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ABSTRACTS

Infectious Disease Outbreaks in Africa: new culprits and old threats

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In the last three decades, a large number of emerging diseases have caused outbreaks in Africa. These comprise newly- identified infectious agents, those that were seemingly under control but and agents with new patterns of antimicrobial resistance. Population displacement, man encroaching into new territories, antibiotic abuse and misuse, political unrest, poverty and failing public health systems, and the HIV epidemic have all had a major impact. New diagnostic techniques have played a role in recognition of new pathogens. Poor infection control practices have contributed to spread. An outbreak of a newly- identified arena virus, the Lujo virus originating in Zambia caused the death of four of the five patients infected as part of a nosocomial outbreak in South Africa. Rift Valley fever outbreaks in East and Southern Africa affected particularly farmers, slaughter men and animal health workers exposed to infected animal tissue. While the majority of disease was mild, haemorrhagic complications, hepatitis and encephalitis caused morbidity and mortality. The true extent of Pandemic influenza A H1N1 (2009) remains unknown in Africa due to limited surveillance systems. A large outbreak of cholera caused significant mortality in Zimbabwe and occurred largely as a result of a breakdown in water and sewerage systems.

Current State of Antibiotic Resistance in Hospital Acquired Infection (HAI)

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Despite record investment in control of Hospital Acquired Infection (HAI), problems seem to increase year on year with antibiotic resistance being foremost in the problems faced by patients and their practitioners. Paradoxically, the evidence points increasingly to antibiotics being as much the problem as the solution. With the advent of the antibiotic era, it was widely perceived that we were entering an infection free era but this may have led to declining levels of hygiene in our hospitals. Despite maximal effort to retrieve the situation, the huge selection pressure of widespread antibiotic use has led to ever increasing deaths from HAI, with data from the USA suggesting 100,000 deaths annually, at least 20% of them from methicillin resistant Staphylococcus aureus (MRSA). Other gram positive organisms of concern are Clostridium difficile, Vancomycin Resistant Enterococcus (VRE) and emerging resistance to daptomycin, mupirocin and linezolid, the latter two potentially plasmid mediated. Vancomycin resistance is increasingly problematic in Staphylococci also, but most of it is low level and difficult to detect. Arguably, gram negative resistance is of even more concern as there are even less new agents under late stage development for treatment of multi/pan resistant gram negatives. Particularly worrying are Extended Spectrum Beta Lactamases (ESBLS), plasmid mediated quinolone resistance and integron associated carbapenemases. There are no easy solutions in sight. Improved diagnostics and antibiotic stewardship in combination with rigorous hygiene are really all we have in what ultimately looks to be a losing battle.

HIV-1 drug resistance in the world's largest anti-retroviral treatment program

Lynn Morris

Six years into the national program, South Africa has an estimated 1 million HIV-1 infected individuals on anti-retroviral treatment. HIV drug resistance testing is not routinely performed in the program but a number of small research studies have shown that between 70-90% of patients failing first-line non-nucleoside inhibitor containing regimens have HIV-1 strains with drug resistance mutations in the reverse transcriptase gene. These patients are routinely switched to a protease-inhibitor containing regimen. This would include those with wild-type viremia for which such a regimen switch is unnecessary. Furthermore, half of the patients with resistance mutations re-suppress on first-line therapy. Failure among recipients of second-line regimens is also being documented; however the prevalence of resistance mutations in the protease gene is low and most patients fail with reverse transcriptase mutations only. These data suggest that with more careful management and the introduction of routine resistance testing the lifespan of first-line regimens could be extended.

Recent findings in antibiotic resistance in TB

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In South Africa it is estimated that over 14,000 MDR-TB cases are diagnosed each year of which 6% are subsequently diagnosed with XDR-TB. Treatment of these cases consumes 70% of the budget allocated to fight the TB epidemic in South Africa. Drug resistance in Mycobacterium tuberculosis develops spontaneously and the resulting drug resistant mutants are selected during periods of poor adherence, mono-therapy and the administration of inappropriate treatment. Molecular epidemiological data suggests that these mutants are transmitted as MDR-TB and that poor management and delayed drug susceptibility testing leads to the acquisition of resistance and the emergence of XDR-TB. We believe that failure to rapidly diagnose MDR-TB has resulted in the evolution of resistance to ethambutol and pyrazinamide. Thus second-line treatment regimens containing these drugs are significantly weakened. Furthermore, failure to recognize cross resistance between inhA promoter mutations and ethionamide further compromises the efficacy of treatment promoting emergence of XDR-TB. The third-line regimen is further weakened by cross-resistance between amikacin and capreomycin.

Discussion group

Infection control in developing countries: priorities, constraints and feasible interventions

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General estimates indicate that hundreds of million patients are affected by healthcare-associated infection (HAI) worldwide. The assessment of the burden of HAI is hampered by lack of reliable epidemiological data, especially from developing countries. However, according to the scientific literature, in these countries the risk of infection is 2-20 times higher than in developed countries and the proportion of patients infected can exceed 25%. The magnitude of the problem in developing countries is mainly due to poor infection control, but more specifically it is the result of the combination of numerous unfavourable factors such as understaffing, poor hygiene and sanitation, lack or shortage of basic equipment, inadequate infrastructure and knowledge, overcrowding, unfavourable social background and a population largely affected by malnutrition and other types of infection and/or diseases. In spite of these numerous constraints, simple solutions are available and proved to be effective at low-cost. The World Health Organization (WHO) and other international and national organizations and networks have devoted tremendous efforts to promote of HAI surveillance and infection control. To raise awareness of HAI burden and importance and to identify feasible and low-cost solutions, such as hand hygiene, applicable on a global scale, in order to reduce HAI are the main objectives of the WHO First Global Patient Safety Challenge. This discussion group session will provide evidence on the high burden of HAI in developing countries, will stimulate the discussion about infection control priorities in settings with limited resources and will highlight some examples of successful infection control initiatives and activities, especially focusing on the African region.

First detected isolate: GISA (Glycopeptides intermediate resistant Staphylococcus aureus) and Investigation of MRSA -suspected outbreak at renal unit, Central Referable Hospital in KZN, South Africa

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Introduction: Vancomycin- intermediate Stap aureus (VISA) isolates and GISA have been reported in several countries. Reliable detection of GISA strains in clinical laboratories is critical. It is essential for appropriate treatment for the patients, infection prevention and control. NHLS (Microbiology Department) is the main role to investigate the suspected outbreak in the hospital for infection prevention and control of infectious diseases and nosocomial microorganisms.
Material and methods: Vitek2 and CLSI Guideline were used for identification and susceptibility of Stap aureus. CDC Guideline, E tests Macromethod and vancomycin screen plate (6.000 µg/ml), were used to detect the Heterogeneous hGISA and GISA. Daily early warming system was used. Investigation was done by using ward round and risk assessment. Only nasal swab of staff and patients were taken from renal unit.
Result: MRSA, from repeated Blood culture and catheter tip of chronic renal failure patient, were detected as GISA (Vancomycin MIC= 6.000 µg/ml (4-8 µg/ml). Macro E test (Screening test for heteroresistance to glycopeptides) results showed Vancomycin MIC: 12.000µg/ml and teicoplanin MIC: 12. 000µg/ml.

Conclusion: GISA was detected firstly in KZN. Patient was recovered (clinical and microbiologically responded) after 4weeks of linezolid that is appropriate drug therapy for GISA. Previously, his blood cultures were keeping positive while MRSA was treated with Vancomycin.E test Macromethod should be done routinely if the Van MIC >1(MIC≥ 2) MRSA isolate that was picked up by Vitek2. There was no outbreak and alarming the high number in the renal unit. Continuous in-service training, hand washing, environment cleaning must be done and advice to follow the MRSA protocol to eliminate the MRSA carriage.

Antibiotic resistance via the food chain: Fact or fiction?

Bester LA** and Essack SY**

The indirect or secondary pathways through which bacteria gain small additional fragments of DNA encoding for resistance can be sorted into three categories: transformation, conjugation and transduction. Where bacteria acquiring genetic material through one or another of these pathways are hosted by food animals, does exposure of these food animals to therapeutic and/or prophylactic antibiotic treatments create a potential threat to human health? Treatments of pathogenic organisms in a farming context heighten selective antibiotic pressure that influences the overall commensal flora of the intestines. Likewise, zoonotic bacteria with pathogenic capabilities are generally a threat to the human health system, and increasingly so if they become resistant to the antibiotics normally dictated for treatment. However, the literature indicates a lack of consensus on whether the host animal can act as a source of potentially human pathogenic antibiotic-resistant bacteria. One view is that exposure to additives such as the antimicrobials used for growth promotion may create a reservoir of resistant bacteria and/or resistance genes that could spread to the human population, thereby limiting the medical value of antimicrobial drugs. A different view is that the likelihood is low that bacteria from food origin are able to colonize the human gut and transfer resistance genes, and that if the possibility did exist, the clinical consequences would be insignificant. In addition to the food-animal factors, yet another consideration is the role of human contribution to the pool of available antibiotic-resistant genes. This review takes stock of the various issues involved in this area of debate.

Utilization of web games to teach children principles of hygiene and antibiotic resistance

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The "edugames4all" Project (www.edugames4all.com) developed at City University presents web games that aim to reinforce awareness of microbes, hand/respiratory hygiene and prudent antibiotic usage amongst junior (9-12 years) and senior (13-15 years) school children across Europe. This endeavour builds upon e-Bug, a European Commission-funded antibiotic and hygiene teaching resource (translated into 10 European languages). Two sets of cartoon games were designed to teach a set of learning outcomes (LOs) appropriate for each target demographic. The Junior Platform Game has a number of "levels" that teach the given set of LOs. The player is shrunk to fit inside the human body and interacts with good/bad microbes, whereby LOs are taught through implementation of the game's mechanics; i.e., through the way the player interacts with the microbes, and knowledge change is tested before/after each level using a Quiz Show format. The Senior Detective Game has a number of "missions" that involve a mystery that needs solving. The player attends the scene of an 'incident' that involves microbes, whereby LOs are taught through character dialogue and storyline. The overall mystery is sub-divided into multiple problems

that must first be addressed, leading the player to their overall conclusion. Two game evaluations took place between May and August 2009, in four UK schools. Junior Game: the majority of LO-related questions were answered correctly before and after each level; however, the statistical significance of improved responses showed a trend towards enhanced knowledge in three questions. Senior Game: Mission 2 was played by 129 students, whereby 98% of the students commented positively about their game playing experience. These studies demonstrated that computer games can teach children about hygiene/antibiotics in an enjoyable way. Further study is needed to evaluate the games' impact on behaviour change, and the full evaluation results from quantitative/qualitative knowledge change studies will be presented.

Decreased incidence rate of the hospital acquired vancomycin-resistant enterococci (HA VRE) colonization with the increased hand hygiene compliance rate during the H1N1 pandemic period in a tertiary care hospital in Korea.

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Background: Successful prevention and control of Multi-Drug Resistant Organisms (MDRO) requires contact precaution practice, especially hand hygiene. Objectives: During the H1N1 pandemic period, the hand hygiene improvement campaign were programmed and practiced. The hand hygiene practice was emphasized and monitored among health care personnel, resulting in the improved compliance rate of hand hygiene. We monitored Hospital acquired Vancomycin-resistant enterococci (VRE) colonization rate among the patients in order to investigate the change of VRE incidence rate in a 1970 beds tertiary care teaching hospital in Korea.
Method: The data collection was done from Jan. to Nov. 2009 which include H1N1 pandemic period. During the hand hygiene improvement program (Jun.~ Nov.), hand hygiene practice was monitored for the total of 9,921 cases for 3 months (monitored March, June, and September). The relationship between the incidence rate of Hospital acquired VRE colonization and the rate of hand hygiene compliance has been compared.
Result: During the H1N1 pandemic period, hand hygiene improvement campaign was continued in the whole hospital. Hand hygiene compliance rate of doctors were improved from 24.3% (Mar.) to 64.6 % (Sep.) ($p<0.000$). Compliance rate of nurses were improved from 39.6 % to 82.8 % at the same period ($p<0.000$). The incidence rate of hospital acquired VRE colonization average incidence rate was decreased from 0.51/1000patient-days (Jan. ~ Jun.) to 0.26/1000patient- days (Jul. ~ Nov.). It was decreased 50% at the same period in this hospital.
Conclusion: VRE have been probably transmitted among the patients through the hands of health care workers. Intensive hand hygiene monitoring with hand hygiene improvement campaign program during the H1N1 pandemic period promoted VRE infection control including the prevention of the VRE outbreak.

New Method for Monitoring of Environmental Cleaning and Disinfection

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The entire physical environment at the hospital must be considered in planning and maintaining effective procedure for infection control. A clean hospital environment is necessary to provide the required background to good standards of hygiene and asepsis and to maintain the confidence of the patient and the morale of the staff. Monitoring of

environmental cleaning and disinfection is important to evaluate the cleaning and disinfection and consequently modify the existing policy. RIDA count test is a new method for quantitative detection of microorganisms from hospital environments. It provides a measure for hygienic and disinfection monitoring checks in simple way. Mostly it is used in detection of coliform, yeast, molds, salmonella, S.aureus and total count of microorganisms. Objective: to determine the efficacy of RIDA count test in monitoring the environmental cleaning and disinfection in TBRI hospital. Material and Methods: Twenty seven samples were collected from surgical department, hemodialysis and endoscope units in the hospital. They were collected in the period from 1st January to 26th February 2010. The samples include: air samples, sterile surgical instruments, endoscopes and environmental surfaces. Each sample was processed by two techniques; RIDA count test and the conventional cultures. The RIDA count test medium sheets coated with ready to use culture media were used to collect samples by dry method or swab sample method depending on the nature of the sampling surface. Samples were then incubated at the different temperatures according to the manufacturer. Results: The results show an over all agreement of 96.3 % between the RIDA count test and the conventional cultures. The agreement was absolute in air samples, sterile surgical instruments and endoscopes samples while it was 94.1% in environmental surfaces. In conclusion: RIDA count test could be used as a new method in monitoring the environmental cleaning and disinfection in the hospitals.

