new EIDS. What will be their impact?

H7N9 Assessment & Recommendation

- Remains an avian virus
- No indication of sustained Human to human transmission
- More human cases expected
- No special screening at points of entry or travel or trade restrictions

Middle East Respiratory Syndrome Coronavirus

- Human to human transmission occurs
- Can result in sizable clusters
- Potential for sustained transmission among humans uncertain
- Community exposures & reservoir uncertain
- New cases continue to occur:
- Active transmission
- True geographic extent of virus remains unknown
- Critical question of source and “why now?” remained unanswered
- Role of comorbid conditions in susceptibility, transmission and severity unknown

The Patient Safety Matters

Patient Safety Field Struggling with Two Competing Mental Models

Most errors are committed by caring, competent people who are trying hard to get it right.

Therefore, finger-pointing, shaming and suing them doesn't help, it stifles open discussion and learning.

The System produces low quality, unsafe, unreliable care partly because there's been no incentive for it to do otherwise. Therefore, the last thirteen years have seen a variety of initiatives to create accountability, which generates action, focus, and resource flow

Accountability

Reasonable performance expectations

Appropriate carrots and sticks used to drive system toward excellence

“No blame” is the dominant front-line culture

For innocent slips and mistakes

Clear demarcation of blameworthy acts

E.g. Cross incompetence, disruptive behaviour, failure to heed reasonable safety/quality rules

C) **Lessons learnt**

- The universal MRSA screening is unlikely to be cost-effective. Screening high-risk specialities was cost effective. While not preventing most transmission, it prevented most infections and deaths. Greater certainty in choosing between strategies requires better evidence on the effectiveness of isolation and decolonisation.
- Need for out of box thinking.
- Monitoring cleaning and disinfection practices with feedback to housekeepers can reduce transmission of pathogens. Newer surface disinfectants may facilitate reduction of environmental contamination.
- What Can Infection Preventionists Learn From Patient Safety? It's The System...
 - Education is the weakest type of system change
 - Systems 101: double checks, simplify, standardize, human factors, IT as a forcing function
 - Needs to be both top down and bottom up
 - Importance of both stories and data
 - Needs to appreciate organizational culture
- Multimodal Approach to improve Hand Hygiene compliances:
 - Most studies on technological systems were pilot, small sample size
 - Most published studies are based on systems that either do not measure compliance (but ABHR consumption or other indicators)
 - Do not use standard definitions of opportunities for measuring compliance (e.g. room entry/exit)
 - Some evidence that electronic monitoring is effective as an intervention to improve compliance

D) **Networking**

Ties amongst Singaporean delegates were strengthened.

There were also opportunities to befriend ICPs from different countries to share practises.

E) **Benefits**

I received the latest updates on emerging infectious diseases, for example MERS.

There were various interesting studies and research being shared at this congress. I also saw many posters on quality improvement projects especially hand hygiene being done by various countries.

F) **Recommendations**

To relook at our hand hygiene program and apply new models to improve compliances.

To study the current data and review the universal MRSA screening program accordingly.

REPORT

Subject : **THE 2nd INTERNATIONAL CONFERENCE ON PREVENTION & CONTROL**

25th – 28th June, 2013 | GENEVA, SWITZERLAND

Submitted by : Lily Lang

Designation / Department : Nurse Manager, Infection Control, Dental Division, National Healthcare Group Polyclinics

Date : 25 -28 June 2013

A) Background

The 2nd International Conference on Infection and Prevention Control –ICPIC 2013 was held on 25th to 28th June at the international Conference Centre Geneva (CICG). It was located near the United Nations and fairly near to the World Health Organisation Office.

More than 900 delegates from 89 nations attended the conference, this included 18 delegates from Singapore. There were 97 oral presentations and 427 posters.

The organising committee provide a comprehensive program to cover diverse delegates from diverse background. I am humbled and inspired to witness the inclusion of program for nations with limited resources notably from African Region. Delegates can choose to attend different tracks which included

- ICPIC controversies track
- Limited resources track
- Paediatric Infectious Disease track
- Intensive Care Unit track
- RIPAQS special session (International Network for planning and improving quality and safety in health system in Africa.

With so many interesting programs going on concurrently I wish I was able to duplicate myself to attend all the sessions. Highlights of some of the session I attended are mentioned later in this report.

B) Programme objectives

- Provide a unique platform to foster knowledge-sharing
- Exchange experiences around the prevention of health care acquired infection and antimicrobial resistance among countries around the world.

The programme objectives can be achieved through the various programme which includes the Scientific Programme, ICPIC Clip Awards, Innovation Academy Posters, Satellite Symposia, Debates, Exhibition, ICPIC Art Zone and Implementation Academy.

Topic highlights:

The opening session focused on viruses with pandemic potential, with impressive introduction from some Geneva luminaries and a personal video from Dr Margaret Chan (WHO Director General).

Christina Bradley: Safe processing of medical devices – don’t take it for granted.

Bradley highlighted three purpose of safe processing:

- prevent or reduce the risk of infection
- ensure the quality of the diagnostic or therapeutic procedure
- prolong the life of the equipment (e.g. endoscope)

She shared few reports on incidences to recall patient when the instruments were not properly disinfected.

In order to ensure safe processing of medical devices there must be proper selection of decontamination. These include ensuring that decontamination is safe for patient and staffs; equipment is safe for use, cost effective and practical for staff to use. There should be adequate facilities for sink, sterilisers and etc. To have correct and sufficient consumable e.g. using correct detergent and look for CE mark. Ensure sufficient decontamination/disinfection time and adequate staff. Staff must understand the importance of proper cleaning and methods of decontamination. Validate decontamination, inspect instrument after cleaning and proper transportation of clean and dirty items.

Training must be incorporated for new staff with regular updates for all staff. Use appropriate teaching methodology to enhance learning and to incorporate department Standard Operating Procedures into the training and individual staff training record

Change is needed when there is a need to improve outcome for safe processing of medical devices. These include two types of change, organisational change and behavioural change. Incorporating Dr Kotter 8 steps process contribute to the success of change.

1. Creating a sense of urgency
2. Pulling together a team (response occur when failure occur)
3. Developing the change vision and strategy (baby steps are used)
4. Communicating for buy in and better understanding
5. Empowering others to act
6. Producing short term wins
7. Don’t let up
8. Creating a new culture

Organisational change	Behavioural change
Acceptance from above	Communication
Policies and procedures	Demonstration
Willingness to listen	Acceptance
Formal training	Implementation

Meet the experts (Boyce and Dettenkofer): Controversial issues about environmental cleaning and disinfection

Dr Dettenkofer began with a framework for understanding hospital cleaning and disinfection needs. His position is that low-level disinfection is the main requirement. However, the presence of *C. difficile* spores means that a sporicidal (i.e. high-level disinfectant) is necessary on occasion. So, is the requirement for hospital disinfection high or low level disinfection? Dr Dettenkofer spoke briefly about the debate over whether surface disinfection is required at all in hospitals, when cleaning (without the use of a chemical disinfectant) is often sufficient. He later presented the use of liquid hydrogen peroxide disinfectant in his hospital. Finally, the question of whether a two-step process (cleaning followed by disinfection) is necessary. It's difficult enough to get good compliance with one round of cleaning or disinfection, let alone assuring adequate coverage of first a cleaning agent, then a disinfectant. Effective combination products are required urgently.

Dr Boyce discussed:

- What is the 'best' surface disinfectant? He considered aldehydes, QACs, phenolics, chlorine releasing agents, hydrogen peroxide and peracetic acid. He concluded that all disinfectant have pros and cons.
- So, how to assess cleaning performance? Visual assessment, microbiological cultures, ATP or fluorescent markers. These are not mutually exclusive and, again, all have pros and cons.
- Finally, which "no-touch" room disinfection system to use? Hydrogen peroxide vapour, aerosolized hydrogen peroxide, UVC, pulsed-xenon UV and other systems are available. All have pros and cons.

Robert Wachter: Embedding infection prevention into medical training and patient safety agenda

Dr Wachter explained that the patient safety movement began with infection control, but is now predominant in the US. Infection control should seek to embed itself within the core values of patient safety: quality and value. He explained some seminal moments in the development of the patient safety movement: the realization that medical errors were killing the equivalent of a jumbo jet of Americans each day and that zero is possible. It was also proposed to consider non-compliance with hand hygiene as a medical error.

Robert Haley, US: The legacy of the SENIC study, 40 year later

SENIC - Study on the Efficacy of nosocomial Infection control

Dr Haley mentor Dr Jay P Sanford, M.D. quote " We know what to do to prevent infections, our problem is getting hospital personnel to do it.

The SENIC Study was conducted by Haley *et al* from 1974 to 1984. The study incurred a huge sum of money of \$12 million. This epidemiologic cohort study was conducted over 3 phases:

- Preliminary screening survey – mailed survey to 6, 500 hospitals with 86% (5,600 hospitals response. selection of stratified random sample of 335 hospitals

- Hospital Interview Survey – Trained interviewers to conduct structured interviews in th 335 hospitals
- Medical Records Survey – trained CDC medical records analysts diagnosed nosocomial infections in 500 medical records selected randomly from 1970 and 500 from 1976

The SENIC Efficacy Hypothesis was tested separately for 5 sites

- Surgical site infection
- Primary bloodstream infection
- Postoperative pneumonia
- Medical pneumonia and
- Urinary tract infection

This large multi-centre study SENIC remains the only controlled study of the effect of the effect of any quality improvement strategy on healthcare outcomes in a representative sample of US hospital. Haley proposed the system of surveillance by objectives, with hospitals focusing on their priority HAI problems based on morbidity, mortality and cost, and developing a specific surveillance and control strategy directed at reducing HAI. The outcome of the study suggested that 4 components were required to reduce nosocomial infection:

- Surveillance - careful clinical ascertainment of nosocomial infections with feedback of risk – adjusted infection rates to personnel
- Control - programs for ensuring preventive patient care practices
- Infection Control Nurse - A full time /part time nurse to collect clinical surveillance data and implement control measures
- Hospital Epidemiologist - either a physician or microbiologist who oversees the program clinically and interface with physicians and surgeons in the hospitals

After the SENIC study in 1979, a small group of planner was convened and the group used the powerful information to conduct a planning process to assess implications of provisional SENIC findings for implementation as new public health program.

There were implications for

- CDC recommendations
- NNIS and surveillance methods need to incorporate new
- Other government agencies (JCAHO, CMS, State IIDs)
- Professional groups (SHEA, APIC, SIS, AHA) was being formed
- Training needs (to implement training course)

The SENIC Results was published as 4 articles in American Journal of Epidemiology, February 1985.

Since the SENIC study was published, there has been a steady promotion of the benefits of targeted incidence based surveillance over hospital-wide prevalence based surveillance. Targeted surveillance focuses preventive effort and resources on high-risk patient groups (for example surgical patients), units (for example Intensive Care Units (ICU)), or infection sites (for example Blood Stream Infection (BSI)). It has the potential to yield more meaningful data as case finding is more accurate if targeted in a specific area, and risk adjustment is more feasible for targeted

units. To more effectively link surveillance to prevention of HAI and reduce the financial burden of hospital-wide surveillance,

The study also left a legacy of SENIC

The study established the efficacy of surveillance in reducing the infection rate and it had impacted several aspects as shown in the table below.

SENIC Findings /Accomplishments	Impact
Established the efficacy of Surveillance in reducing nosocomial infection (NI) rates	JCAHO incorporated risk-adjusted NI rates into hospital accreditation standards
Establish efficacy of a training course for physicians in IC	CDC/SHEA Training Course for Infection Control Physicians started
Established the efficacy of Control	CDC formalized Guidelines process (HICPAC)
Effective ISCP profile differed by site	Targeted surveillance of SSI, CLABSI, VAP, etc. developed for NNIS and JCAHO Indicators
SENIC algorithmic definitions of Nis	Adapted to upgrade NNIS (NHSN) definitions
SENIC multivariate risk index	Adapted as the NNIS risk index for comparing rates of surgeons, nursing units and hospitals
Established efficacy of feedback of SSI rates to surgeons	SIS recommendation for feedback of SSI rates to surgeons
Showed high benefit –cost ratio of IC	CMS interest in controlling NIs
First use of SAS computing at CDC	Revolutionized statistical activity at CDC

C) Lessons learnt

There are many lessons learnt in this conference and these include organising different track to cater for diverse group of participants when organising a conference.

Infection control practices cannot remain as status quo. There are many advances in terms of new evidences, new technology. Hence, change management is an essential component to keep abreast with new practices. This involves both organisational and behavioural change.

It is important to form a conclusion based on the best practices when different speakers presented controversial issues. For example most of the European countries used detergent for housekeeping and disinfectant for only high-risk areas. On the other hand the US used disinfectant for housekeeping.

Large meaningful sample is needed for study in order to have meaningful and impactful results as demonstrated in the SENIC study.

D) Networking.

The ICPIC conferences provide many opportunities for networking. There were many opportunities to interact and share practices with different healthcare professionals from different countries.

E) Benefits

Attending the conference provides me with updates on concerns, innovations and updates of the epidemiology of infection control and infection control practices. It also broadens my perspective with a better understanding on infection control for countries with limited resources.

F) Recommendations

Education and training is an essential component in infection control prevention and control. It should be incorporated during change management, improve practices, introducing new product, update on standard operating protocol and etc. In order to have effective training, the educator or trainer must be trained and be competent in pedagogy.

There should be sufficient sample size when conducting meaningful surveillance and outcome. In addition each healthcare organisation needs to prioritize the type of surveillance that would bring good outcome instead of conducting hospital wide surveillance when the resources are limited. This was highlighted in Scenic Study presented by Robert Haley.

To consider not installing laminar flow as studies presented by one of the speaker shared that the laminar flow does not reduce surgical site infection. This would be a large sum of money saved for the healthcare organisation.

The new CDC guidelines would be publishing an update on surgical site infection. It no longer advocates superficial surgical site surveillance. Instead, the emphasis is to focus on conducting surveillance for deep organ space infection.

I would like to acknowledge my heartfelt thanks to the Infection Control Association Singapore for sponsoring me to the ICPIC conference.

**Subject : THE 2nd INTERNATIONAL CONFERENCE ON PREVENTION
AND INFECTION CONTROL (ICPIC)
GENEVA, SWITZERLAND**

Submitted by : Phoon Poh Choo

**Designation / Department : SENIOR NURSE CLINICIAN/INFECTION CONTROL,
SPECIALTY CARE NURSE, NATIONAL HEART CENTRE
SINGAPORE**

Date : 25 to 28 JUNE 2013

A) Background

The International Conference on Prevention & Infection Control (ICPIC) was organized to provide a unique platform to foster knowledge sharing and exchange experiences for the prevention of healthcare-associated infection and the control of antimicrobial resistance among countries around the world. This year a total of more than 718 participants from 89 countries came to Geneva to learn and share their expertise on the latest evidence based advancements in infection prevention.

B) Programme objectives

1. To learn from international and local experts on their experience and expertise in infection prevention and the latest evidence based advancement.
2. To meet and interact with delegates from all over the world including third world countries.

Topic highlights:

1. PRO-CON DEBATES on MRSA

- 1.1 Hyde Park corner debate: decrease of MRSA in the UK – successful infection control or natural decrease? Pro-Infection Control by Sheldon Stone (UK)

The presenter discussed on the success of a campaign that can decrease the rate of MRSA in UK. This is a national campaign known as 'Clean your hands campaign' piloted as a Patient Safety Alert mandating Alcohol hand rub. Messages on hand hygiene were blasted in posters and patients' empowerment was advocated as 'it's OK to ask'. Audit feedback was given every 6 months.

- 1.2 Hyde Park corner debate: decrease of MRSA in the UK – successful infection control or natural decrease? Pro-natural evolution by David Wylie (UK)

The UK MRSA Epidemic has declined in all regions in UK in mid-2000s and the incidence peaked earliest in London and then in the northern parts of UK. He argued that the key question is 'if no anti-MRSA interventions had occurred, would rates have been declined? If so, how much? And what would the natural history have been?'