Scholarship abstracts | Quality assessment of alcohol hand-rubbing. Study about 270 health workers of the University hospital of Nancy

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Introduction: Hand hygiene is the most effective precaution for the prevention healthcare associated infection. International guidelines recommend that alcohol hand-rub (AHR) be the primary choice for hand hygiene but don™t recommend any evaluation of the quality of this rubbing. To assure the effectiveness of alcohol hand-rubbing, health workers must not carry any jewel on the hands or on the forearms.
The aim of this study is to assess the progress of hand rubbing quality on the palmar side, 2 years after training of health workers. Secondary aims are: identification of predictive factors of the progress of hand rubbing quality (HRQ) and to analyze health worker™s behaviors on jewels™ wearing.
Material and method: In 2007, the infection control team of the university hospital of Nancy, France, trained health workers to the use of AHR. A first assessment of the HRQ was made. In 2009, 270 health workers trained in 2007 were visited. A questionnaire and a second observation of the HRQ were realized. The criterion to evaluate the HRQ was the area of the palmar side covered with alcoholic hand rubbing.
Results: The population was constituted by 93% women. The majority function is the nurse (40.4 %) nurse assistance (25.2%) and the cleaning worker of ward (15.9%).
Two years after training, the HRQ is constant to 70%, decrease to 29% and improve to 1% of the population.
Three independent predictive factors of the progress of the quality were identified: 2 improve probability to have a constant HRQ: to work in intensive care unit (OR = 5.6 [1.3-24.4]) and to know that carrying jewels improve the infectious risk (OR = 2.6 [1.02-6.7]). One improves probability to decrease the HRQ: to carry rings (OR = 0.34 [0.14-0.83]).
Sixty-five percent of the subjects declare to carry jewels every time. Among them, 54.6% carry rings, 57.1% a wedding ring, 56% a watch and 42.5% bracelets. Only 17.6% of the subjects carrying a wedding ring and 71% of the subjects carrying other jewels draw it out to work. The two major causes of this absence of withdrawal of jewels are the symbol

and the security phenomena. However, 91.1% of the health workers know that the wearing of jewels generates a risk for the patients.
Conclusion: Two years after training, a third of health workers have a HRQ decreasing. Our study identified three predictive factors of the progress of the HRQ. Among them, to carry rings is a predictive factor of HRQ decreasing. In spite of the knowledge of infectious risk related to the wearing of jewels, the majority of the health workers carry them within the hospital. The information delivered during the training to the use of the alcoholic hand rub is acquired but not applied, primarily for symbolic reasons and security problem. It seems necessary to be able to act on these social aspects which seem to preserve a great importance in the behavior of the health workers. The progress to the HRQ must be study at a long-term.

The impact of a multimodal supervision programme and risk stratification in the analysis of catheter related urinary tract infection rates over a one year period to enable focus on labor and cost effective infection control measures

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Introduction: Supervision programmes involving bundled infection control practices in hospitals do reduce the rates of catheter related urinary tract infection (CR-UTI).Should there be risk stratification in patients put on the urinary catheter.? Are the infection control practices scientific and labor and cost effective.Is a uniform protocol for sample collection and diagnosis followed.?
Methods: To answer these questions the CR- UTI rates were analyzed over an year from January 2009- December 2009 in a young corporate hospital in India .The rates per month were correlated with the patient's risk factors, mean age,sex, the average duration of catheterization, the adherence of staff to standard protocols for sample collection, diagnosis, check lists and the impact of the supervision programme.
Results: The UTI rates varied over the year between 2.3 to 25.3 urinary tract infections per 1000 catheter days, the average being 7.93 infections /1000 catheter days. The mean age of the patients was 54.5 years, males and females being equal. The average duration of catheterization was 17.1 days.All the patients belonged to the high risk category. The protocols for sample collection demonstrated a flaw in 35.3% cases .The diagnostic criteria were not adhered to in 11.7%. cases . The check list adherence and hand hygiene compliance was at 80% and 70% respectively.
Conclusions: The impact of bundled behavioral infection control interventions and adherence to check lists by staff on CR – UTI rates is tremendous. However risk stratification of patients and establishing uniform sample collection and diagnostic criteria is essential to focus on labor and cost effective infection control measures.The most effective infection control measures as revealed by the supervision programme are training,maintenance of asepsis while insertion and care of the catheter and avoiding urine reflux, where as bladder irrigation and practicing perineal cleaning more than once a day are wasteful measures.

Assessment of pulmonary exposure to ethanol during hand rubbing

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Despite the increasing promotion of Ethanol-based hand rubs solutions (EBHRS), few studies have addressed measuring the quantity of inspired vaporized ethanol. The aim of this study is to assess the ethanol exposure during hygienic and surgical hand disinfection practice. Material and Methods: We measured the exposure at the nose level of wooden dummy and human volunteers according to different situations. Two systems are used to capture the ethanol vapor: - Activated charcoal filters NIOSH and Gilian LFS-113 Pump, extraction and head space gas chromatography. - Photoionization detector (PID) for real time monitoring of ethanol. Exposure was assessed in 4 different situations: * hygienic hand rub, 3 situations of EBHRS : gesture1 : consultation, simple care; gesture2 : nurse care); gesture 3 : intensive care and surgical hand rubbing. Results: Gesture n°1 : the mean of Occupational Exposure Values (OEV) observed were by PID 241mg.m-3 (humans) and 275mg.m-3 (dummy) and By chromatography, 137mg.m-3 (humans) and 146mg.m-3 (dummy). Gesture n° 2 : the OEV observed by PID was 339mg.m-3 (humans) and 404mg.m-3 (dummy) and by chromatography 263mg.m-3 (humans) and 278mg.m-3 (dummy). Gesture 3 : the OEV observed by PID was 429mg.m-3 (humans) and 544mg.m-3 (dummy) and chromatography 346mg.m-3 (humans) and 450mg.m-3 (dummy). For surgical hand rubbing the immission concentration was 655mg.m-3 (humans), 696mg.m-3(dummy) with the PID and 617mg.m-3 (humans), 631mg.m-3 (dummy)by chromatography. Conclusion The values of the measured concentrations are similar for these two methods of exposure assessment They demonstrate a relation between the handled dose and the exposed dose.

Antibiotic-associated diarrhoea

Author: Egil Lingaas, Department of Infection Prevention, Oslo University Hospital HF Rikshospitalet, Oslo, Norway

Antibiotic-associated diarrhoea (AAD) is a frequent adverse effect of antibiotic treatment. The incidence of this complication varies from 5% to 39%. The clinical manifestations vary from mild diarrhoea to fulminant pseudomembranous colitis (PMC) and death.

Clostridium difficile is the major identifiable etiologic agent of AAD, but this organism is detected in only 10 – 25 % of AAD. However, it accounts for 50 % -70 % of antibiotic- associated colitis and over 90 % of those with antibiotic-associated PMC. During the last decade, increased incidence and severity of C. difficile infection has been reported from many countries. Other etiologic agents in AAD may be Salmonella species, Clostridium perfringens, Staphylococcus aureus and Klebsiella oxytoca.

Effective prevention of AAD requires restriction of antibiotic use. The capability of C.difficile to form spores, which are resistant to most disinfectants and survive for extended periods in the hospital environment, makes infection control challenging. For C. difficile and other transmissible agents, contact precautions must be applied, including the use of gloves and gowns on entry to a room. Hand hygiene should be performed with soap and water, since C. difficile spores are not killed by alcohol. Environmental cleaning and disinfection seems to be important, particularly during outbreaks.

Norovirus

Martin Kiernan | Southport and Ormskirk Hospital NHS Trust, UK and President, Infection Prevention Society, UK

Norovirus outbreaks have a significant impact upon settings in which people congregate and healthcare facilities are certainly not immune. Hospital and other healthcare provider-based outbreaks have a significant on the daily running of organisations and effective management of Norovirus is beneficial to patients, staff and organisations.

This paper will examine the challenges that this short-lived but high impact infection has and will review the evidence base for interventions that are effective in the control of infections in multiple occupancy settings.

Discussion group

Hand hygiene compliance- getting it right

Dr Benedetta Allegranzi | Patient Safety Programme, World Health Organization (WHO), Geneva, Switzerland
Dr Nizam Damani | Craigavon Area Hospital, N. Ireland, UK

To identify feasible and low-cost solutions to reduce healthcare-associated infection, applicable on a global scale, such as hand hygiene (HH), is the core objective of the WHO First Global Patient Safety Challenge (1st GPSC). The 1st GPSC developed and tested a Multimodal HH Improvement Strategy in settings with different cultures and levels of development, around the world. The WHO "My Five Moments for HH" concept is the core of the WHO Strategy and is revolutionizing infection control education and practice.

Considering the scientific evidence, this concept merges the HH indications recommended by the WHO Guidelines on HH in Health Care into five moments when HH is required. This approach proposes a unified vision for healthcare workers, trainers and observers to minimize inter-individual variation and enable a global increase in adherence to effective HH practices. These moments within care sequences are the ones with the highest transmission risk and likely to yield the maximum return in terms of patient safety.

The workshop will provide an opportunity to share the outcome of field testing of the WHO Guidelines with an emphasis on the universal applicability of the "My Five Moments" concept, with examples of implementation, including the training DVD with simulated scenarios.

Minimum standards for an CSSD

Birte Oskarsson, Director of CSSD Skånes university hospital of Malmö, Sweden, member of the Swedish institute of standards.
Vice President of WFHSS.

In the cssd activity we handle, work and store medical devises with different medical purity. The facility has to be design so it will allow a correct flow of material, where different flows don't cross each other. Facility for unclean items

shall be separated from facilities where work with clean items takes place.
The work in cssd is a chain of different element that all has to be perfect performed to guaranty sterility. We have to ensure the integrity of each sterile item until use.
I will give you check list for each room at the cssd and also examples how to achieve this.

Concerns in decontamination and perspectives for the future (invited speaker; 30 August, 2010 'Minimum Standards for Safe Reprocessing of Medical Devices)

Gerald McDonnell
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The continued increase in the development of microbial resistance to therapeutic drugs has put greater emphasis on highlighting basic infection prevention practices in healthcare institutions worldwide, including medical device decontamination. Three areas of concern in decontamination practices will be discussed. Firstly, the importance of cleaning and associated toxicity. Cleaning is an essential step in preparing the device for disinfection/sterilization but recent research has shown the inadequate cleaning can have other negative effects including device-associated toxic reactions in patients and transmission of protein associated diseases such as CJD. Second, there have been many excited developments in the design of complex medical devices that are more challenging to decontaminate; of particular discussion will be the development of new low temperature alternatives for sterilization of these devices. Third, the Spaulding classification, proposed in the 1960s, is a risk assessment based on the potential for any surface, directly or indirectly, to transmit an infection if contaminated; it is based on the use of the device and potential contamination with certain types of microorganisms. Since this time there have been many reports of the intrinsic or acquired resistance to disinfectants/sterilants. These include types of viruses, protozoa and bacteria. A notable recent example was a device-related outbreak with Mycobacterium massiliense associated with over 2000 patients; the outbreak strain is highly resistant to the biocidal effects of glutaraldehyde with associated cross-resistance to antibiotics and other significant virulence factors. Is this an isolated case or an increasing concern? Perspectives for the future of decontamination and technology will be discussed.

Phlebotomy Strategy Development - Nigerian Experience

Authors: Abimbola Sowande | Olufunke Jibowu | AIDSTAR One | Nigeria
Adebayo Adedeji | FMOH | Nigeria
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Issues: WHO recently published two phlebotomy focussed documents: best practices tool kit and guideline for blood draws that have necessitate the review of injection safety policy and strategy. Unsafe injections, misuse of sharps including unsafe Phlebotomy practices still remain major sources of transmission of blood borne pathogens such as Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) in developing countries, Nigeria inclusive. The rapid scale-up of HIV prevention activities in Nigeria has resulted in the extension of services,

increased ARV and HIV testing and monitoring services, have led to increased demand for phlebotomy services. Description: In Nigeria, there has been moderate injection safety and health care waste management intervention achievement but phlebotomy still remained a major challenge. In 2008, MMIS in collaboration with Federal Ministry of Health conducted a phlebotomy inclusive assessment in some selected health facilities in the country. Consequently, a workshop on phlebotomy was convened in 2009, with experts drawn from all geopolitical zones, confirmed gaps in phlebotomy practices. Therefore, the Government developed documents to address the identified gaps; these are; National Strategy for Phlebotomy and training manual as an add-on to the existing National Injection Safety facilitator's guide. Lesson learnt: The draft documents have been developed and currently undergoing peer review by wider stakeholders. The gaps identified have been addressed using the latest WHO publications. Recommendations: Stronger shared vision with all stakeholders desired to endorse and implement the strategy and training (formal and informal). We therefore recommend that: a National a follow-up national injection safety (IS) and phlebotomy assessment using WHO revised Tool C including in service training on best phlebotomy practices. GON to increase budgetary allocation for injection safety program (HIV/AIDS – FMOH) to include phlebotomy activities and collaborate with Regulatory bodies to ensure compliance with best phlebotomy policy.

Learning Here, There and Anywhere – Distance Education for Infection Control

Paul Webber | Webber Training Inc, Belleville, Ontario, Canada

Infection control information is broadly available in many formats and from many sources, including distance education. This talk will explore many of the formal and informal sources of distance education (or "distance information" … there is a difference) for infection prevention and control practitioners, and will explore their suitability for application in a low resource setting. The Teleclass Education programme will be specifically highlighted.

Scholarship abstracts | Formation of Infection Control Nurses Chapter in Kenya

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Introduction: The Infection Control Nurse Chapter (ICNC) was formed in 2007 by a group of infection control nurses mainly from the major hospitals in Nairobi Kenya. ICNC is a chapter within the National Nurses Association of Kenya.
Objective: The chapter was created to provide a forum for the infection control nurses to exchange ideas and disseminate infection control information a cross the country.
Results: The ICNC members are very dedicated and they meet on their own time. They have been able to organize forums for the infection control in various hospitals. Hold annual symposium and conference. The participants are from all over the country, Uganda, Tanzania and Sudan. The ICNC have also established partnership with APIC Wisconsin Badger chapter who have been very supportive by donating educational material. The ICNC have been in the fore front with collaboration with the ministry of health, CDC and other stick holders in the development of a national infection control policy and guidelines
Lessons Learned: There are many barriers to developing Infection Control programs in Kenya. Through determination and partnership, Nairobi ICNC members continue to forge forward and overcome the odds to reach their goal of

establishing Infection Prevention programs throughout Kenya. The support from developed partners like the Badger APIC has gone along way to inspire us and help us overcome some of the challenges.
Conclusions: Through determination and partnership with established infection prevention and control organizations, developing countries can establish sustainable infection control programs. IPCAN and IFIC should consider offering infection prevention & control training to developing partnerships.

Antimicrobial resistance of key pathogens in Central Africa

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We present a systematic review of the literature on antimicrobial resistance in Central Africa between 1955 and 2010. Most studies originated from DRC, CAR and Cameroon. Most studies were compilations of clinical data, with few formal quality control procedures.
Methicillin-resistant Staphylococcus aureus was reported from Cameroon (21.3% 2003) and DRC (up to 66.7% carriers, 2004). Mean resistance rates of Streptococcus pneumoniae to penicillin, cotrimoxazole and chloramphenicol were 1.8%, 17.7% and 21.2% respectively, with resistance up 60% and 69% for chloramphenicol and cotrimoxazole (DRC, 2005). Mean resistance rates of Salmonella Typhi (ST) to ampicillin, cotrimoxazole and chloramphenicol were low, but increased to 50% since the mid 1990s. The non-typhoid Salmonella spp. (NTS) displayed mean resistance rates to ampicillin and chloramphenicol of 63.0% and 42.9%, and increasing resistance to cotrimoxazole. Both ST and NTS sowed preserved susceptibility to the fluoroquinolones and third generation cephalosporins. Extended spectrum β-lactamase in Escherichia coli and Klebsiella pneumoniae were reported from Cameroon (2005) and CAR (2006). Pseudomonas aeruginosa showed mean resistance to piperacillin, fluoroquinolones, third generation cephalosporins and gentamicin of 53.7%, 15.5%, 332.2% and 71.8%.
Conclusion: the Central African region shares the worldwide trend of increasing antimicrobial resistance and is in urgent need of sound microbiology-based surveillance.

Antibiotic stewardship in low resources settings: needs and challenges

Authors: Erika Vlieghe (Institute of Tropical Medicine, Antwerp, Belgium).

Introduction
Antimicrobial resistance is a worldwide increasing problem. Sound antibiotic use is one of the cornerstones to contain this problem and preserve the therapeutic arsenal for the future. 'Antibiotic stewardship' is a set of educational activities and local policies meant to optimize the antibiotic use in hospitals while minimizing costs and further resistance selection.
Methodology
An overview of the literature on antibiotic stewardship is given against the background of the clinical, microbiological and pharmaceutical reality in low resources settings.

Discussion
Effective antibiotic stewardship, already a challenge in higher resources settings, can be very difficult in poor settings. The high burden of diseases and a rising prevalence of multiple drug resistant pathogens combined with insufficient knowledge of local resistance patterns, absence of local treatment guidelines, insufficient education of health care personnel on bacterial resistance and infection control as well as unstable supplies and counterfeit drugs are elements of this 'Pandora's Box'. Locally adapted and acceptable

Environmental Infection Control – Area Decontamination

John Curtin, Consultant, Advanced Sterilization Products

Pathogens are becoming increasingly multi-resistant to anti-biotic treatments and clinicians need alternative methods to deal with Healthcare Associated Infections (HCAIs) that present risks of onward transmission via the environment. These include pathogens such as Clostridium difficile, Acinetobacter baumanii, Norovirus, ESBLs, Klebsiella and VRE. Environmental cleanliness is an important element in the prevention of cross-contamination and patient safety. The risk of HCAIs in hospitals has been exacerbated by the high bed occupancy rates in hospitals and the limitations this can put on cleaning services. In recent years significant work has been done with Hydrogen Peroxide based Mist and Vapour to remove environmental contamination. Trials have shown that this method has been successful in controlling the environmental contamination and reducing infection rates, especially in the United Kingdom, where reporting of HCAI rates is well established and the authorities have been taking action over a number of years. These methods are now established in hospitals as part of an overall programme to control the spread and impact of HCAIs.

Injection Safety is not only a Low to Middle Income (LMI) Country Issue

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Medical injections are the most common health care procedures performed worldwide. As defined by the WHO, a safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in waste that is dangerous for the community.

Unsafe injection practices might put patients and healthcare workers at risk of infectious and non-infectious adverse events. Infectious diseases, including Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and Hepatitis C Virus (HCV) can be transmitted from patient to patient if healthcare workers do not adhere to fundamental practices of injection safety. Safe injection practices are part of Standard Precautions and are aimed at maintaining patient safety and healthcare worker protections. These include the use of a sterile, single-use, disposable needle and syringe for each injection given, use of single-dose vials for parenteral medications whenever possible, and use of aseptic technique to avoid contamination of sterile injection equipment and medication.

The aim of this presentation is to share with the audience findings of outbreaks associated with unsafe injection practices. These findings underscore that principles of safe injection need to be reinforced and incorporated into healthcare facility polices that are monitored for adherence.

Réseau international pour la planification et l'amélioration de la qualité et de la sécurité dans les systèmes de santé en Afrique
International Network for the Planification and Improvement of the Quality and Safety of care systems in Africa

Innovating for universal application of injection safety in Africa.

Bernard Chanfreau, Mfsc,Pr*, Franck Mansour Adeoti, MD**, Col. Babacar Ndoye, MD***, Pr, Garance Upham****
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At the time the World Health Assembly (WHA) took the decision to initiate the "Patient Safety" program at the WHO, in 2004, Dr Modibo Dicko (WHO) gave a Technical Briefing in which he defined injection safety as the first priority for the Afro region to ensure safe health care for all. He noted that, years after the first recommendations were made, "the perception of injection safety as a "logistics" issue rather than a prevention policy issue, persisted, and that it was a major road block to implementation."

RIPAQS is answering to Dr Dicko's remarks: safe injections for everyone in Africa will only come about through a collaborative effort of patients for patient safety organisations, infection control specialists and media. If 25 years into the AIDS epidemic and amidst a large scale hepatitis B epidemic in Africa, injections are still unsafe it is basically because the problem has been neglected by donors, global policy makers, and above all because it has been addressed from a logistic approach as opposed to a Primary Health Care approach, rooted in the communities.

We will present initial data and an innovative approach to speed up the establishment of universal injection safety in Africa.

Implementing IPC and injection safety in Africa: will not be done without patients involvement and investigations of HAI

Garance Upham | Member of the Board, IPCAN and RIPAQS (INPIQS) International Network for the Planning of Quality and Safety in Health Systems in Africa)
Member, Steering Committee of Patients for Patient Safety, WHO Patient Safety Program (since its creation in 2004)
General Secretary Safe Observer International Chair, People's Health Movement Disabiliy and Economics' Circle.

Infection Prevention and Control (IPC) has been neglected because it points to 1) somewhat 'irresponsible' behaviour on the past of the health system (HS), 2) neglect of patients' rights and HS obligations, 3) the need for team work and thus the need to challenge 'authority' 4) flaws in the HS as opposed to more 'glorious' target settings.
In the poorest countries it has been reduced to formal adoption of 'guidelines'. Large State led investigations in India in 2004, involving several thousand health centers, 20 years after the beginning of the HIV/AIDS epidemic, revealed that more than half of all injections in India were unsafe.

The incredible time lapse in implementation indicates, as was suspected by Dr Modibo Dicko (WHO) some years ago, that a 'logistical' vertical approach failed and that only a 'horizontal' approach involving communities and care givers at the lower end could work. This becomes all the more urgent in Africa in view of 'task shifting' policies, exodus of qualified personnel and large scale epidemics of hepatitis and HIV.

We know from development studies that technological inventions, and R&D centers in health do not in themselves bring about improvements in health (Banji O. Oyeyinka of Nigeria, UNHABITAT Kenya and Padmashree Gehl Sampath, LDC Team at UNCTAD). A "how to" notice, recommendation, guideline, or latest injection products will not work in and of themselves with just by a Ministerial signature.

Rather, the most important aspect in upgrading the level of safety in a health care system is the capacity of the concerned persons at the low end of the ladder in human personnel 'to innovate' : to grasp the importance of injection safety and re-invent their day to day practice and the user/patient /carer relationship.

There is an urgent need to make governments, donors and policy makers realize that meeting the MDG, notably the Millennium Goal of decreasing maternal-child mortality in Africa, and increasing access to ART and treatment, demands "universal implementation of injection safety in Africa", as was otherwise expressed in the Kenya amendment to the World Health Resolution on Hepatitis adopted in May 2010.

An important point of entry to raise awareness is the capacity for investigating 'errors' in injection practices in poor settings, as was found in rich countries such as the USA.

We propose to present a framework for systematic investigation of suspected nosocomial bloodborne infections (as recommended in PEPFAR 2009-2013 bill) starting at community level, and lead a discussion with the audience on this topic.

We will present the African Observatory on Patient Safety with the patients safety organizations initiated in West and Central Africa with the RIPAQS, with concerned media.

Applying the WHO TB Infection Control Policy in Africa

Ginny Lipke | Global AIDS Program | Centers for Disease Control and Prevention, Atlanta, Georgia

Infections, such as influenza, SARS and M. tuberculosis (TB), have been clearly shown to have airborne disease transmission potential. The emergence of Multi-drug Resistant Tuberculosis (MDR-TB), and Extensively Drug Resistant TB (XDR-TB) is of grave concern particularly in countries with high HIV infection prevalence and high burden of TB. Transmission of TB is facilitated by inadequate infection control measures.

In order to provide a safe environment in healthcare facilities, basic infection control practices must be reinforced and tailored to the healthcare facilities. This includes protecting patients, healthcare workers, visitors and others in the healthcare environment. Good infection control improves healthcare outcomes and prevents negative outcomes such as morbidity, mortality and increased healthcare costs.

Actions for TB Infection Control have been clearly defined by WHO and can be found in a country's TBIC guidelines, however the implementation of those measures have not been clarified as yet, especially in areas with limited resources:

- airflow in small, enclosed clinic or hospital spaces
- lack of adequate ventilation to "clean" the environment through dilution or removal of infectious droplet nuclei
- creation of site specific risk plans and IC policies
- when to use PPE to protect workers
- how to incorporate triage and cough etiquette into daily practice

The aim of this presentation is to provide suggested measures and tools for resource limited settings, and to share with the audience of new free resources and tools becoming available to help create a safer environment against airborne disease.

WHO Phlebotomy Guidelines- who should use them and how.

Prof Shaheen Mehtar | Unit for IPC, Tygerberg Hospital and Stellenbosch Uni, Cape Town. South Africa.

The Safety Injection Global Network (SIGN) has been deeply involved in evaluating and assessing the impact of injection safety globally. The findings in the early part of the evaluations were shocking. It became apparent that 10% of injections in Africa had the potential to transmit blood borne viruses (BBV) via unsafe injection and medical devices. These findings were repeatedly echoed across the globe. While organizing audit tools and other means of assessing risk to both healthcare worker and patients, the lack of standards in administration and disposal of used injection devices became apparent to SIGN.

In order to standardise to the best practices in phlebotomy and blood drawing, SIGN commissioned WHO Guidelines for Phlebotomy which were published in 2009. The contents were arrived at by consensus of the working group and were circulated for comment to several IPC specialists. Controversial issues (skin preparation) were resolved by a Cochrane Review.

These guidelines carry the essence of all aspects relating to taking blood from a patient and ensuring healthcare worker safety. There is a special section for neonates, paediatrics and arterial blood sampling. The guidelines are accompanied by a set of training slides.

Developing indicators and methodology for intravenous procedures and phlebotomy - Tool C – revised

Dr Selma Khamassi, WHO/SIGN

Tool C was used for the assessment of intramuscular, indradermal and subcutaneous injections. Later on, the scope of the Safe Injection Global Network was expanded to include other procedures at even greater risk i.e. phlebotomies, lancet procedures and intra venous injections and infusions. WHO and SIGN tend to always recommend and assist countries implement evidence based health intervention, therefore there was a need to develop an assessment tool

including safety indicators for these injections routes in order to be able to uncover unsafe practices which will serve as a basis for the development and implementation of the required corrective measures.

In order to keep the WHO Tool C, the latter was broadened to include indicators on the new skin piercing procedures SIGN started addressing since 2007 and became the " WHO injection safety assessment tool - Revised" .

Indicators for IV and phlebotomy were developed as well as indicators for capillary blood sampling (the latter of which use lancets).

Countries will have the option of performing assessments of different procedure types individually or together in the same assessment, and can evaluate a number of different health services settings. The prevention of bloodborne virus transmission remains the focus of assessments.

Tool C - revised includes equipment sterility indicators for all procedures, whether disposable or sterilizable equipment is used. Indicators of sterile technique during intravenous procedures include skin and injection port preparation and performance of injections only at injection ports. Although the primary aim of some practices is reduction of bacterial contamination, inadequate skin or IV port preparation before IV injections or phlebotomy can cause contamination or even sepsis and lead to the occurrence of more procedures, some of which may be unsafe.

Phlebotomy procedures include lancet procedures and venous phlebotomy. Many safety indicators for venous phlebotomy are in common with those of intravenous infusions and injections.

The assessment tool also includes venous phlebotomy indicators of the substantial risks for providers due to the handling of hollow-bore needles containing whole blood. In some countries the restricted range of equipment used for these procedures may increase risks.

Indicators of safety for the provider include the absence of two-handed recapping before removing any needle and the absence of uncapped needle removal using only fingers. Another action having the potential for two-handed recapping occurs when a phlebotomy needle is removed from its holder and the needle that was inside the holder is exposed. If blood is directly injected into a vacuum tube using a needle and syringe, an indicator of safer practice is whether the tube is supported upright by a rack or holder and a one-handed technique is used. A venous blood sample also may be taken from an IV port using a syringe with or without a needle, and subsequent blood transfer might occur with or without a transfer device. Indicators of the procedure methods used and key actions associated with each are included.

Lancet procedures obtain a drop of blood for diagnostic or clinical monitoring purposes, often with the blood sample collected in a capillary tube or applied against a reagent strip. Lancets carry risks for recipients analogous to those for IV and venous phlebotomy procedures. Indicators of effective procedure performance address the impact fraction of procedure frequency, appropriate skin preparation with antiseptic; checking expiry dates on reagent strips and following the manufacturer's instructions for their use; and, whether a capillary tube is used to scoop a sample or blood is smeared against a reagent strip, both of which can cause hemolysis. Appropriate skin preparation before using a lancet will reduce

mainly bacterial infection, but such an infection could lead to the occurrence of injections and other procedures, some of which may be unsafe.