- 1.3 The impact of the US Veterans Affairs initiative: too nice to be true? Pro by Matthew Samone (US) and Con by Marc Bonten (NL)

Studies were presented and discussed in this session:

- Veterans Affairs initiative to prevent MRSA infections
- Interventions to reduce transmission of resistant bacteria in intensive care
- Targeted versus Universal decolonization to prevent ICU infection
- Decontamination of digestive tract and oropharynx in ICU patients

Based on the results of these 4 multi-centre studies performed in US ICUs, there was:

- no convincing evidence that screening and isolation was effective in reducing MRSA
- universal chlorhexidine body wash and mupirocin prophylaxis was effective in preventing 1st episode bacteraemia
- Still need effective measures to prevent ICU acquired gram negatives infection

2. CLOSTRIDIUM DIFFICILE INFECTIONS

- 2.1 Typing: Is ribotyping needed? by Maja Rupnik (SL)

The aim of this session was to understand:

- How is *C. difficile* typing done?
- How does the lab determine a ribotype number
- Are these numbers important – hypervirulence
- When and why ribotyping needed?
- Which method will be used after ribotyping

There are 2 approaches to ribotyping. The hypervirulent ribotypes are 027 and 078 and can cause large outbreak, severe disease and increased mortality. Ribotyping can be done when there is a single case of severe disease, relapse, cluster of *C. difficile* infections and for point prevalence studies. It can also be done when results influence treatment and infection control measures.

- 2.2 *C. difficile* in the community: community onset or silent reservoir? by Matthew Samore (US)

Presenter cited studies for *C. difficile* infections (CDI) in the community setting:

- In Australia, community associated CDI, defined as symptom onset more than 12 weeks after last discharge from a healthcare facility estimated to have an increase from 10 per 100,000 population in 2010 to 17 per 100,000 population in 2011
- In US, active surveillance in 8 US states detected 984 patients with community associated CDI

- The Irish study in adults with no recent antibiotic or healthcare facility exposure reviewed that 5% with irritable bowel syndrome carried toxigenic *C. difficile* and 1% healthy volunteers carried toxigenic *C. difficile*
- UK study shows that 3% (2 out of 149) of elderly home living adults without recent antibiotic exposure carried toxigenic *C. difficile*

2.3 *C. difficile* control in the hospital. By Walter Zingg (CH)

In the hospital setting, patients admitted with persistent colonization of *C. difficile* may transmit to other patients resulting in new colonizers through fecal-oral transmission, mediated by hands of HCWs and fomites. These patients may progress to toxin-mediated disease, discharged from hospital and re-importation occurs when patients readmit into the hospital. There is evidence of supporting roles of transmission and outbreaks reported in the hospital and long term care setting as antibiotics are heavily prescribed. There is also high *C. difficile* colonization and shedding in the hospitalized patients.

3. SURGICAL SITES INFECTIONS

3.1 Use of bundles and multimodal prevention strategies by Jan Kluytmans (NL)

The SSI bundles and multimodal prevention strategies for SSI have been used widely. The presenter cited the following studies:

- Perl TM, et al. N England J Med, 2002
- Bode et al. N England J Med, 2010
- D Diekema, et al. Infection Control Hosp. Epidemiol, 2011

His personal opinion:

- Treat carriers only, therefore the need for screening
- Include high risk clean surgical procedures
- Give mupirocin preoperatively only
- Apply chlorhexidine wash once preoperatively
- Monitor susceptibility routinely and act when resistant strains appear

3.2 Cost benefits of interventions by Nicholas Graves (AU)

In the paper on 'Reduced costs on Staphylococcus aureus carriers treated prophylactically with Mupirocin and Chlorhexidine in Cardiothoracic and Orthopaedic surgeries described a blinded evaluation by the financial department using data of patients that participated in a randomized study, for per treated carrier was:

- Euro 2841 in cardiothoracic surgery
- Euro 955 in orthopaedic surgery

There was an annual savings of 1,8 million Euro
(Van Rijen et al. Plos One, 2012)

3.3 Should we stop using laminar airflow (LAF) in operating rooms? By Petra Gastmeier (DE)

The effect of clean air study by Lidwell in 1982 had discussed its difficulty in distinguished the effect because of the implementation of antibiotic surgical prophylaxis. It has remained as an unresolved issue in the orthopaedic surgical discipline. The laminar airflow can be disrupted by heat of the lamp in the OR and increase the speed of ventilation therefore

decreasing the body temperature. It was described that the laminar airflow with a ceiling size of 3.2 by 3.2 meters can influence the air flow of the LAF. There is no significant difference between a conventional (1.36) and a LAF (1.71). With no further financial support for constructing LAF systems in the OR of German hospitals therefore there is no recommendation for LAF.

3.4 SSI prevention: structuring the New CDC/HIC PAC Guidelines-update by Joseph Solomkin (US)

The Culture of Safety is not about who is right but what is good for the patients. This can be achieved with formulated guideline that includes a surgical safety checklist with elements of SSI bundle. One dose of surgical prophylaxis is sufficient and to stop order of surgical prophylaxis post operatively. Measurement of noise level in the Operating room (OR) can be included as this can cause lack of concentration by the surgical team members. Others such as frequency of opening OR doors though not evidence base but may result in poor engineering control and cause turbulent and aerosolization. To improve the culture in sustaining patient safety improvement, empowering staffs to assume responsibility for safety in their work environment may help.

4. **Vancomycin - Resistant *Enterococcus* (VRE): revival of an old enemy.**

4.1 Clinical impact of VRE: how dangerous are they? By Sara Cosgrove (US)

The speaker presented that VRE was first reported in 1989. About 361 patients with VRE were identified in 38 hospitals in the US. In Europe, VRE is isolated in healthy outpatients. More than 90 percent are *E. faecium* species, mediated by Van A gene which is a plasmid and has:

- intrinsic resistance therefore there is a need to treat
- ability to acquire and share genetic resistance
- gut colonization
- adhere to heart valve
- live for along period of time 5 days to 4 months
- increase mortality, length of stay and cost
- a marker of severity of illness
- reduce effectiveness but increase toxicity of antibiotics

Risk of VRE Blood Stream Infection (BSI) after colonization

- 4% (31 of 768) of patients with VRE colonization developed a VRE bacteraemia
- No necessity to treat VRE colonization – VRE in urine specimen

4.2 Molecular epidemiology of VRE: are they all equal? by Rob Willems (NL)

VRE are found in food animal. The farmers admitted to hospital, transmit it to HCWs. There is no difference between VRE and VSE:

- 81 % from farm animals
- 84% from hospital
- 58% from healthy human
- Increase in VRE in human commensal and not all VRE are equal

- 4.3 Should we control VRE – and if yes, how? By Lindsay Grayson (AU)
VRE can generate its own strain and can acquire someone else strain. The most common mean of transmission from patients with multiple risk factors, resulting in:

- Use of antibiotics
- Poor infection control practice

Practical steps to control:

- Isolation procedures
- Hand hygiene program
- Antibiotic Stewardship
- VRE surveillance
- Environment decontamination

5. SPECIAL PLENARY SESSION

- 5.1 Middle East Respiratory Syndrome Coronavirus (MERS-CoV) – latest news from the Arabian peninsula and beyond: At the heart of the outbreak: the latest report from Saudi Arabia by Ziad A. Memish (SA)

The epidemiology of MERS-CoV was updated by the presenter. MERS-CoV was first identified in Sept 2012 in samples obtained from a Saudi Arabian businessman who died from acute respiratory failure. To date, 49 cases of MERS-CoV infections with 26 deaths were reported. The report revealed a family cluster of infection, with 3 young men who became ill after the hospitalization of the elderly male relative who died of the disease. Twenty four family members living in the same household and 124 healthcare staff members in the hospital did not become ill.