Finally, the use of gloves for many of these procedures and the use of IV sets requires that indicators pertaining to the management of non-sharps infectious waste and waste segregation are also included

Injection Safety and Healthcare Waste Management

Authors: JP-Ngandu-Mbanga | Slyvia Gantana | Frantz Simeon | University Research Corporation | Namibia

TRACK E: How do HIV/AIDS programs enhance other health services within health systems?
CATEGORY 4: Positive impact of HIV/AIDS programs to other health services.
AFFILIATIONS: URC, Windhoek: Namibia KEY WORD: Impact of Injection Safety and Waste Management to other health services in health system.
IMPLEMENTATION AREA: All 13 regions of Namibia

Background: The project designed by University Research Co; (URC) in order to support the Government of Namibia in pursuing the fight against HIV/AIDS pandemic in the country through the Ministry of Health and Social Services (MoHSS) and other stakeholders. The PEPFAR, through its multidisciplinary interventions support cross-cutting health system strengthening that benefit other non HIV/AIDS projects providing the seeds of creation of effective and integral health systems nationally.
Analysis Design and methods: The situation assessment consists of identifying gaps and opportunities for improving health/medical practices by implementing the following programs: voluntary counseling and testing (VCT), prevention of mother to child transmission (PMTCT) and anti-retroviral therapy (ARV), expanded program for immunization (EPI)and infection prevention and control (IPC) by a) Identify system- related issues that affect the use and disposal of medical equipment b)Develop and implement a behavior change activities to influence the identified issues that affect program implementation) c) Provide support to Namibian health facilities participating in the program through the purchase of Personal Protective Clothing and Equipment(PPC/E) d) Disseminate findings nationally through: e) Monitor and Evaluate improvements in safe injection practices on a quarterly basis at district level.
Results: In general, the injection safety impacts positively other programs by training of staff a) In commodity/ logistic management b) in rationale use of medication to avoid irrational use of medicine (TB drugs, ARVs and other medications) and promote the use of stock control cards c) in quality assurance to improve the quality of care in the health facilities for service delivery d) in proper waste management to improve the safe segregation of medical waste, by supportive visits in health facilities to monitor the availability of color coded bags and injection safety boxes e) in post exposure prophylaxis (PEP) to encourage health care workers (HCWs) to report timely needle stick/sharp injuries and to have access to VCT/ARV; f) in expanded program of immunization (EPI) to promote the medical injection safety best practices); f) in monitoring and evaluation to empower health care providers with knowledge and skills to be used in program management; e) in policies and guidelines to adhere to proper and safe waste management and injection safety.
Conclusions and Recommendations: The medical injection safety and waste management best practices have a positive impact as contributory factor in preventing HIV/AIDS prevalence among health care workers, patients and

community at large. Therefore we recommend strongly the sustainability of the project amongst the stakeholders for evidence based practices.

HIV Approach in a University Hospital, in Cairo

Nagwa Khamis | Ain Shams University Specialized Hospital | Egypt

The number of people living with HIV worldwide continued to grow in 2008, reaching an estimated 33.4 million [31.1 million–35.8 million]. The total number of people living with the virus in 2008 was more than 20% higher than the number in 2000, and the prevalence was roughly threefold higher than in 1990. The continuing rise in the population of people living with HIV reflects the combined effects of continued high rates of new HIV infections and the beneficial impact of antiretroviral therapy. The economic impact of HIV/AIDS is often overshadowed by the emotional and physical burden placed on the infected individual and families. The destructive effect of the disease on the person carrying the disease will always take precedence over the overall economic impact of the disease. Objectives: This study was conducted to identify knowledge, attitude, behavior and practices of workers in Ain Shams University Specialized Hospital regarding HIV/AIDS, STDs and reproductive health before and after a raising awareness program. Methods: a cross sectional study using self-administered questionnaire for data collection Conclusion: The raising awareness program showed significant positive differences of their knowledge and attitude which encourages implementation of similar programs in the future

Developing Capacity for Blood-borne Virus Outbreak Investigations

Savanna Reid | University of Nevada at Las Vegas | U.S.A.

Iatrogenic HIV, HBV and HCV transmission, particularly through unsafe medical injections, contributes in large part to the global burden of disease from AIDS and viral hepatitis. Without blood-borne virus surveillance, nosocomial blood-borne virus outbreaks are difficult to recognize because the natural course of infection with HIV and viral hepatitis is sub-clinical for many years. The consequences of unrecognized iatrogenic infections go beyond infection of the patient, and entail inadequate assessment of the problems with infection control that led to the infection, ongoing transmission to other patients, transmission of unrecognized infections to the family members of the patients, an inappropriate attribution of the costs of disability and treatment associated with preventable infections, and future law suits. In high prevalence countries, however, notification systems cannot expect complete coverage and contact tracing for every case is neither practical nor cost-effective. Instead, sentinel surveillance and data monitoring using a risk factor analysis piloted in deferred donors, control donors and women screened during antenatal care will allow the identification of suspected cases of iatrogenic infection. Non-vertical HIV infections in children and hospital notifications of acute cases of hepatitis will also be used to identify individuals in whom iatrogenic risks are discernible. Hospitals and transfusion services will be encouraged to refer deferred donors for follow-up testing to identify acute hepatitis infections. Deferred donors with HIV and women testing HIV positive during antenatal screening will be encouraged to refer their sexual contacts for testing, and to notify the registry if sexual transmission is not indicated. Patient information leaflets on follow-up testing and voluntary contact tracing with directions on how to notify the registry of unexplained HIV infections will be provided to screening services to encourage participation. A list of doctors treating pediatric AIDS cases will be

obtained from provincial and/or national AIDS treatment organizations. Doctors will be contacted individually, asked whether they have any suspected cases of non-vertical pediatric HIV in their practice, and asked to sign a letter of commitment to reporting suspected cases of non-vertical HIV in children in the future. Detailed exposure assessment protocols have been developed from the literature and will be supplemented with ethnographic research into possible routes of blood-borne virus transmission. Possible iatrogenic exposures that are significant in multivariate analysis will raise red flags when reported in patients meeting the case definition for acute hepatitis B, acute hepatitis C, recent HIV, or non-vertical, non-sexual HIV. Follow up investigations at facilities where iatrogenic transmission is suspected will establish whether potentially unsafe invasive health care procedures likely occurred. If so, screening of patients with same day procedures will allow for infection tracing using phylogenetic analysis. These routine investigations will support targeted patient safety interventions and develop institutional and professional capacity for large scale outbreak investigations. Notification of the patient population that may have been exposed to similar risks can then proceed without further confirmatory testing, identifying probable iatrogenic cases among those who seek testing using a standard questionnaire, and referring all infected patients for counseling and treatment.

Baseline practice of HIV prevention and standard precautions among traditional birth attendants in Southwest Nigeria

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Background: Over 60% of african women deliver their babies with Traditional birth attendants (TBAs) who should be able to protect mothers, children and themselves from HIV. For Nigeria to reduce her maternal mortality rates traditional birth attendants need to be engaged.
Aim: To assess the practice of standard precautions among TBAs Materials and methods: This was a cross-sectional survey among a convenient sample of 91 TBAs from 3 urban local government areas in Lagos, Nigeria. The data was collected from November 2009 to January 2010 using a pre-tested interviewer-administered structured questionnaire.
Results: Most (58.2%) of the TBAs were female and the mean age was 47 years. The majority claimed they informed all their patients about HIV (86.8%), refer all their patients for HIV testing (84.6%) and check to know the HIV status of all their patients (78%). Most also claimed to wash their hands before examining patients (90.1%and.79.1% said they always wear gloves for examinations. Reasons were to protect themselves and their patients against HIV (98.9%). Only 31.9% always sterilized their equipments, 33% always used a new blade for each patient, Seven TBAs claimed that they protected themselves and their patients using native concoctions. TBAs with secondary education were more likely to check the HIV status of their patients than those with no or primary education and this was statistically significant ($p<0.05$)
Conclusion: The TBAs were deficient in their understanding and practice of Standard precautions. Intensive training of TBAs and supervision of their activities is recommended in order to improve safety and minimize transmission of infections particularly HIV

Using workforce data base to validate IPC practices:Kenya Nursing council experience

Elizabeth Oywer | Nursing Council of Kenya | Kenya

Background: Hospital acquired infections contribute significantly to morbidity and mortality in our hospitals, thereby increasing the costs of health care. Evidence shows that Infection Prevention and Control (IPC) practices have been successful in reducing hospital acquired infections,however many institutions have not implemented practices known to work including injection safety; hand hygiene;sterilization and medical waste disposal
Methods: Document analysis was employed to analyze data on IPC practices maintained at the Nursing Council of Kenya. A sample of 7 District hospitals, 9 health centers, 1 Faith Based institution (FBOs), 1 referral hospital and 2 private hospitals were picked out of the 40 institutions inspected by the Council in 2009 and assessed on infrastructure support and IPC practices
Results: 57% of the District hospitals, 66.6% health centers, 50% of FBOs and 100% of private institutions had infection prevention infrastructure Conclusions: Most District hospitals, health centers visited by the Council in 2009 expended reasonable resources to ensure availability of IPC programmes that conform to the national IPC guidelines, but were not fully utilized. private institutions , however fully utilized IPC guidelines. Given that public institutions are the ones that serve the majority, it is important to do further studies to evaluate the components not complied with and the patient outcomes in the different settings. secondly, this is evidence that the database maintained at the Council can be used to monitor patient safety issues

An investigation into the knowledge and practice of undergraduate nursing students regarding universal precautions and their fear of occupational exposure to blood borne pathogens

Authors: Lindy van der Berg | Stellenbosch University | South Africa
Felicity Daniels | University of the Western Cape | South Africa

Background: Health care workers, more specifically, nursing students are at increased risk of occupational injury and exposure to blood borne pathogens. Compliance with universal precautions (UP) will minimise risk or transmission of HIV and HBV (Hepatitis B virus) according to the Department of Health of South Africa.
Aim: The aim of this study was to investigate the knowledge and practice of universal precautions amongst nursing students and their fear of occupational exposure to blood borne pathogens.
Rationale: The rationale for the study was to investigate what the students' knowledge and practice of UP were, to see if this could be a possible contributing factor to occupational exposure. Research design: The study was a quantitative, cross sectional survey using a questionnaire that included one open ended question. Participants: The participants for the study were the undergraduate nursing students in year levels two to four (n = 253) who and were selected by means of stratified random sampling. Procedures: A questionnaire was administered to the participants by the researcher. Analysis of the data collected was done through statistical package for social sciences (SPSS 16.0) and content analysis.
Results: The researcher established that there is indeed a lack of knowledge regarding UP and that the students' self reported practice of UP is poor. No statistically significant correlation between knowledge and practice of UP were found. There is underreporting of occupational exposures to staff at the School of Nursing. The majority of students

reported a moderate to severe fear for occupational exposures and contributing factors raised by them are reality in the clinical facilities.
Recommendations: A more structured educational programme needs to be included in the curriculum that does not only focus on knowledge of UP but also on behaviour modification of students, so as to improve practice of UP.

Strengthening TB infection prevention and control in Swaziland

Authors: Phiwi Mabuaza | Gugu Mchunu | Doreen Dlamini | Ministry of Health
Frederick Marais | Shaheen Mehtar | Academic Unit for Infection Prevention and Control, Stellenbosch University

Background: In Swaziland the prevalence of HIV and TB are 42% and 80% respectively, representing a ten-fold increase over the last 20 years which reflects the parallel rise in HIV/TB co-infection. The Ministry of Health, through the National TB Programme, is supporting a collaborative programme toward strengthening TB infection prevention and control (TB-IPC). The TB-IPC Programme has been developed and implemented by the Unit for Infection Prevention and Control (UIPC), Stellenbosch University; funded by PATH through support from the CDC/PEPFAR. The MoH aims to: increase coverage of the TB-IPC Programme at healthcare facilities from 10% in 2010, to 40% by 2011 and 80% by 2014; raise IPC standards at diagnostic sites, reaching 40% by 2012 and 80% by 2014; develop and disseminate IPC information, education and communication at healthcare facility and community level by 2011. **Aim:** To describe the main outcomes to date of the TB-IPC Programme, highlight key challenges, and identify recommendations toward further health systems strengthening.
Method: The presentation will draw on the operational findings of the TB-IPC Programme; reporting the primary and emerging secondary outcomes, and describing the key challenges. Grounded in the programmatic findings and contextual knowledge, recommendations toward continued strengthening of IPC in healthcare facilities will be proposed.
Results: Although only in its second year of sequential implementation, the TB-IPC Programme has resulted already in improved IPC. At organisational level, healthcare facilities reported the development of administrative and supportive structures, renewed training activities and enhanced practice. At personal level, healthcare workers reported improved knowledge, confidence and motivation both as practitioners and trainers.
Conclusion: There is a scent of good times ahead with the renewed concentration of the MoH on strengthening TB-IPC, with additional technical and financial support from collaborative partners. This collaboration serves as a catalyst toward improving generic IPC at all levels in Swaziland.

Scholarship abstracts | Occupational exposure to blood and body fluids

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Background: Health care workers (HCWs) may be exposed to the risk of infection with blood-borne viruses (BBVs) via contact with blood and other body fluids (BBF) in the course of their work. A range of interventions have been implemented to maximize HCW safety in high-income countries. However, these benefits are rarely available to HCWs in low-income countries where less is known about the risks associated with occupational exposure to blood and the risks are arguably greater due to sub-optimal infection control practices and higher prevalence of BBV diseases.

Objectives: To assess the frequency of exposure to BBF amongst HCWs of a tertiary care hospital and to determine the specific jobs leading to increased risk of exposure to BBF amongst HCWs in a tertiary care hospital.
Materials and Methods: A cross-sectional survey was conducted amongst HCWs involved in collecting blood samples and administering injections. Those HCWs working in labour room and OT were not included in the study as they form a different exposure category and hence need a separate study. Expecting the frequency of exposure to BBF during last year to be around 20%, alpha = 5% and a chance error = Â± 5%, the sample size worked out to be 219. Thus 230 HCWs were studied. They were selected by simple random sampling using a lottery system. A questionnaire was prepared based on the studies available and the WHO and CDC guidelines on Universal Precautions. The questionnaire was pre-tested. A database was created in MS Excel and appropriate statistical analysis was carried out using SPSS ver 12.0.
Results: 47% had an exposure to BBF during last one week. The most common site for BBF exposure was hands (87.88%). Majority had BBF exposure from once to five times (70.0%), while few of them (8.0%) had five to ten episodes and (2.0%) had more than ten exposures. However, 18.0% HCWs had more than ten episodes of BBF during past one year. An appreciable number of HCWs (31.0%) had an episode of NSI during past one week. Majority of them (59.0%) had on index finger while middle finger (18.0%), thumb (18.0%) and dorsum of hand (4.0%) were the other sites.
More than 50% of HCWs had at least one NSI during past three months, 34.0% had one while 21.0% had 2 to 5 episodes of NSI. None of the HCWs had more than five NSIs during last three months. However, during last one year, 11.0% had more than five, 32.0% two to five and 27.0% one episode of NSI. The difference between the three month and one year exposure to NSI was statistically significant (p=0.000, Fishers Exact).
Total episodes of BBF and NSI exposures occurring during the preceding three months and one year were calculated using the midpoint of the range for the response options. There were a total of 572 episodes of BBF exposure during past three months and 376 during past one year amongst 230 study participants. Using the figure of 1237 episodes during past one year, the incidence density works out to be 537.83 per 100 person years. There were 253 NSI episodes during past three months and 527 during past one year. The incidence density, using 160, works out to be 229.13 per 100 person years.
Conclusion: This study describes a high level of occupational exposure to blood and consequent risk of BBV infection amongst HCWs in a tertiary health care facility. It highlights the urgent need for interventions to enhance the occupational safety of workers. It is probable that a range of responses in addition to the promotion of Universal Precautions and the provision of safety equipment are required. A multifaceted approach involving initial and periodic training along with other correlates like provision of PPE is required. Active promotion of UPs and development of injury surveillance systems are also required.

Making Health Workers Safe in Nigeria

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Background: The baseline situation revealed unsafe injection practices and lack of policy framework exposes health workers to risk of contacting infections. The baseline, 2006 assessment showed that unsafe injection practices included 2 handed recapping after giving injections and non immediate disposal of used syringes/needles into

sharps boxes. These practices made health workers vulnerable to occupational exposures to blood borne pathogens such as HBV, HCV and HIV.
Method: Interventions for safe Injections were carried out to minimize the risks and create a safe environment in health facilities for patients and health workers including development of injection safety policy, health care waste management plan, norms and standards of Infection Control and job aids reinforcing injection safety best practices; and training of health care workers and waste handlers was done. Advocacy for provision of PEP and Hepatitis-B vaccination for health workers was conducted.
Results: Progress was made in ensuring safety of health workers and patients in target health facilities; two handed recapping improved by 56% (60% at baseline - 4% at follow up) and immediate sharp disposal of sharp waste by 41% (46% at baseline - 5% at follow-up). Needle stick injuries amongst health providers dropped from 19% at baseline to 7% at follow up for health care workers and 16% at baseline - 12% at follow-up for waste handlers. Hep-B vaccination for injection providers increased by 28% (52% at baseline - 70% at follow-up) and about half of health workers were provided with PEP after occupational needle stick injuries.
Conclusion: The interventions of Injection Safety evidently made progress in ensuring the safety of health workers and patients. This gain of a safe and healthy work environment for health workers should be sustained, political commitment and resources should be made to expand the interventions to the rest of the health facilities throughout Nigeria.

How long its take for reducing a residual bioburden on surface by H2O2 air disinfection

Authors: Hautemaniere alexis | Cunat Lisiane | Hartemann Philippe | Falculté de médecine de Nancy | France

Disinfection by air is sometimes performed after the presence of a patient with multidrug-resistant bacteria as an additional procedure after cleaning. Following the withdrawal of the formaldehyde molecule classified as carcinogenic by IARC, the use of H2O2 has shown its interest in reducing infections caused by environmental. The aim of this study is to test the microbiological results obtained by on the field. Material and method Temperature and humidity conditions bedroom before using H2O2 were respectively ranged between [19°C-24°C] and [45%-55%]. The aerosolization was realized with 13ml.m-3 of ASEPTANIOS HP 50 (5% H2O2, 5% ethanol). 13 samples were made by two technicians in bedroom in a geriatric ward. The swabs were placed in 5 ml of nutrient broth before being stored at 4°C for transportation. The nutrient broth ® (NF V 04-504) were sterile filtered through membranes of cellulose nitrate 0,45 micron (Sartorius ®), themselves deposited on agar media type CASO ® to count and identify micro-organisms present. The protocol requires several sessions to make measurements over time: Time -1 corresponds to the measurements before cleaning hospital, time 0 corresponds to the measurements made 45 minutes after biocleaning, after the swabbing realization of aerosolisation, time 1, 2 and 4 respectively correspond to measurements 1 hour , 2h and 4h after the aerosolisation. Results The cleaning meets its target because we observed a reduction of the bioburden of the surface portion : 148 UFC at T-1 and 34 UFC at T0. At T0 10 sites remains contaminated. After aerosolisation, the observed values show a marked decrease at T1 1.6 UFC for 6 contaminated sites (46%), T2 1.6 UFC for 4 contaminated sites (31%) and T4 0.6UFC for 3 contaminated sites (23%) conclusion This process useful in addition to generalized biocleaning in the presence of multi-resistant germs.

Addressing challenges to implementing tuberculosis infection control measures in primary healthcare clinics in Khayelitsha, South Africa

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Background: Tuberculosis infection control (IC) in healthcare facilities is an often neglected measure of TB prevention. Although numerous IC guidelines exist at national and international level, implementation remains challenging. TB IC is particularly relevant where TB and HIV services are, by necessity, integrated, such as in Khayelitsha. The high TB burden and the pilot programme for decentralized drug resistant TB treatment in Khayelitsha prompted the implementation of a range of TB IC measures in Khayelitsha primary care clinics.
Methods: Given the high rate of undiagnosed TB among all clinic clients, TB IC measures are implemented throughout clinics, not just in TB areas. These include: initial clinic assessments, the establishment of IC committees, health care worker training, customised information materials, measures to maximise natural ventilation and the provision of respirator masks for staff and paper masks for all clients in waiting areas.
Results: Despite extensive training and the formation of IC committees, there remains a general lack of responsibility taken for IC by staff. High patient load results in overburdened staff, who see IC as an additional burden. High staff turnover often results in a lack of awareness of IC measures and responsibilities. The high patient load and crowding also results in difficulties in implementation of administrative controls, such as changes to patient flow through clinics. Triaging or fast-tracking of symptomatic clients is also problematic - patients often fake a cough to avoid waiting and other patients complain when some patients are fast tracked. Patients and staff often close windows due to cold limiting natural ventilation. Both patients and staff are often unwilling to wear masks and respirators.
Conclusions: There is a clear need for universal IC measures in health services in South Africa. There remain, however, substantial barriers to full implementation of effective measures; which need focused, facility-specific interventions

Reaching the Communities with Injection Safety Intervention through Partnership

Authors: Abimbola Sowande [1], Iqbal Hossain [2], Olufunke Jibowu [1], Joshua Abu [3], Kalada Green [4], Isa Iyortim [4]
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Background: Injection safety 2004 qualitative assessment revealed; most people prefer injections to oral medications for various reasons although they recognized the risks involved in injection use. The preferred channels of communicating credible and acceptable health information was through Traditional and Religious Leaders, Health workers, Mass Media and organized community dialogues preferably by women focused groups. The study recommended community education initiatives on injection safety.
Method: A Community based behavioral change communication and advocacy strategy was developed with stakeholders, the focus at community level was Promotion of orals; safety of necessary injections and proper waste management. The specific interventions were Community dialogue, Interpersonal Communication and Mass Media.

The National Orientation Agency (NOA) with a, proven record on community mobilization with partners was partnered with. Community opinion leaders and gate keepers were educated on issues of IS and HCWM: then information was shared with other community members through these leaders. Radio messages reinforce the community dialogue activities.
Results: Partnership with NOA has resulted in greater spread and wider reach of the community. Many community members interviewed recently now prefer orals to injectables based on the information they got from the radio messages and community dialogue, and if they had to take an injection, they would check that it is a new syringe. This complements the AIDSTAR One intervention among health care workers.
Conclusion: Successful public health intervention involving the community is cost effective promotes sustainability and behavioral change

African Partnerships for Patient Safety A common patient safety platform for action to enhance infection prevention and control at the front line

Didier Pittet, Expert Lead, African Partnerships for Patient Safety
Julie Storr, Project Manager; African Partnerships for Patient Safety in England
Joyce Hightower, Project Manager; African Partnerships for Patient Safety in Africa
Nelson Msiska, APPS Lead, Kamuzu Central Hospital, Lilongwe, Malawi

1. **Working for safer health care…together - Didier Pittet**
   Objectives:
1. Introduce delegates to WHO's African Partnerships for Patient Safety (APPS) Programme, with its core objectives of partnership development, patient safety improvements and catalyzing the spread of improvement across countries and regions.
2. Explain the rationale for placing prevention and control of health care associated infection as a common platform of activity

2. **Key programme resources - Julie Storr**
   Objectives:
1. Provide an outline of three key APPS resources with potential widespread utility:
   - APPS Patient Safety Situational Analysis Guide
   - APPS Resource Map
   - APPS Evaluation Framework
2. Explore the possible synergies, common objectives and future methods of working between African Partnerships for Patient Safety and IPCAN.

3. **Working across the African Continent**
   Objectives:
1. Outline findings from the baseline patient safety situational analyses conducted across the six first wave APPS hospitals.
2. Outline implementation activities around the prevention of health care-associated infection and other patient safety areas.

4. Kamuzu Central Hospital & James Cook University Hospital...the story so far - Nelson Msiska

Objectives:

1. Provide details of APPS planning and implementation in a specific hospital to hospital partnership.
2. Describe how APPS activities has affected the patient safety landscape at the hospital and national levels.

Starting with basics in IPC – Standard Precautions and PPE

Carol Goldman, BScN, CIC, IFIC Secretary, Toronto Canada
Anne Bialachowski, RN, BN, MS, CIC, CHICA-Canada President, Dundas Canada
Gayle Gilmore, RN, MA, MIS, CIC, IFIC trustee, Duluth USA

What is Standard about Precautions: Presented by Carol Goldman

At the end of the session the delegate will be able to:

- List the principles needed to achieve safe infection control standards and precautions
- List and describe the elements in the transmission of microorganisms

The how and why of choosing proper precautions: Presented by Anne Bialachowski

At the end of the session the delegate will be able to:

- Define the concepts and applications of Standard Precautions
- List the elements for Standard Precautions

The when and which of proper mask use- Presented by Gayle Gilmore

At the end of the session the delegate will be able to:

- List the barriers and enablers that affect compliance with Standard Precautions
- Describe the use, the indications for and the correct outfitting and removing of personal protective equipment for the protection of the client/patient/resident or the staff member unattainable.

Electronic Surveillance: The Pros and Cons

Briëtte du Toit | B. Nursing (US),RN, RM, RPN, RCN, Dipl Nursing Admin (US), Cert. in Wound care (Univ Hertfordshire), PGDIPC (US) | Clinical Governance Specialist | Medi-Clinic Southern Africa | South Africa

The prevention of Healthcare Associated Infections (HAI) is a critial aspect in the rendering of safe patient care. The demands placed on Infection Control Practitioners to prevent the spread of antibiotic resistant organisms and infections within the healthcare facilities are thus high. The reality is that the administrative burden often prevents them from being able to be more visible and accessible in the nursing units.

Surveillance requires the collection of large amounts of data, but what do we do with the data that is generated?

The benefit of an electronic surveillance system is that it assists with the interpretation and analysis of data. This leads to rapid identification of outbreaks, timeous isolation of patients with resistant organisms and reduces the time spent on surveillance and administrative tasks.

Although the advantages far outweigh the disadvantages, there are potential hurdles, such as the cost of implementation, computer literacy of the users, speed of applications and the accommodation of multiple laboratories.

However, if one considers the time and effort alone that is spend on administrative tasks, then it cannot be compared to a laborious manual system. An electronic surveillance application is an important tool that does not replace the ability to identify and prevent infections, but rather enhances it.

Surgical site infection: size of the problem, surveillance and solutions

Jennie Wilson, Deputy Director, Infection Prevention & Control, Imperial College Healthcare NHS Trust and Consultant to SSI Surveillance Service, Health Protection Agency

Surgical site infection (SSI) account for at least 15% of healthcare associated infection. The costs of SSI can be measured both in terms of direct costs to the hospital due to extended length of stay and treatment, and in terms of morbidity and mortality that affects the patient, primary care providers and the wider society. The value of infection control interventions need to be considered in relation to the wider cost-benefit of preventing SSI. The risk of a patient developing an SSI is influenced by a number of intrinsic and extrinsic factors including the type of surgery, age and underlying illness of the patient, the skill of the surgeon and the application of infection prevention procedures. Guidelines on preventing SSI have been published although data from good quality controlled trials is rarely available.

Surveillance of healthcare associated infection has been recognised as key to providing indicators of infection control and targeting prevention strategies. In recent years there has been a drive in many countries to establish compulsory surveillance systems with the aim of benchmarking hospitals and making information of rates of HCAI more readily available to patients. There is evidence that such national systems for the surveillance of SSI have a positive effect in driving down rates of infection over time. However, if they are to influence improvements in practice they require robust systems for identifying hospitals with high rates and, with moves to reduce expensive hospital stays, need to incorporate methods of measuring the occurrence of SSI that do not become apparent until after discharge from hospital.