- 5.2 Infection Prevention and control for MERS-CoV: update on the WHO interim guidance by Sergey Eremin (WHO)

The WHO has developed an interim guidance to meet the urgent need for up to date and evidence based recommendations for the safe care of patients with probable or confirmed novel coronavirus (nCoV) infection. To date, there is very limited information on transmission and other features of nCoV based on the small number of cases reported. However, there is now clear evidence of limited, not sustained human to human transmission, possibly involving different modes of transmission such as droplet and contact transmission. The guidance is intended for HCWs and Infection Control teams. The guidance summarizes:

1. Principles of Infection Prevention and Control (IPC) strategies associated with healthcare:
 - Administrative controls
 - Environmental and engineering control
 - Personal protective equipment
2. Infection prevention and control precautions:
 - Standard Precautions
 - Additional IPC when caring for patients with acute respiratory infection (ARI)
 - IPC for aerosol generating procedures
 - IPC when caring for patients with probable or confirmed nCoV infection
 - Duration of isolation precautions for nCoV infection
 - Collection and handling of laboratory specimens

C) Lessons learnt

Most of the lessons learnt from the congress are the 12 minutes short oral presentations of abstracts on hand hygiene. It is a challenge for the presenters to reveal their hard work done in many months in a short time. They were:

- Automated/electronic systems for hand hygiene monitoring: a systematic review
- Patient participation and performance feedback to improve hand hygiene adherence in the context of established multimodal hand hygiene promotion
- The effect of improved hand hygiene compliance on nosocomial transmission of *Staphylococcus aureus*
- Overcoming hand hygiene campaign fatigue by an effective innovation involving the infection control link nurses
- Study on adopting the WHO 5 moment of hand hygiene for practices in Traditional Chinese Medicine (TCM) clinics
- Early adaptors of a hand hygiene control system
- Provision of alcohol based hand rub products to the WHO regions in 2011

D) Networking

The meet and greet reception at the congress allows opportunity for participants from all over the world to meet and discuss on infection control issues.

The poster party inspired presenters and participants to share and discuss their quality improvement projects.

E) Benefits

I appreciate and benefitted from the speakers and presenters. Most have highlighted and identified articles and studies to support their discussion.

F) Recommendations

- use automated hand hygiene dispenser
- advocate for patient and inform patient that 'it is ok' to ask HCWs to clean their hands
- stop order of surgical prophylaxis post-operatively
- measure frequency of door opening in OR when operation is in progress

REPORT

Subject : **THE 2nd INTERNATIONAL CONFERENCE ON PREVENTION & INFECTION CONTROL**
25th – 28th June, 2013 GENEVA, SWITZERLAND

Submitted by : Wong Sook Cheng

Designation / Department : Senior Nurse Clinician / KTPH

Date : **25th – 28th June, 2013**

- A) **Background:** The 2nd International Conference on Prevention & Infection Control on 25 June to 28 June was held in Geneva Switzerland.
- B) **Programme objectives:** The objective of this conference was to create a platform for fostering knowledge sharing, strategies and practices. Infection Control Practitioners from 84 countries came together to share and exchange experiences for the prevention of healthcare-associated infections and the control of antimicrobial resistance within and among the different countries. It also acknowledges the scientific contributions of major companies that focused in diagnostics and biomedical products.

Topic highlights:

C) **Lessons learnt:**

1. At the Satellite Symposium Carefusion,

The title of the subject was **Prevention of CLABSI: Convergence of global best practices**. Dr Leonard Alan Mermel shared on the review of addressable risk factors, guidelines and checklists.

The risks are:-

- patients who are dialyse with catheters
- blood stream infection was possible with arterial catheters
- patients with portal catheters
- patients on long hospitalization

- cases with catheters put in by doctors in training have increased risks for infection
- where the cleaning of the catheter hubs were not strictly complied - extraluminal sources of infection increase the risks of infection
- insertion at the jugular site
- multiple antimicrobials usage
- catheter insitu for a certain period of time.
- bacteria colonisation on the hubs of catheters.
- parenteral nutrition

Whilst there are Prevention bundles and checklists, there must be:

- compliance with the prevention bundles
- use of alcohol and chlorhexidine based antiseptics
- use of chlorhexidine based dressings for CVL lines
- cleaning the hubs with alcohol
- cleaning the skin with alcohol and chlorhexidine solutions

Extraluminal sources of infection:role and economics of skin disinfection

by Jean-Jacques Parienti

There are 2 possible routes for bacteria to enter the system:

- Intraluminal route
- Extraluminal route

Intraluminal route - through fluid path contamination and microbes may migrate into the system with residue fluid in the internal mechanism of the device.

Extraluminal route- through catheter insertion site and catheter hubs and the skin. The risks of infection depend on the duration of the catheter.

Skin disinfection is important to prevent bacteria. A comparison was done to compare the role of Chlorhexidine, Chlorhexidine with alcohol, iodine and Octenisan in skin disinfection. Chlorhexidine with alcohol and Octenisan is effective in log reduction of microbe.

Cost of one Blood Stream Infection is approximately Euros 6000.

Cost of length of stay cost - Euros 1000.

Thus, using Chlorhexidine with alcohol or Octenisan for skin disinfections is cost-saving.

Intraluminal sources of Infection: recent data and developments shared by William Javis. He shared that many Pre & Post period meta-analysis studies were done on devices mechanism and designs to determine the most efficacious product.

Some of the risk factors for CLABSI were:

- contaminated catheter hubs
- contamination by IV bags
- manipulation of the catheter hubs manipulation by the nurses draining out medications and connecting to the hubs
- difficulty in cleaning access surfaces – HCWs may not adequately clean the intricate details leading to fluid path contamination.
- gap around the plunger harbours bacteria – as gaps cannot be assessed and this leads to fluid contamination with repeated access

- opaque housing hide incomplete flushing of media based fluid – during the course of normal flushing of the catheter, small amounts of fluid contaminate the valve. Contamination may proliferate with subsequent manipulation.
- internal mechanisms obscure fluid path thus it is impossible to visually confirm complete flushing

Hence, HCWs must strictly practice good hand hygiene and diligently clean surrounding area and disinfect the external parts around these devices with 70% alcohol swab for 15 seconds before disconnecting and after connecting back to the line. HCWs need to follow the protocol strictly when attending to all IV lines. Flush the line adequately to prevent residue blood and contamination.

2.The legacy of SARS: 10 years anniversary shared by David Heyman.

David Heyman recounted how SARS started as a sporadic respiratory infection and spread rapidly to many countries. This outbreak was different from other infections. This infection had a 2nd, 3rd and 4th generation of infections. The hospital workers in Hong Kong and Singapore were brave and worked to control the infection and were recognised. When WHO was activated it provided a case definition and send out a team to help with identifying the virus. A travel alert was given by WHO to all countries alerting the people of the outbreak in certain countries. During the epidemic, WHO worked with China closely and that opened China to the world to report any infections

The legacy of SARS:

- Gave HCWs a better understanding of the virus
- Microbiologists and virologists worldwide working together and networking to identify the virus.
- Highlighted importance of real time surveillance and reported real time
- Collaboration and exchanging knowledge and technology worldwide
- It gave rise to revised international health regulations and guidelines
- SARS impacted the economy of many countries, as their GDP went down and suffered greatly

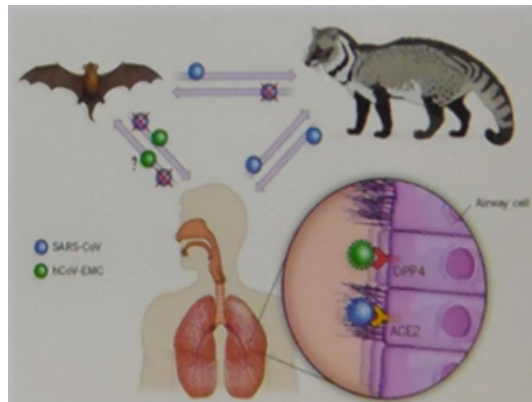
Infection control before and after SARS shared by Wing Hong Seto.

Worldwide 8900 cases were reported and 1706 HCWs were infected. In HK, there were 1005 cases and 405 HCWs in HK hospitals were infected but only 2 HCWs from his hospital were infected. Everybody was wearing masks but not wearing it correctly, wearing gloves and not following hand hygiene. Although SARS bought down the economy and GDP, it brought many benefits to Infection Control in Hong Kong (HK). HK increased the number of infection control nurses from 40 to 140 infection control nurses countrywide. Even the ratio of Infection control nurses in China now has 1 infection control nurse to 200 patients. A new infectious disease hospital with negative pressure rooms was built. The resources became available for infection control so we need to use the resources effectively. We need to stand up and do the right thing.

3. Inﬂuenza, coronavirus and emerging virus: can we predict the unexpected? by Laurent Kaiser

Coronavirus: receptor usage and tropism

- SARS: ACE2, ciliated cells of the human respiratory tract
- MERS CoV: CD26 (DPP4) conserved among bats and humans
- Non-ciliated cells of the human respiratory tract



MERS coronavirus and human tropism

- The human airway epithelium is permissive (bronchial and alveolar cells) but also other epithelial cells (dissemination)
- <<Evades>> innate immune response (weak interferon response and minimal inflammatory cytokine)
- More sensitive than SARS-CoV to IFN- β

Conclusions

- The barrier of species is a real biological limitation for any animal virus
- Virulence= the optimal balance between transmissibility and pathogenicity
- Transmissibility not easy to achieve for an animal virus
- RNA viruses have no brain and no strategy
- But they have the ability to evolve thanks to :
 - A high mutation rate
 - The ability to exchange genes
 - Large animal reservoirs
 - The presence of selective pressures
 - Complex environmental constraints
 - Time frame of viral evolution: beyond human life span

Prediction and emerging viruses

- West Nile virus
- SARS
- Chikungunya
- H1N1 2009
- H5N1, H3N2v, H7N9, MERS CoV

4.Latest news from MERS CoV and H7N9 ...view from the WHO by Keiji Fukuda

MERS CoV Illness and treatment

- All had respiratory disease
 - Mild symptoms to severe pneumonia
 - 1 renal transplant presented with fever and diarrhoea
- No virus specific therapy available
- Convalescent sera might be promising
- General supportive care can be life saving

Cairo scientific review 19 June 2013 key findings

- PCR testing now standard and widely available
- Virus more likely to be detected in lower respiratory specimens than upper
- Serological assays now available
- Being used but not transferrable
- More work needed to standardize and understand comparability

MERS CoV assessment

- Human to human transmission occurs
 - Can result in sizable clusters
 - Potential for sustained transmission among humans uncertain
- Community exposures and reservoir uncertain
- New cases continue to occur:
 - Active transmission
 - True geographic extent of virus remain unknown
 - Critical question of source and 'why now?' remain unanswered
- Role of comorbid conditions in susceptibility, transmission and severity unknown

Concluding thoughts

- World experiencing two potentially major emerging diseases
- Level of response positive testament to
 - Lessons learned and applied over previous decade
 - Implementation of international health regulators
- Nonetheless, major gaps remain
 - Level of readiness
 - Virus naming, role of intellectual property claims

5.Embedding Infection Prevention into Patient Safety Agenda by Robert M. Wachter.

In the US, infection prevention can be a large subset of patient safety. Not too long ago, excess resources went into advertising. Patients had no clue whether the hospital is safe. It was not until Iowa disclosed the number of deaths that people began to think about safety in hospitals. ICU infections, and patient satisfaction results were posted online and available to the public. Medicare payments hinge their payments on patient safety and quality. No hospital would be able to survive if they did not improve. This put a lot of pressure from the CEO to the ground staff emphasising safety from the top down.

Patient Safety Field struggling with 2 competing mental models

- Most errors are committed by caring competent people who are trying hard to get it right
- Therefore finger-pointing, shaming and suing them doesn't help, it stifles open discussions and learning

- The system produces low quality, unsafe, unreliable care partly because there's been no incentive for it to do otherwise
- Therefore, the last thirteen years have seen a variety of initiatives to create accountability, which generates action, focus, and resources flow

What does accountability look like?

- Reasonable performance expectations
 - Appropriate carrots and sticks used to drive system toward excellence
- 'No blame' is the dominant front line culture
 - For innocent slips and mistakes
- Clear demarcation of blameworthy acts
 - E.g. gross incompetence, disruptive behaviour, and now, failure to heed reasonable safety/quality rules

Individual accountability: the handwashing story

- Typical hand hygiene rates in 1999: 10-30%
- Over last decade, tremendous push to improve (via transparency, social pressures, and more)
- Many organisations now at 40-70% and stuck
- "It's a systems problem",
- Education, dispensers every 3 feet
- A systems problem? Really?

What can Infection Preventionists learn from Patient Safety?

- It's the system.
 - Education is weakest type of system change
 - Systems 101: double checks, simplify, standardize, human factors, IT as a force-in function
- Needs to be both top down and bottom up.
- Importance of both stories and data
- The dominant role of culture
- Need to appreciate organisational politics
- The CEO / Board cares deeply about patient safety, about infection prevention (and antimicrobial stewardship)

6.Cultural differences in infection control and patient safety by Sanjay Saint

Culture is different to different people. Culture is controversial and complicated. It involves micro, macro views and personal differences between hospitals and countries. Various people define culture differently.

Power distance is crucial and relevant to infection control. Power is distributed unequally.

In high power distance, people accept their place and role without questioning power.

In equal power distance, people strive to sustain that power distance.

In low power distance society people cannot speak up whatever the circumstances.

In America, nurses have the power to speak up and stop a doctor from continuing the procedure if they breach infection control practices. This was possible due to the low power distance, which a nurse in Mumbai will not be able to do.

In Japan, the elders were willing to face the dangers instead of the young to protect the young whereas in America patients aged 90 years are still undergoing surgery to enjoy life.

7.Clostridium difficile infections – typing: is ribotyping needed? By Maja Rupnik

Ribotyping – when and why

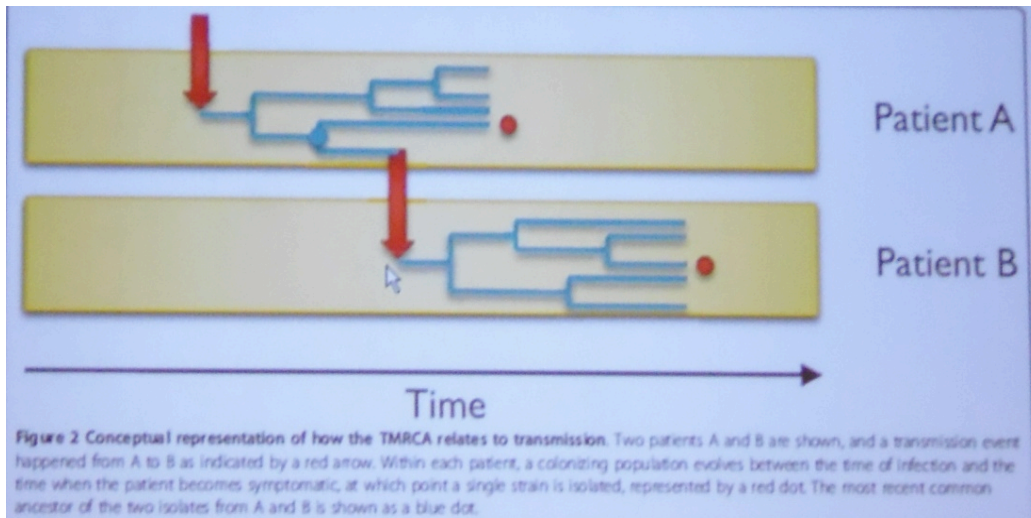
- Single case of severe disease
- Relapse
- Cluster of *C. difficile* Infections (CDI)
- Point of prevalence studies

Result

- Will it influence treatment?
- Will it influence infection control measures?

Diagram after Ribotyping – WGS

E.g of 2 patients A & B. A transmission event between A to B is indicated by a red arrow. Within each patient a colonising population evolves between the time of infection and the time a patient becomes symptomatic, at which point a single strain is isolated, represented by a red dot. The most common ancestor of the two isolates from A and B is shown as a blue dot.