Keeping patients safe through 'quick and easy' utilization of evidence based information – NRIC 5 years on

Authors: Patty Kostkova | City eHealth Research Centre (CeRC), City University London | UK
Sue Wiseman | City eHealth Research Centre/Department of Health | UK
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In the past we were guided by diverse expert opinion and ritual but now recognise best evidence by systematically searching for it, appraising its methodological quality and assessing its clinical relevance. Identifying evidence, incorporating it into everyday clinical practice is an essential component in preventing healthcare associated infection but barriers to this are lack of time and knowing where to find the latest publications and policy documents. The answer is the Internet. This presentation will summarize the success and main features of the National Resource for Infection Control portal NRIC (www.nric.org.uk), a single access point to quality assured, latest evidence on

prevention and control of infection, and demonstrate how easy it is to find this evidence on which to base infection prevention and control practice in an effort to keep patients safe. Evaluation using qualitative (semi-structured interviews) and quantitative methods (web server logs and searches) during the 5 years since NRIC's inception demonstrates rising numbers in our user community and a clear need for the provision of such a resource. This data will be presented In addition to an online resource, busy professionals require updates on new documents and guidelines to be delivered in the most seamless way. We meet this need, by: - 1.An eNewsletter service summarising additions to the portals, upcoming conferences. Over 2500 professionals now subscribe to this very popular service with numbers growing. 2.National and International Knowledge Updates - these aim to provide busy healthcare professionals with quick and easily accessible up-to-date knowledge on a chosen subject e.g. WHO's International hand hygiene day and Infection Prevention Week 3.Promotion and workshops at national and international conferences to reach a broad spectrum of healthcare professionals 4.NRIC Page on Facebook – a new media to attract those of you who want to be kept up-to-date on the run.

International Findings Regarding the Role of Copper in Reducing Hospital Environment Contamination

Professor T S J Elliott | BM BS BMedSc PhD DSc MRCP FRCPath

Copper was shown in laboratory studies to be active against a wide range of microorganisms which can cause infection. A clinical evaluation of copper was undertaken on a busy medical ward at University Hospitals Birmingham NHS Foundation Trust. Three copper-containing items were evaluated – toilet seats, tap handles and door push plates and compared to standard control items. The copper containing items were associated with a significant decrease in microbial contamination. A more extensive clinical evaluation of 15 items used in the clinical environment has been subsequently undertaken during a 6 month period. This has included items ranging from light switches to pull cords. The preliminary results of this study show again the antimicrobial activity of copper in a busy clinical environment. The use of copper as a material for various hospital items may offer an additional mechanism to control the potential spread of infection.

Antimicrobial efficacy of copper touch surfaces in a South African community healthcare facility

Dr Frederick Marais, Prof Shaheen Mehtar, Dr Lynda Chalkley, Academic Unit for Infection Prevention and Control, Faculty of Health Sciences, Stellenbosch University, Cape Town, South Africa Health Sciences, Stellenbosch University, Cape Town, South Africa

Background: A comparative controlled study was undertaken to further laboratory findings and demonstrate antimicrobial activity of copper touch surfaces in reducing environmental bioburden in a South African community healthcare facility. **Method:** The study was conducted at a busy primary healthcare clinic (PHC) in Grabouw, a rural region of the Western Cape Province, South Africa. Two similar consulting rooms were chosen next to each other in the same PHC. The study room was fitted with copper sheets (BS 2870, Alloy C101: 99.9% pure copper) on selected touch services, the control room remained with its original standard material surfaces (wood, stainless steel and tiles). Sampling sites were allocated across five touch surfaces with an identical template for both rooms. Samples were collected by the same person for four and

a half days every six weeks over a six month period to reflect any effect of seasonal variation during the study. Records were kept of the room temperature at each sampling point, patient numbers and type of consultations, and the cleaning methods used in both rooms. Data analysis was performed by a statistician, using repeat measures analysis of variance over time with a 5% significance level as guideline for determining significant differences.
Results: The cleaning of both rooms was similar and the number and type of patient consultations and room temperatures were also comparable. Irrespective of climate, temperature and sampling sites, the copper surfaces consistently yielded a lower total colony count compared with the control sites. The overall mean total colony count was 5.9 x104 cfu/dm2 for copper compared with 2.0 x105 cfu/dm2 for control surfaces, which marked a 71% reduction. Significantly lower mean total colony counts ($p<0.001$) for all copper surfaces were evident. Copper surfaces were seen to exhibit lower total counts than control surfaces during the working day and overnight. It was only over weekend periods (71 h) when the clinic was closed and microbial loading markedly reduced that persister survival was comparable. Compared with control sites, an apparent antimicrobial effect of copper was observed against presumptive gram positive cocci, coliforms and B-haemolytic organisms. Activity of copper against fungi and Bacillus sp. were inconclusive.
Conclusion: The study showed that the antimicrobial activity of copper touch surfaces reduced environmental bioburden in the healthcare environment to a far greater extent than standard materials, and suggests its potential application as an effective addition to the existing infection prevention and control armamentarium. The encouraging beneficial antimicrobial effect of copper touch surfaces, and potential wider application in healthcare facilities, require further studies for microbiological assurances.

The African Health Care Initiative –supporting sustainable rural health care

Authors: Grant Mackintosh Project Director, CDA Africa, South Africa | Alistair Drummond Project Architect, CDA Africa, South Africa | Malesela Letsoalo, Director, Palabora Foundation, South Africa

CDA Africa's African Health Care Initiative (AHCI) is an African driven, internationally supported, multi-partner program seeking to make a significant contribution towards ensuring effective and sustainable rural health care clinics across Africa through the use of an outcomes based aid approach. The sustainability status of rural health care centres is considered in terms of each of the six legs of sustainable health care; namely Clean and Safe Water, Reliable Energy, Health Care Infection Prevention & Control, Local Economic Development, Information Management, and "Train the Trainer" based local skills development.

The AHCI proactively harnesses the proven natural anti-microbial efficacy of copper for use at rural health care centres, and supports and promotes the regional development, manufacture and usage of anti-microbial copper items within the public health care arena. Clinics can serve as the electric and water utilities of the health care clinics associated villages, and support local economic development in the area. This presentation gives feedback on key areas of progress of the African Health Care Initiative, including the local development and installation of anti-microbial fittings and fixtures, with a focus on progress in the Limpopo Province, South Africa.

Practical experiences arising from design of a rural health care centre

Udie Soko, Manager, CDA Africa, Zambia
Webster Kabuba, Manager, Copperbelt Development Foundation, Zambia
Grant Mackintosh, Project Director, CDA Africa, South Africa

An estimated 70,000 rural African health care clinics are severely compromised in the delivery of primary health care services by the lack of electric power (estimated 50%), lack of clean water (estimated 40%), inadequate infection control (probably 100%) and lack of local economic involvement.

Zambia has a rural population of about 8 million out of a total population of some 12 million (2008), ie 64% of the population is rural and receives health care through rural health care centres (RHC). Many of these RHC's are challenged in the delivery of primary health care services by the aforementioned criteria of inadequate energy, clean water, appropriate sanitation, and inadequate infection control.

Zambia is synonymous with copper, being Africa's largest copper producer and one of the world's leading copper producer, and hence the opportunity to harness the inherent characteristics of copper as regards safe drinking-water provision (copper naturally disinfects drinking water), energy (copper conveys electricity) and infection prevention and control (copper is the world's only proven naturally antimicrobial metal), and grow skills and local economic development in these areas, holds substantial interest and potential for Zambia.

This presentation gives feedback on the practical considerations and developments regarding a collaborative initiative between CDA Africa, the Copperbelt Development Foundation (CDF) and the Zambian Ministry of Health at Mulungushi Clinic, Mumbwa District which seeks to harness the naturally antimicrobial nature of copper.

Cape Town Measles Epidemic: Scoring an own goal:

Heather Finlayson | Senior Specialist Paediatric Emergency and Ambulatory care, Tygerberg Hospital and Stellenbosch University, Cape Town South Africa

Measles vaccination was introduced into the South African EPI in 1975, with a booster dose being introduced in 1995. Despite this intermittent outbreaks have continued to occur. The measles epidemic which occurred in Gauteng in 2009 rapidly spread to the Western Cape in early 2010. Despite reported high measles vaccine coverage rates in the Western Cape, increasing numbers of infected patients were seen. At the beginning of March 2010 two dedicated measles wards were opened in the Cape Metro to care for complicated measles cases in children. Over 900 children with measles were seen at Tygerberg Hospital (TBH) over a 4 month period.
Isolation facilities at TBH are limited and the measles epidemic brought about new challenges in controlling the spread of infection. Vaccination of staff and contacts of measles cases was a priority. However access to vaccine was at times limited.

In May 2010 the National measles vaccine campaign was launched. This aimed to vaccinate all children between the ages of 6months and 15 years. Numbers of cases dropped rapidly 2 weeks following the campaign. However children under 6 months of age continued to be infected with an associated high complication rate.
The 2010 Measles epidemic has highlighted multiple gaps in the Healthcare system amongst others the EPI programme and lack of isolation and intensive care facilities for children. The increased incidence in children under 6 months of age suggest low maternal antibody level in the community, this deserves further investigation.

Giving Africa your best shot

Albie de Frey, UCT, RSA

Travel health is often viewed as a splinter discipline of mainstream medicine aimed at taking expensive care of the privileged few that travel, often administering 'unnecessary' vaccines. This in stark contrast to the dire public health needs of the masses in Developing countries who struggle to afford adequate vaccine coverage for their populations. The presenter presents a case for closer cooperation between public and travel health practitioners to achieve the Holy Grail of evidence based medicine for both travellers and the residents of so called 'host countries'. Two case studies demonstrate the situation: 'Malaria' / Hepatitis A in Liberia and 'Typhoid' in Sierra Leone. What are the real risks to the local vs traveller populations in those countries and what are the benefits of vaccines that provide respectively 95% and 75% protection? What are the practical implications in either group? Does a vaccine that provides less than 95% cover provide ANY benefit where the borders between the practice of main stream 'Western' and Juju Medicine and blurred?

Tuberculosis Vaccines

Willem Hanekom | South African Tuberculosis Vaccine Initiative, University of Cape Town

A new, effective vaccination strategy is likely to constitute the most sustainable intervention in the world-wide TB epidemic.
The current TB vaccine, BCG, protects children against severe forms of the disease; protection against lung disease, at all ages, is variable. Optimal vaccination strategies should prevent both primary disease and progression to TB disease after latent M. tuberculosis infection has been established.
New strategies involve modifying BCG or even M. tuberculosis to become safe and effective "prime" vaccines. Immunity induced by these vaccines will be enhanced by giving a second "boost" vaccine. The latter vaccines contain antigens of BCG and M. tuberculosis, carried within viral vectors, or administered with an adjuvant that induces T cell immunity important for protection.
To date, twelve new TB vaccines have been tested in humans. Most vaccines are in very early phases, and have shown excellent safety and immunogenicity. The most advanced product is currently in an early efficacy trail (phase IIb), in infants from the Worcester region.
These new vaccines, progress toward better vaccination strategies, and significant barriers, will be reviewed.

Around the world in 60 minutes: Emerging Global Issues in Infection Prevention and Control

A/Prof Cath Murphy PhD, CIC. Clinical Nurse Consultant – Infection Control, Robina Hospital, Gold Coast Health Service District, Queensland, Australia

All around the world prevention and reduction of healthcare associated infections (HAIs) is undergoing a resurgence. Levels of media, public, business and political engagement in HAI prevention and reduction in the developed world are unprecedented. Regardless, achieving fewer HAIs is elusive. In many clinical settings in developing nations the concept of zero HAIs is a distant and seemingly unattainable, audacious goal thought to be the ambitious product of large, well resourced nations.
Some may find it surprising, others not, that the incidence and impact of HAIs in countries with mature infection prevention infrastructure and well developed infection prevention workforces are devastating. Regardless of our individual setting, our will, our expertise and knowledge of effective clinical, technological and behavioural interventions, achieving zero HAIs always seems to be beyond the grasp of our profession. While many HAIs are elusive in terms of elimination because the relevant science and technologies are yet to develop, in an increasing number of infection types and settings the science does allow us to get to zero – and if not sustain it indefinitely, reach far lower levels than ever imagined.

Maintaining momentum and focussing collective efforts towards the ultimate goal of zero HAIs globally is a formidable challenge. It is not the first time our profession has faced formidable challenges, challenges that cause us to deeply self reflect and evaluate our professional norms. Achieving zero HAIs, or at least cultivating the concept and growing acceptance of it will not be our last. It is however our greatest challenge and most importantly its time is now. The purpose of this presentation is to inspire and ignite infection preventionists and their respective professional bodies around the globe to assert their individual and collective knowledge, skill and passions to make zero HAIs tomorrow's reality.

General wards and areas – basics

Walter Popp | Hospital Hygiene, University Clinics Essen, Essen, Germany

A short introduction is given to the existing recommendation of IFIC SIG "Construction, Design and Renovation" for a general ward. Special attention is given to the topics sanitary situation, food and kitchen hygiene, cleaning, clean working areas, storing of medical devices, bedpans and bedpan washers, hand hygiene, clean bed linen and waste management. A lot of pictures will give examples for good and bad practice.**The state of the newborn nation**

Dr Natasha R Rhoda | Senior Consultant neonatologist, Groote Schuur Hospital | Cape Town, RSA

This is not a research study but a presentation on the health of South Africa's newborns circa 2010 and what progress we have made towards achieving MDG 4.

Hospital design and infection control: Design of isolation areas

Peter Hoffman, Consultant Clinical Scientist, Laboratory of Healthcare-associated Infection, Health Protection Agency, London, UK

The main impact of hospital design on transmission of infection is to facilitate behavioural aspects of staff and to reinforce their stringent infection control procedures. In a few situations, design parameters such as specialist ventilation can also have a direct contribution to infection control. This introductory talk to the workshop will examine infection transmission mechanisms and, derived from those, outline the different strategies that can be used to prevent transmission of infectious disease in a variety of situations.

Throughout this workshop, presenters will welcome participation from attendees to help bridge the gap between theoretical guidance and measures that can be taken within locally existing economic constraints to make a real difference when designing hospitals.

A Kingdom lost for want of a glove: the neglect of infection control in safe motherhood

Mary Catlin BSN, BA, MPH, Chair IFIC Small Interest Group on Safe Childbirth.

Rates of maternal and neonatal deaths remain unacceptably high in most countries. When pregnant women overcome their many hurdles to reach healthcare, infection preventionists can ensure that the healthcare they receive is safe. Unfortunately, the quality of infection control for perinatal services is often lower than the quality of care for male health services of comparable complexity. The speaker will discuss the advantages of using perinatal services to judge the quality of infection control in a facility. The areas to monitor include the use of: transfusions, PPE for midwives, indications for episiotomies, hepatitis B vaccine, vaginal antiseptics, active management of labor, C section infection rate, neonatal sepsis rate, "kangarooing", suction with reprocessed devices, post partum contraception including long acting reversible contraceptives, phlebotomy practices, hand hygiene for patients, multi-dose vials in anesthesia, IV preparation and use, sterilization of shared equipment including specula, environmental cleaning that is safe for neonates, HIV rapid tests, and management of medical waste including placentas. Collaboration with funded innovations in safe motherhood will be discussed.