Summary

- *C. difficile* ribotyping – current gold standard should be available (in the lab or in ref. lab)
- Particular numbers (027) are of medium importance
- What is more important is clustering of ribotype

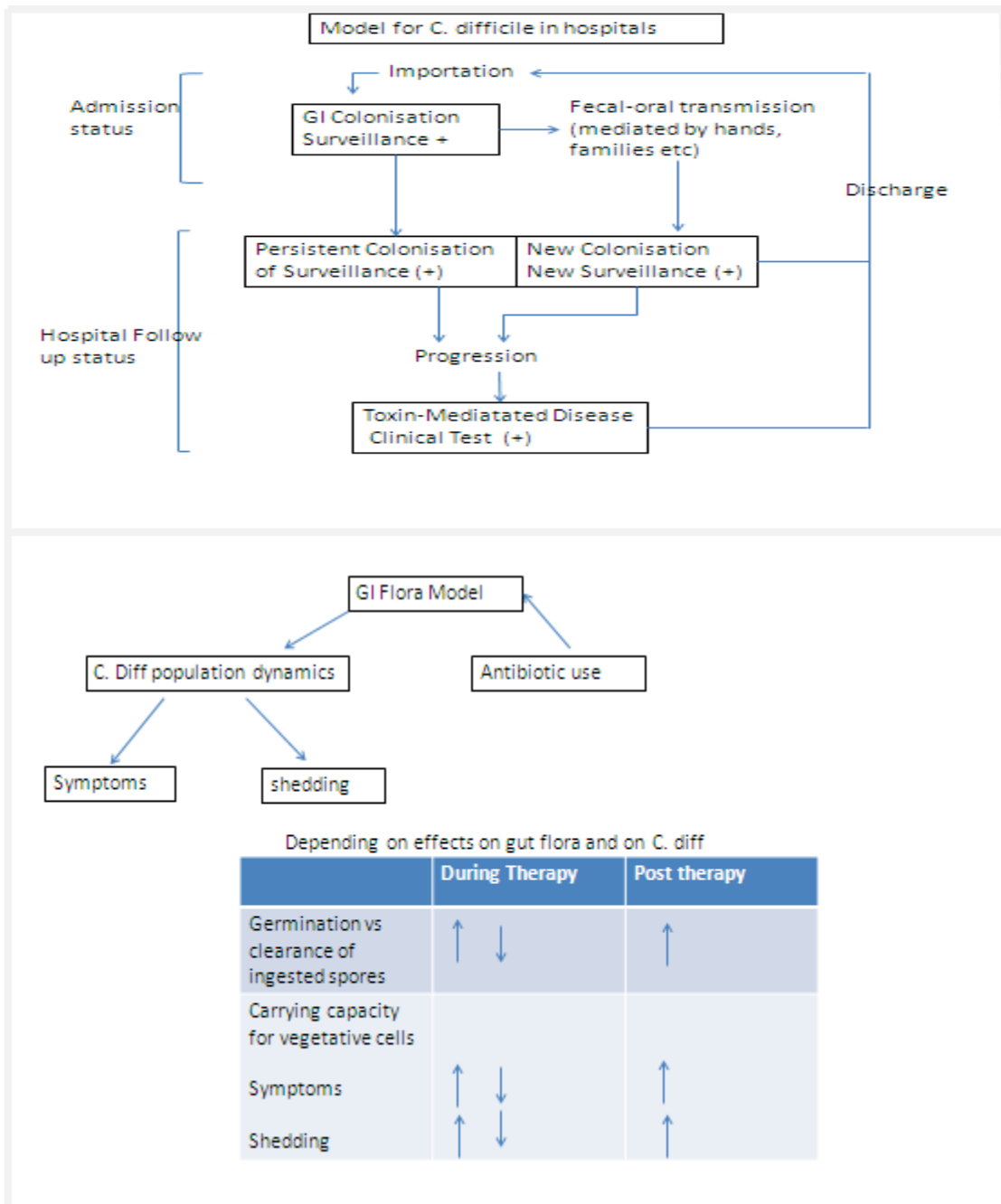
8.C *difficile* in the community: community – onset or silent reservoir by Matthew Samone

Propositions on one side

- Is it possible that hospital *C. difficile* infections (CDI) events are not driven by hospital transmission?
- Is it possible that most hospitalized patients who develop CDI were already carrying toxigenic *C. difficile* when admitted?

Propositions on the other side

- Are CDI events in community populations primarily driven by what happens in hospitals?
- Is it only in hospitals and long term care facilities where CDI control issues are important?



Reframing the 'straw-man' propositions

- On the one hand, it is plausible that hospitalized populations experience higher progression rates but lower transmission rates than home-living populations?
- From the other side, it is plausible that progression and transmission in community settings is clinically and epidemiologically irrelevant?

Supporting the role of transmission in hospitals

- Antibiotics are heavily prescribed within both inpatient and outpatient healthcare settings.
- However, within hospitals and long-term care facilities, concurrently treated individuals are physically clustered to a far greater extent than in communities.

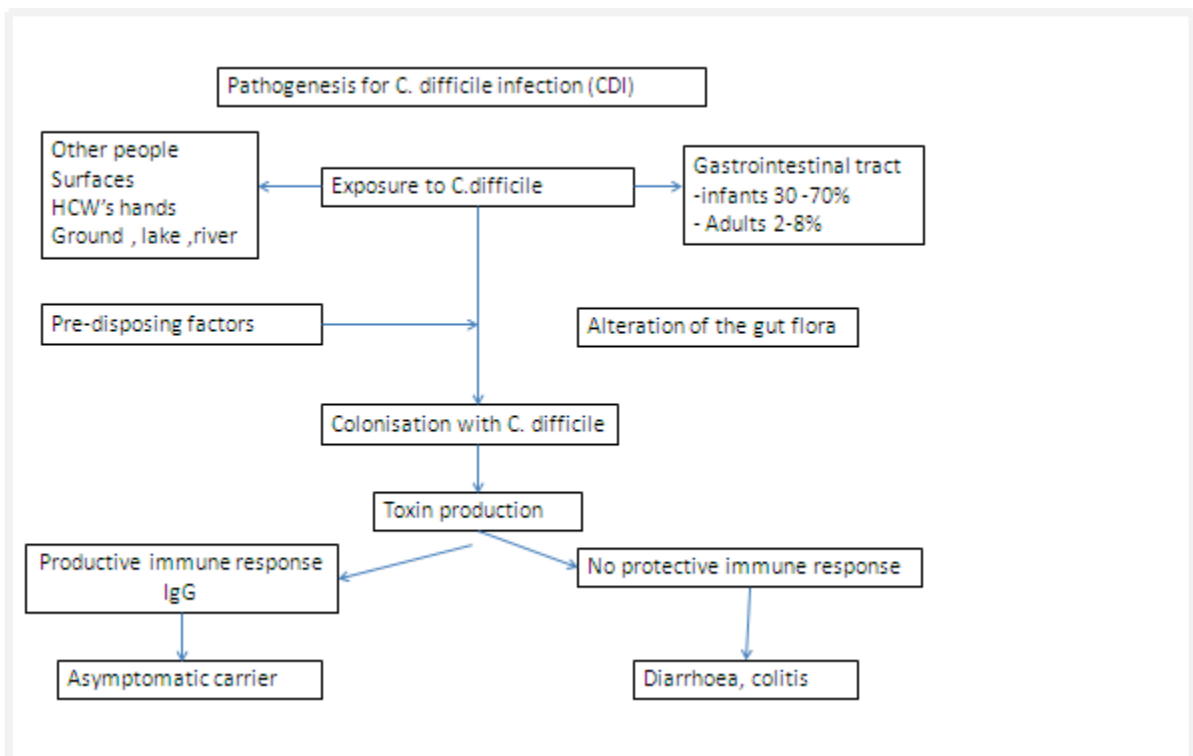
- And indeed outbreaks have been much more commonly reported from these settings.
- Evidence for higher *C. difficile* colonisation and shedding in hospitalized patients