10 Cases of Unusual HIV Transmission at Tygerberg Children's Hospital - Update post 2004

Amy Slogrove (Pediatrician, South to South, Stellenbosch University, Cape Town, South Africa)
Helena Rabie (Pediatric Infectious Disease Specialist, Tygerberg Children's Hospital and Stellenbosch University, Cape Town, South Africa)
Mark Cotton (Professor and Head of Pediatric Infectious Disease Unit, Tygerberg Children's Hospital and Stellenbosch University, Cape Town, South Africa)

Introduction: Pediatric HIV infection is understood to result from vertical transmission from an HIV infected mother to her child either in utero, intrapartum or postnatally via breastfeeding. However, infection via non-vertical routes although the minority, do occur.

Methodology: A descriptive review of 10 children with non-vertical HIV-infection identified at the Tygerberg Hospital Family HIV clinic.
Results: The parents of 9 of the 10 children were confirmed to be HIV-uninfected. One child was HIV-exposed but confirmed uninfected on two virological assays prior to 6 months of age, and subsequently found to be HIV-infected. Median age at diagnosis of HIV was 66 months. Eight children presented with WHO stage 3 conditions and 1 each were WHO stage 2 and 4 at presentation. HIV-infected blood product transfusion and sexual abuse were excluded in all. Eight of the 10 children had previous hospital admissions at 7 different hospitals. Three were admitted during the neonatal period, 2 of these to neonatal intensive care units. Two children received surrogate breastfeeding during infancy and one premasticated food from an HIV-infected contact. Severe morbidity was experience.
Discussion: Community and hospital risk factors for non-vertical modes of HIV transmission, although rare, are recognised require further study and consideration.

Influence of pre- mastication on blood borne virus transmission

ER Maritz [1], M Kidd [2], MF Cotton [1],
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Background: There are few data on feeding pre-masticated food to weaning infants. This practice is associated with transmission of various pathogens such as Hepatitis B and, most recently, HIV.
We investigated the frequency of pre-mastication, to receive unbiased information, unlinked to HIV transmission.
Methods: A questionnaire was designed measuring the prevalence of pre-mastication among a randomly chosen sample of infant caregivers, interviewed at public paediatric/ HIV outpatient clinics and home visits.
Results: 154 caregivers were interviewed, 99% female. Median age: 29 years. 108(70%) were black, 44(29%) coloured, 1(1%) white. Reasons for pre-mastication were to: pre-taste (64/68%), encourage infant (65/61%), estimate temperature(90/85%) and homogenize food (64/60%).
Pre-mastication is a common practice among caregivers (106/69%). Caregivers pre-chewed food for their infants daily, some meals (34%), every meal (40%).
The infants received pre-chewed food at a median age of 6 months (IQR 4-6).
80/75% Pre-chewing caregivers gave food from their own plate vs non-pre-chewing caregivers (3/6%; OR: 46.1, 95% CI 18-118, p< 0.01).
Teething (43%) and oral mucosal lesions (42%) were present in infants given pre-chewed food.
55/52% Caregivers reported an oral condition, mostly dental problems, bleeding gums and mouth sores during pre-mastication.
Blood was reported in pre-chewed food (39%), strongly related to caregiver's oral condition (OR 211, 95% CI 68-657,p< 0.01).
Pre-masticating caregivers had a significantly lower educational level (p= 0.01).
Conclusions: We have documented extensive practice of pre-mastication in a single area.
More data are needed. It is likely to be common elsewhere. Counseling of HIV+ caregivers should include advice avoiding pre-mastication and seeking care for oral conditions.

Scholarship abstracts | Impact of rotaviral gastroenteritis outbreaks on nosocomial sepsis rates in a neonatal unit

Dr Riezaah Abrahams | 57 Aries Road, Surrey Estate , Athlone | Cape Town , 7764 | South Africa

Background: Outbreaks of infectious diseases can lead to a secondary increase in nosocomial infections as a result of overcrowding, staff shortages and prolonged hospitalization.
Aim: To describe the spectrum of bacterial pathogens and to determine the rate of nosocomial bloodstream infections isolated in a neonatal unit, prior to and during two separate outbreaks of rotaviral gastroenteritis.
Methods: All positive blood culture results for specified bacterial alert organisms were obtained from the Unit for Infection Prevention and Control (UIPC) database for four 3 month time periods: during each outbreak of rotaviral gastroenteritis and for the corresponding period one year prior to the outbreaks.
Results: The most prevalent bacterial pathogen isolated during all control and rotaviral outbreak periods was Klebsiella pneumoniae, with predominantly extended spectrum B-lactamase producing (ESBL) strains. (46/65; 71%) Methicillin-resistant Staphylococcus aureus (MRSA), although a major nosocomial pathogen during the first control period, was eradicated prior to the second rotaviral outbreak. Pseudomonas aeruginosa, Acinetobacter baumanni, Serratia marcesens and Enterobacter cloacae made up the remainder of nosocomial bloodstream infections. Nosocomial sepsis rates were similar during the control periods and the rotaviral gastroenteritis outbreak periods (4.9 versus 5.1 episodes per 1000 patient-days). However, the proportion of nosocomial infections due to Klebsiella pneumonia increased significantly during the rotaviral gastroenteritis outbreak periods, whilst other bacterial isolates declined.(p= 0.0001) Rates of Klebsiella sepsis increased significantly from 1.6 to 3.4 episodes per 1000 patient-days during the control versus the rotaviral outbreak periods. Conversely, all other blood culture isolates declined from 3.3 to 1.7 episodes per 1000 patient-days.
Conclusions: Despite heightened awareness and increased compliance with infection prevention and control (IPC) measures during both rotaviral gastroenteritis outbreak periods, overall sepsis rates in the neonatal unit remained unchanged. However, the proportional representation of pathogens changed significantly during the rotaviral outbreaks, with rates of Klebsiella pneumonia sepsis increasing while that of other nosocomial pathogens declined. It is unclear what factors were responsible for this trend, but we postulate that increased environmental contamination occurred through enteric shedding of Klebsiella pneumonia organisms. Although IPC precautions resulted in containment of both rotaviral gastroenteritis outbreaks, they did not prevent a subsequent increase in nosocomial Klebsiella pneumonia sepsis rates.

Scholarship abstracts | Surgical Site Infection and risk factors in Ile-Ife, Nigeria

Dr. Anthony Onipede | Department of Medical Microbiology & Parasitology, Fac. of Basic Med. Sciences, College of Health Sciences, Obafemi Awolowo University | Ile-Ife, Osun State | Nigeria

Introduction/Aims: The study determined the incidence of surgical site infections (SSI) and identified the pattern of causative organisms cum risk factors. It also assessed the nursing practices and procedures that may impact on the onset of SSI.
Methods: The study employed a surveillance data sheet on surgical site infections to collect relevant information from 96 adult patients of Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Nigeria. The patients were monitored from admission until discharged and for 30days post surgery, using the CDC/WHO criteria for determining SSIs. A self-administered questionnaire and an observational checklist on infection control practices was used to extract relevant

data on practices and procedures from nurses and doctors involved in the management of the patients. Data collection lasted 4months. Data collected were analyzed using descriptive and inferential statistics.
Results: The study showed that 21% (20) of the 96 patients studied had SSI. Bacteriological confirmation was possible only in 10 (50%) with Klebseilla spp (6) being the most (60%) commonly isolated organisms followed by Staphylococcus aureus 2 (20%) while Psedomonas spp and Proteus spp were 1 (10%) each. The organisms were mostly sensitive to ceftriazone sodium and amoxicillin/clavulanate potassium antibiotics. The study also established that pre-operative hospitalization (x2 7.342; p=0.025, wound class (x2 9.858 p=0.020) NNIS risk index x214.450; p=0.002 antibiotics prophylaxis (x28.557; p=0.014) and post operative hospitalization (x29.814; p=0.007 were significantly associated with the incidence of surgical site infections. However, age (x2 2.997; p=0.392) gender (x20.508; p=0.476) duration of surgery (x2 1.478; p=0.224) type of surgical procedure (x2,35.730;p=0.076) American Society of Anaesthesiology (ASA) score x2,1.136; p=0.768) pre-existing health status (x2,1.813; p=0.404) pack cell volume x2,0.324; p=0.658) duration of antibiotic administration (x2,7.451 p=0.114), presence of wound drains (x2,1.547; p= 0.214) and its removal (x2 0.144; p= 0.568) were of no significance to the occurrence of surgical site infection. Although 49% of Nurses and 54% of doctors that responded to the questionnaire were somewhat satisfied with the hand hygiene practices as well as the hand hygiene materials currently used, data from this study showed that the overall compliance rate (51%) of nurses to infection control practices can be improved upon.
Conclusions: The study concluded that appropriate training, seminars and refresher courses for all cadres of health care providers on infection control and preventions are imperative in our hospital to reduce the incidence of surgical site infections and prevent other health-care related infections.

Scholarship abstracts | From There to Here and Staying Here

Introduction:
Concerns about the cleanliness of Irish hospitals have attracted much attention in recent years. Poor standards of cleanliness have and will continue to compromise patient health and safety (Malik et al 2003)
In July 2008, the Infection Control Team in Cherry Orchard Hospital (COH) conducted a hygiene audit of our healthcare facility. COH is a 260 bed, long term care hospital. The audit was executed using The Baseline Primary Care & Continuing Care (PCCC) Hygiene Services Audit Tool, 2008 The result of this audit (collective audit score for the hospital 65 %) showed that cleaning of the environment and in particular patient care equipment was inadequate.
Interventions:
The results of this audit were presented to the COH Infection Control Committee in August 2008. The responsibility for the poor hygiene practices was placed with Ward Managers and the Household Supervisor. The audit team made 21 organisational/structural interventions and recommendations, which Senior Management within the hospital took responsibility for implementing, among these were;

- A mandatory education day for all Ward Managers (CNM11 and CNM1) was organised. Additionally, CNM 1's were drafted in as Link Nurses for Infection Control (IC). These interventions received complete support from senior Nurse Management and the COH education coordinator .
- A series of education days in IC standards and environmental hygiene for all ward staff were arranged.
- Training was to be audited to highlight non-attendees.
- Two education days were arranged for agency staff from healthcare agencies supplying staff to our hospital.

- Cleaning schedules with sign off sheets for patient care equipment and the environment were established
- A comprehensive list of maintenance work requiring attention was produced and implementation was overseen by an Infection Control Sub-committee.
- A core inspection team The Hit Squad was set up to visit wards unannounced. This team consisted of the IC Nurse, an Assistant Director of Nursing, the Household Supervisor and "An Other" (alternating Ward Managers). A shortened audit tool comprising 14 general questions on environmental/hand hygiene was employed. These "mini audits" take approximately 45minute to conduct and the team visit one ward per week.
- A recommendation to re audit the hospital within six months was made.

Results:

The requirement to re audit ourselves in six months was overtaken when a Health Service Executive sponsored external audit team arrived on campus, to conduct an IC audit in December 2008. The overall audit score from this external audit was 97% (individual wards scoring between 92% and 100%).

The Hit Squad visits in conjunction with increased ward inspections from Senior Nurse Management, the Household Supervisor and the Infection Control Nurse has to date maintained impressively high audit scores of 95-97%.

In conclusion

Mandatory education which had good management patronage was implemented without protestation. This important intervention along with a high Infection Control presence on wards and peer pressure achieved the seemingly unattainable.

Surveillance for Surgical Site Infections in Thika Hospital, Kenya

Dr Alex Aiken | KEMRI-Wellcome Trust | Kenya

Hospital-acquired infections (HAI) are of considerable importance in well-resourced healthcare settings and are likely to be of even greater importance among hospitals in low-income countries such as Kenya but they have received relatively little attention. Information about the incidence, impact and risk factors for HAI in in low-income countries is scarce. Surgical Site Infections (SSI) are amongst the most common forms of HAI and are often reported as being very common in low-income settings. Methods for stratifying risk of SSI between different surgical procedures are needed to allow appropriate comparison between or within institutions or individual surgeons. The NNIS Risk Index system as developed by the CDC/NHNS may be a suitable method for use in low-income countries, but it has rarely been used in Hospitals in African countries and never previously used in Kenya. Surveillance for SSI was established at Thika Hospital, Kenya in May 2010 with a view to informing local and Ministry of Medical Services policy. This surveillance work should provide a basis for the development of surveillance and infection control measures for SSI in hospitals across Kenya. This presentation will give results of "Surveillance in progress" including the challenges to establishment of such Surveillance systems in low-income settings.

Healthcare associated infections surveillance in Kenyan hospitals

Authors: Iinus Ndegwa | Mark Katz | CDC | Kenya
Zipporah Nganga | JKUAT | Kenya
Martin Kollman | UON | Kenya
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Healthcare-associated infections (HAIs) are an important cause of morbidity and mortality worldwide. However, there are sparse data on HAIs in developing countries. As part of an initiative to build infection control capacity, CDC-Kenya and the Kenyan Ministry of Health initiated surveillance for HAIs at 2 public hospitals in late 2009: a national referral hospital, and a district hospital. Patient crowding and high prevalence of respiratory illnesses at admission have made respiratory healthcare-associated infections (RHAIs) a concern for Kenyan hospitals. Objective: To document RHAIs occurring on selected wards in Kenyan hospitals, and to assess the burden of viral RHAIs. The following wards were surveyed pediatric, adult general, surgical, and specialty for HAIs. Patients admitted to the hospital for >3 calendar days who developed new onset of fever or hypothermia (>38°C or <35°C) were considered suspected HAI cases. Suspected HAI cases who also developed new onset of cough or sore throat >3 calendar days after admission were considered to have HARI; nasopharyngeal and oropharyngeal samples were collected from these patients,and tested by RT-PCR for influenza A and B, adenovirus, respiratory syncytial virus, human metapneumovirus, and parainfluenza virus 1, 2 and 3. Specimens positive for influenza A were sub typed by RT-PCR. From September 1-November 30, 2009, 64 patients met the case definition for RHAIs; The median time patients were in the hospital before onset of RHAIs was 10 days (range: 4-287 days). These infections were identified on pediatric wards [28 (44%)], specialty wards [31(48%)], and medical adult wards [5 (8%)]). The most commonly identified viruses were parainfluenza virus [10(16%)] and RSV [10(16%)], and11 (18%) patients with RHAIs were infected with more than one pathogen. Of the 9 influenza A infections, 4 were pandemic 2009 H1N1. RHAIs have been documented in Kenyan hospitals, and at least one-third were associated with viruses, including pH1N1.