Supporting views that the community also matters

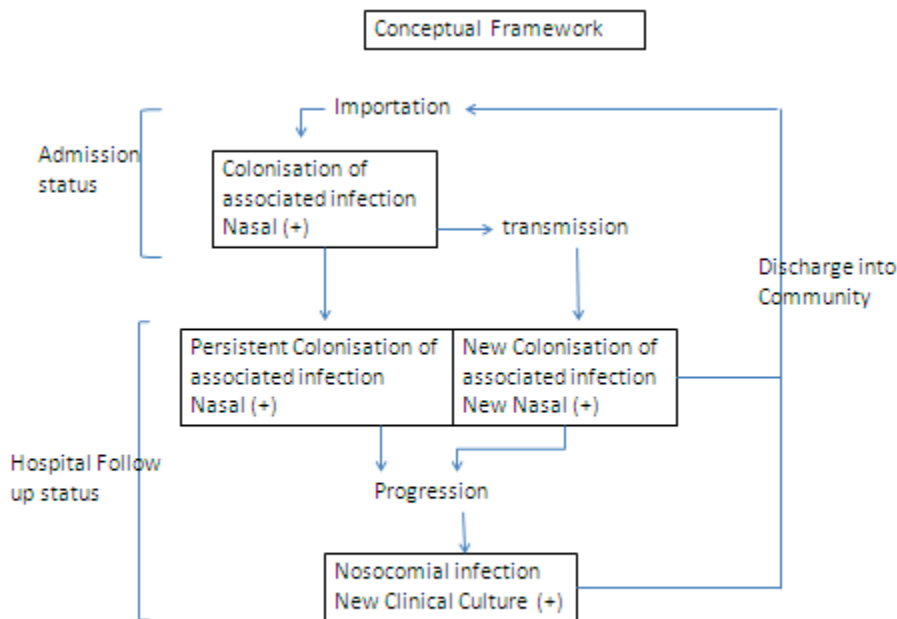
- In the absence of ongoing transmission among home living residents, *C. difficile* would likely die out in the community populations, at least on an intermittent basis
- Instead of low levels of *C. difficile* colonisation, it appears to be consistently sustained in human populations
- Progression should be an important target for prevention. Trying to identify just where acquisition occurred is not sufficient

Conclusions: Future directions

- Much room for further study
 - Modes of transmission, including non-human reservoirs
 - Relative risk of progression among individuals who are newly colonised compared to individuals with persistent colonisation
 - Better models of gut flora and impact of antibiotics
 - Comparison of susceptibility patterns of isolates from community onset CDI with isolates from hospital CDI
 - Acquisition studies in different settings
- And most of all, identify and implement better control strategies



9.The Reduce-MRSA trial: is universal MRSA decolonisation a viable concept in the ICU by Susan Huang



A study was done by Huang, Jain, Climo, Huskins on Targeted vs Universal decolonisation to prevent ICU infections

Who did what?

	Screen / isolate			CHX	
		Hand Hygiene	Mup/CH X		Mup
Huskins	X				
Jain		X			
Climo				X	
Huang	X		X		X

What worked for MDR-GNB?

	Screen / isolate			CHX	
		+ Hand Hygiene	+Mup/CHX		+ Mup
Huskins	NO				
Jain		NO			
Climo				NO	
Huang	NO		NO		?

Decontamination of the Digestive Tract and Oropharynx in ICU patients.
There was a 70% reduction rate in ICU-acquired GNB bacteraemia and 60% MDR-GNB

Based on the results of 4 multi-center studies performed in US ICUs
No convincing evidence that screening and isolation was effective in reducing MRSA infections in these studies.

Universal chlorhexidine body washing and mupiricin prophylaxis was effective in preventing 1st episode bacteraemia

Effect not prominent for GNBs

Analysis for MRSA and GNB are pending

We still need effective measures to prevent ICU acquired infections by Gram negatives.

10. Antibiotic use and Vancomycin-resistant enterococcus (VRE) carriage during a large outbreak in a Dutch hospital by Lieven B. van der Velden

Causes of VRE Transmission

- contaminated equipment, (stethoscopes, medical devices and machines),
- contaminated environment (bed rails, door knobs, toilet, bedside lockers and table)
- hands of staff and visitors who had contact with VRE colonised patients.

Prevention is through intensified cleaning and strict handwashing.

Risk factors for VRE colonisation are:

1. Treatment with antibiotics :-
 - vancomycin,
 - meropenem,
 - cephalosporins,
 - anti-anaerobic agents
 - quinolones
2. Prolonged duration of any antimicrobial treatment
3. Advanced age
4. Surgery
5. Dialysis
6. Discharged to a Nursing Home or other institution
7. The presence of an invasive device
8. Use of proton pump inhibitors

A study was done to

1. Determine the relationship between recent antibiotic use and VRE colonisation during the outbreak.
 - type of antibiotic
 - administered amount of antibiotic therapy – DDD (daily defined dose)
2. Identify other risk factors for VRE colonisation during a large VRE outbreak
 - Patient characteristics
 - Duration of hospitalization
 - Medication use

Method

May – August 2012 first detection of VRE colonisation during current hospitalisation

- By screening VRE PCR in 5 separate days
- In clinical samples

VRE PCR + E Faecum+
 CC17+ } ← CC17 + VSE
 Van B + } ← Van B positive anaerobes

VRE culture +

For each VRE+ patient – 2 VRE controlled patients were identified

- admitted at the same ward

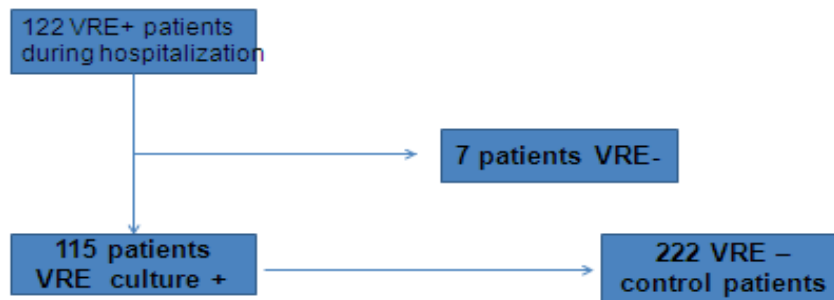
From 2 days before to 2 days after hospitalization of the case

VRE not detected during or after hospitalization

VRE PCR – probably on at least 3 separate days after discharge

Clinical information and the prescribed medication were obtained from the hospital information system

Included Patients



>3 negative VRE PCRs in 93%
5 negative VRE PCRs in 91%

Results

	VRE +	VRE-	P value
Mean age	71y	68y	0.603
% male	53	63	0.082
Prednisolone/ chemotherapy	1	1	0.915
Dialysis	1	1	0.915
malignancy	29	26	0.636
diabetes	28	29	0.548
Proton pump inhibitor	86	64	<0.001

Antibiotic Use

- 95% of the VRE+ patients had used antibiotics the 3 months prior to VRE positivity
- 57% of patients had used antibiotics when they were identified as VRE +
- Only 5 patients received vancomycin or teicoplanin (p=1.00)

Type of antibiotics used the last 3 months were:

Quinolone -70%

3rd gen cephalosporin - 49%

Penicillin / amoxicilin -48%

Anti- anaerobic – 38%
Metronidazole – 30%
Cefazolin – 28%
Clindamycin – 11%
Co-trimazole – 9%

Prolonged hospitalization and or antibiotic use

- Duration of hospitalization was much longer in the VRE+ patients (mean 18 Vs 4 days)
- Even the duration until the VRE+ patients were identified as such was significantly longer than the total hospitalization of their control patients (median 6 vs 4 days, p=0.006)
- The total DDD of the administered antibiotics was significantly higher in the VRE+ patients

Conclusions

- VRE colonisation was almost exclusively found in patients who had previously received antibiotic therapy
- Vancomycin and cabapenem use was almost non existent and not related to VRE colonisation
- Quinolones, 3rd generation cephalosporins and anti-aerobic agents were strongly correlated to VRE colonisation
- The DDD was significantly higher in VRE colonised patients
- Besides antibiotic use, PPIs and prolonged hospitalization were associated with VRE colonisation

11.An *Acinetobacter* sup. (GIM-1) pseudo-outbreak due to contamination of a pneumatic transport system in a large university hospital by Barbara C Gartner

The first positive isolates started in mid April.

- In mid-April, a positive isolate *Acinetobacter baumannii* complex with resistance to Carbapenems was found in a 62 year old man with history of carbapenem treatment in the ICU
- In end April another positive isolate with the same resistant profile was found in a 7 year old girl with suspected scarlet fever who attend the clinic
- In mid-May, 4 more positive isolates were found in wound, ear, vaginal swab and in a knee joint puncture
- 23 more positive isolates were found

Patient characteristics of all positive samples were:-

21 patients with 23 positive isolates
8 directly positive after admission to hospital
Repeatedly positive (two isolates) only in 2 patients (newborn after 7 days)

Analysis:

Distribution of samples – 20/23 isolates were swabs.

Location of patients with positive isolates –from the 16 wards, over 8 departments spread out in 5 buildings

Could it be the lab? – Different clinical specimen types

- Different type of culture media initially positive
- Workup on different workstations in different labs
- Different technicians handling specimen – not likely

Relationship between climate indicators - temperature vs rainfall? – no relationship

The pneumatic transport system consists of 12.6 km tubes and transports 7000 despatches a day

Result:- the pseudo outbreak was due to the pneumatic transport system which might be contaminated with pathogens harbouring 2 important risks.

- Gross contamination of isolates
- Risks of spread of pathogens

Recommendation: Measures must be implemented to avoid contamination and to allow the disinfection of the tube system.

Measures: Closing of contamination tubes.

Disinfection of pneumatic dispatch system and all equipment

Prophylaxis of recontamination

New packing instructions for all despatches via pneumatic tubes

12.Bad Design, Bad practices, bad bugs – Elizabethkingia meningoseptica outbreak in ICU by Sharon Salmon.

Elizabethkingia meningoseptica is an opportunistic pathogen found in

- Primary or line related bacteraemia
- Pneumonia
- Skin and soft tissue infections
- Case report- endocarditis, peritonitis, necrotising fasciitis

Gram negative non-fermenter – previously classified as *Flavobacterium meningosepticum*, then *Chryseobacterium*

- Environmental organism: found in freshwater, salt water, soil
- Well adapted to hospital environment especially ICUs
- Can survive in chlorinated water
- Intrinsically resistant to carbapenem, cephalosporins and colistin

Cases started appearing in 2006, but in the last quarter of 2009, there was a surge, which decreased in 2011. In Sept 2012 it remerged.

An outbreak response team was formed after a review of the cases.

Reviewed nursing workflow and conducted environmental sampling

– *Elizabethkingia* was not cultured from:

- Patient room surface areas, soaps and disinfectants
- Dialysis taps
- Central water supply
- It was cultured in sinks

Infection control interventions

- No disposal of patient body fluid in hand hygiene sinks
- No rinsing of re-usable equipment in hand hygiene sinks

- Use alcohol based handrub after hand washing in all ICU hand hygiene sinks
 - All taps in patient rooms cleaned and aerators changed hospital wide
- Repeat cultures of aerators in 4 ICUs in December, January and February
- December 2012 - No environmental gram negative cultured
 - January - 2013 – 17% aerators had environmental gram negatives –
 - *Burkholderia*
 - *Elizabethkingia* from 3/34 taps
 - February 2013 - 33% aerators had environmental gram negatives
 - *Elizabethkingia* from 3/34 taps
 - anonymous survey was done by the ICU staff with questions
 - 1 Are you aware of the new workflow for disposing of patient secretions and washing of reusable items in patient room sink? – 81.7% were aware except in one ICU
 - 2 The new workflow for disposal of patient secretions and reusable items is easy to follow? – 58.9% agreed. 21% were undecided, 19.4% disagreed
 - 3 How often do you need to use the patient sink in the ICU room to dispose of patient secretions or for washing reusable items – this was quite often.

Agreed actions –

- Use bottled water to bathe patients in ICU
- Review adult tracheostomy care hospital policy
- Microbiology to continue monitoring cases.
- Operation support services to change aerators in ICU bi-monthly

Patient participation and performance feedback to improve hand hygiene adherence in the context of established multimodal hand hygiene promotion: initial results from a mixed –method, cluster randomised trial by Andrew J. Stewardson

Method

Patient participation

Admission

- Patient education
 - Patient indications for hand hygiene
 - Healthcare worker indications
- Welcome pack
 - Brochure and bottle of alcohol based hand rub (100mls)
- Partnership
 - Agreement to remind each other- focus on moment

Throughout admission

- Repetition of message
- Badge for healthcare workers
- Posters in clinical zone

Implementation

- Healthcare worker educated with 3x15 minute workshops
- Quarterly visit from study team members

Qualitative results

- Patient participation:
 - Acceptance & implementation viable
 - Dependent on local ward leadership
 - Main impact = awareness raising (patient reminders very rare)
 - A new sense of partnership was developed
 - At trial end: strong wish to continue but without reminders
- Performance feedback
 - Well received (especially when positive)
 - ...but not hand hygiene observation
 - Stimulated competition
- Control wards
 - Very aware of exclusion from interventions – strong motivator

Strengths

- Study design
- Mixed method: to add 'why (not)' to 'what'

Limitations

- Study design
 - RCT VS implementation
 - Single centre behaviour change study
- Observers not blinded to ward allocation
- Enhanced performance feedback – optimal?

Conclusions

1. Increase in HH from baseline to intervention in all arms
 - Real effect
 - Staff movement between wards
 - Involvement of department leadership
 - 'exclusion bias'

Bias/confounding

- Observer bias
 - Hawthorne effect
2. Feedback + Patient Participation: increase in global & moment 1 compliance & ABHR consumption, decrease in MRSA colonisation
 - Statistically significant
 - Cost effectiveness?
 3. Feedback: no significant impact

13.Wound care Management by Souha Kanji

Post-operative wound care for the prevention of nosocomial infection

Prevention and Management

Recommendation for post-operative dressing and cleansing:

- Use an aseptic non-touch technique
- Sterile saline for wound cleansing up to 48 hours post op.
- Advise patients that they may shower 48 hours post op

Types of Wounds

	Arterial	Venous	Diabetic	Pressure
Location	Usually distal	Above malleolus	Pressure areas on foot	Pressure areas
Size	Small	Small to Large	Usually small but may be large	Small to Large
Shape	Round	Irregular	Round	Round but may be irregular if large
Depth	Usually relatively shallow	Shallow	Shallow to deep*	Shallow to deep*
Base	Pale	Variable; frequently exudative	Variable; frequently necrotic if infected	Variable
Margins	Smooth	Irregular	Usually smooth	Variable
Surrounding Skin	Pale	Pigmented	Frequently callused	Variable

Factors to prevent poor healing

- Provide an optimal environment
- Achieve a stable wound with healthy granulation tissue
- Well vascularized wound bed
- Removal of factors that delay healing

Risk Factors that Prevent healing

Local Factors

Primary

- blood supply (tissue perfusion)
- Tissue oxygen tension

Secondary

- Tissue damage
- Mechanical stress of the tissue
- Hypothermia
- Pain
- Radiation
- Infection
- Surgical technique

- Suture technique and materials
- Others (vasculitis, immunological, etc)

Systemic factors

Pivotal

- Haemodynamic condition (perfusion, hypovolaemia, hypoxia, pain etc)

Important

- Age
- Smoking
- Medication
- Diseases
- Nutritional status
- Anaemia
- Alcoholism
- Radiation
- Others (immunological)

Wound cleaning

- To remove visible debris to aid assessment
- Remove excess slough and exudate

Cleansing Solutions:

- Irrigate with sterile normal saline

Antiseptics

- Providine Iodine – skin antiseptic, not for open wounds
- Chlorhexidine 0.05%
- Hydrogen peroxide – except in exceptional circumstances

Choice of dressing

- The dressing must be able to maintain a moist environment
- Control exudate
- Does not stick to wound
- Protect wound from trauma
- Aid debridement
- Keep wound close to body temperature
- Cost effective

D) Networking

I got connected to Mr Michael from Canada and he shared his country's infection control practices. We also communicated with participants from Africa and learnt of their practices and innovations that they have done. I networked with the company Clinell to learn more about their cleaning methods in terminal cleaning. I also got connected with Ms Gertie from Netherlands, Holland who shared with me her country's infection prevention, sterilization and disinfectant practices to prevent the spread of harmful microorganisms and infections within hospitals.

E) Benefits

I benefitted through the knowledge gained from world-renowned specialists and scientist sharing and I can adopt their strategies and apply to own settings. Thus, I learnt tested methods and strategies from the best in the field. This will help me prepare for the pandemic and not be overwhelmed by it. I gained exposure to many countries practices and am able to adopt good practices and ideas to tweak it to apply to my hospital. I have also made friends and bonded with our ICAS members during the short time.

F) Recommendations

Many countries were well represented in the conference, even Africa. ICPs from Singapore would benefit from this conference to equip them to handle pandemic situations, hospital outbreaks.