Implementing IPC in developing countries – global experience South America

Pola Brenner

There are more than 10.000 hospitals in Latin American countries including South America, Central America and Mexico. The development of Infection Control Programs has been different in each country. In general in South America, most of the countries have an organization and national regulation in Infection Control in Central America the regulation is very few. The proportion of hospitals with Infection Control varies from 20% to 100% of the hospitals depending on the country.

During the presentation we will discuss a recent research among hospitals in the region in which is possible to realize that the main problems in IC in the region are lack of isolation facilities, lack of concern among authorities, rival ties among epidemiologist and infectologist, lack of team work, big differences among hospitals lack of priorities and lack of education strategy in IC

The main difficulties in the implementation of IC Program have been lack of human resources, lack of national programs and lack of accurate data of national diagnosis. All the countries have some instances of education in IC but are not standardized or formal.

Very few countries have evaluated the impact of the program in terms of practice compliance or infection reduction on the other side, there is very little information available regarding structural components like sterilization, isolation or facilities for Hand hygiene

The main challenges in the implementation of ICP in Latin American countries are to have standardized education programs for health care personnel, national data in every country, permanent team work in charge of IP in each country, specific and permanent budget for the program and systematic evaluation of practices and strategies.

There have been some initiatives in Latin American countries in the development of networking and common strategies with good results that should be adopted in the future to face the IC programs in the region. Some of them have been leaded by PAHO like "Rapid Guide to Evaluate IC Programs", "Protocol to study cost of NI", "Diagnosis of antimicrobial resistance" and "Quality of Microbiology Lab" and other leaded by University of Valparaiso (Magister, Cinela Project).

The infection control audit: Global Sharing and Taking it to the Next Generation

Authors: Elizabeth Bryce Vancouver Coastal Health Authority | Canada
Lyndsay O'Hara | University of British Columbia | Canada
Letshego Nophale | University of the Free State | South Africa
Marthinus Schoon | Pelonomi Hospital | South Africa
Annalee Yassi | University of British Columbia | Canada
M. Finger | Pelonomi Hospital | South Africa

Background and Rationale: Healthcare workers (HCWs), particularly those in low and middle income countries (LMICs), face increased risk of exposure to infectious diseases. The infection control audit is an organized examination to promote best practices and can be an effective tool to empower HCWs to protect themselves and their patients.
Methods: A workplace audit tool had been developed by Canadian experts to evaluate infection control practices in hospital settings in Canada. From this, a more complex survey was developed working with colleagues in Latin America that elaborated upon occupational health components. This second tool was then adapted for use in South Africa, by a team including South Africans, and piloted at Pelonomi Hospital in Bloemfontein.
Results: Several critical areas where control measures were required were identified. Recommendations pertaining to 1) hand hygiene (improved access and signage); 2) separation of clean and dirty items in work processes; 3) respiratory precautions (e.g. risk assessment of patients to identify those at high risk for active tuberculosis, respiratory cough etiquette, facial protective equipment selection and use; and 4) targeted education (e.g. housekeeping) were made to senior management. Next Steps: The Canadian-South African collaborative team are working together to develop a training module and field guide to be used as a companion to the workplace audit checklist, aided by the use of a state-of-the-art information systems (OHASIS- Occupational Health and Safety Information System) to help prioritize and follow up needed actions.
Conclusions: The workplace audit empowers HCWs to identify hazards, assess risks and develop action plans for

change. Audits are most effective and credible when staff is supported with training materials, standardized checklists and companion field guides.

Epidemiology of MRSA in low resource countries: does it differ from richer nations?

Michael A. Borg | Mater Dei Hospital | Malta

The challenge of healthcare associated infections caused by multi resistant organisms is universal. Methicillin resistant Staphylococcus aureus (MRSA) ranks amongst the most prevalent of such resistant pathogens in many countries worldwide. MRSA infections increase the risk of patient morbidity and mortality as well as add preventable costs to our healthcare institutions. A substantial degree of information is available about MRSA epidemiology in developed countries. Furthermore, the drivers that predispose to these infections are also well established as are recommendations related to interventions to attempt to reduce them. On the other hand, equivalent information from regions having low and medium resources is less easily available. This session will review available literature, attempt to identify any differences related to epidemiological drivers in such environments and also explore possible adaptations to current recommendations that could be applicable to limited resource settings.

Prevention of MRSA: what is applicable to limited resource settings?

Emese Szilágyi | National Center for Epidemiology, Senior Expert, Budapest, Hungary, IFIC

Meticillin – resistant Staphylococcus aureus (MRSA) is a predominant pathogen of healthcare-associated infections causing severe infections. MRSA prevalence is high in many parts of the world. To reduce MRSA rates or maintain low endemicity a sufficient MRSA management is essential.

In developed counties there are available guidelines and recommendations for the prevention and control of MRSA in healthcare facilities.

A summary of recommendations from published guidelines from USA, UK and the Netherlands with emphasis on basic practices recommended for all acute care hospitals will be presented. Barriers in limited resources settings will be discussed. Simple and low/cost-effective measures for prevention and control of MRSA are: education and practical training in standard infection control, hand hygiene, surveillance, contact precautions and antibiotic stewardship.

MRSA in South Africa: are there more questions than answers?

Professor E Wasserman | Stellenbosch University and National Laboratory Health Services, South Africa

Introduction: Outbreaks of community acquired MRSA and the emergence of strains with reduced sensitivity to the glycopeptides have caused us to re-consider staphylococcal population dynamics. We have insufficient clinical and laboratory data to quantify the burden of MRSA on healthcare services in South Africa and to illuminate a better

understanding of the epidemiology and pathogenesis of staphylococcal disease in our specific setting.
Method: Laboratory data describing the isolation of MRSA in a typical tertiary setting (Tygerberg Hospital) will be used to illustrate this background. The results of a study outlining the clinical and strain type data of S. aureus isolated from blood cultures will be presented to illustrate some of the trends underlying infection in the same setting. Recent studies from the literature regarding the microbiology of staphylococci influencing colonization and invasion will be discussed.
Results: The role of the clinical laboratory in infection control concerning the isolation and strain typing of staphylococci will be addressed. Research questions specific to the local context will be presented for discussion.

How to critically read & submit a paper

Judith Richards

This session will explore what the Editor of a Journal is looking for, and how the comments and recommendations from the peer reviewers are processed.
The interpretation of the comments made by the Editor in the letters sent to authors will be reviewed, to help authors understand how to proceed with their submissions.

Assessing the Risk of Healthcare Waste - Theory...and a little Practicum.

Dr. Edith Clarke, Ghana Health Service, Ministry of Health, Ghana; Edward Krisiunas, WNWN International, Burlington, Connecticut, USA

Healthcare facilities around the world produce a wide range of waste streams. These waste streams contain / may contain hazards that could be chemical, biological, or radioactive in nature. In the course of the past 20 years, countries have allocated resources for the management of these waste based upon the risk associated with the waste as well financial where with all.

Infectious health care waste poses unique issues based upon the perception of risk versus actual risk. Most data in the literature has evaluated risk in the context of high income countries where waste management has better controls and is more of an occupational hazard than a public health issue. In low to middle income countries, the same is not true. Waste management in these countries poses risks to public health as well as to occupational health and safety. The Management of waste streams constituting health care waste must take into account the ultimate disposal locations as well as the potential for scavenging. In such an instance, specific waste streams need to be treated and destroyed so they no longer can be recovered or reused.

This presentation will review those risk related to the various categories of waste and will provide a hands on opportunity for individuals properly management infectious healthcare waste.

SCHOLARSHIP ABSTRACTS

Scholarship abstracts | Quality assessment of alcohol hand-rubbing. Study about 270 health workers of the University hospital of Nancy

Daval Marie-Cecile | CHU de Nancy - HÃ´pital de Brabois - service d'hygiÃ¨ne hospitaliere 54500 Vandoeuvre-lÃ¨s-Nancy | France

Introduction: Hand hygiene is the most effective precaution for the prevention healthcare associated infection. International guidelines recommend that alcohol hand-rub (AHR) be the primary choice for hand hygiene but don™t recommend any evaluation of the quality of this rubbing. To assure the effectiveness of alcohol hand-rubbing, health workers must not carry any jewel on the hands or on the forearms.
The aim of this study is to assess the progress of hand rubbing quality on the palmar side, 2 years after training of health workers. Secondary aims are: identification of predictive factors of the progress of hand rubbing quality (HRQ) and to analyze health worker™s behaviors on jewels™ wearing.
Material and method: In 2007, the infection control team of the university hospital of Nancy, France, trained health workers to the use of AHR. A first assessment of the HRQ was made. In 2009, 270 health workers trained in 2007 were visited. A questionnaire and a second observation of the HRQ were realized. The criterion to evaluate the HRQ was the area of the palmar side covered with alcoholic hand rubbing.
Results: The population was constituted by 93% women. The majority function is the nurse (40.4 %) nurse assistance (25.2%) and the cleaning worker of ward (15.9%).
Two years after training, the HRQ is constant to 70%, decrease to 29% and improve to 1% of the population.
Three independent predictive factors of the progress of the quality were identified: 2 improve probability to have a constant HRQ: to work in intensive care unit (OR = 5.6 [1.3-24.4]) and to know that carrying jewels improve the infectious risk (OR = 2.6 [1.02-6.7]). One improves probability to decrease the HRQ: to carry rings (OR = 0.34 [0.14-0.83]).
Sixty-five percent of the subjects declare to carry jewels every time. Among them, 54.6% carry rings, 57.1% a wedding ring, 56% a watch and 42.5% bracelets. Only 17.6% of the subjects carrying a wedding ring and 71% of the subjects carrying other jewels draw it out to work. The two major causes of this absence of withdrawal of jewels are the symbol and the security phenomena. However, 91.1% of the health workers know that the wearing of jewels generates a risk for the patients.
Conclusion: Two years after training, a third of health workers have a HRQ decreasing. Our study identified three predictive factors of the progress of the HRQ. Among them, to carry rings is a predictive factor of HRQ decreasing. In spite of the knowledge of infectious risk related to the wearing of jewels, the majority of the health workers carry them within the hospital. The information delivered during the training to the use of the alcoholic hand rub is acquired but not applied, primarily for symbolic reasons and security problem. It seems necessary to be able to act on these social aspects which seem to preserve a great importance in the behavior of the health workers. The progress to the HRQ must be study at a long-term.

Scholarship abstracts | From There to Here and Staying Here

Laura Dillon | 20, Baldoyle Road, Sutton | Dublin 13 | Ireland

Introduction:
Concerns about the cleanliness of Irish hospitals have attracted much attention in recent years. Poor standards of cleanliness have and will continue to compromise patient health and safety (Malik et al 2003)
In July 2008, the Infection Control Team in Cherry Orchard Hospital (COH) conducted a hygiene audit of our healthcare facility. COH is a 260 bed, long term care hospital. The audit was executed using The Baseline Primary Care & Continuing Care (PCCC) Hygiene Services Audit Tool, 2008 The result of this audit (collective audit score for the hospital 65 %) showed that cleaning of the environment and in particular patient care equipment was inadequate.

Interventions:
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POSTER PRESENTATIONS

The Potential of Twitter for Early Warning and Outbreak Detection

Authors: Patty Kostkova | Martin Szomszor | CeRC, City University | UK
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Gawesh Jawaheer | CeRC, City University | UK

Introduction: The use of user-generated content in Web 2.0 tools for predict-ing outbreaks has been seen as a great potential, however, the recent swine flu outbreak in April-May 2009 truly demon-strated the potential of these media for early warning systems. Traditional epidemic intelligence systems such as GPHIN, Medisys are well established, however, real-time discussions about flu online provide a complementary data source with a great potential for early warning systems.
Methods: Twitter Surveillance Twitter, a micro-blogging service that allows people to post and read other users' 140 character messages currently has over 15 million unique users per month. Twitter allow to search user messages and return the text along with informa-tion from the poster's profile, such as their location, in a for-mat that can be stored and analysed.
Results: We found over 3 million tweets reporting flu related illnesses and symptoms via Twitter from May 7th until November 11th 2009. The actual sentence "I have swine flu" appeared 12,954 times and "I have flu" 12,651 times. Most popular words in these tweets and their total frequency include flu (2,384,459), swine (1,691,154), h1n1 (212,975), vaccine (164,804), health (108,715). Plotting the number of tweets related to flu for each day clearly shows periods of significant increase that could be used as an early warning. Advanced natural language processing is required to understand the semantics of each tweet and prop-erly distinguish between those that are self-diagnosing the flu, and those that are not. An evaluation is underway to establish links between this Twitter data and actual surveillance data. We have also collected the total number of news articles about flu indexed by Google News for each day in our investigation period. During peak Twitter activity, the number of news articles indexed also increases, suggesting a possible correlation between media coverage and the discussions.

Imipenem resistance among gram-negative and gram-positive bacteria in hospitalized patients: a report from Iran

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Abstract: Background: Recent analyses of hospital outbreaks have documented the spread of resistance to Imipenem and it is currently a major problem among gram positive and gram negative bacteria. The aim of this study was to describe the rates of gram- positive and gram-negative isolates resistance to Imipenem as an antibiotic that is widely used in Iran. Methods: Recorded files of 242 hospitalized patients with at least one sample of positive culture specimens in one of the two general hospitals of Shahid Beheshti and Naghavi in Kashan , Iran in 2005 were randomly selected and reviewed. All strains were tested for antibiotic susceptibility by Disk Diffusion and were designated for Imipenem. Results: Escherichia Coli (21.9%), Kelebciella (19.8%) and Coagulase-negative Staphylococci (17.8) were the most common isolated organisms. Imipenem had coverage against 96.2% of Escherichia Coli, 58.4% of Kelebsiella, 79.1% of Coagulase-negative Staphylococci, 81.8% of Pseudomonas aeruginosa, and 85.7% of Entrococci isolates. Proteus and Salmonella isolates susceptibility to Imipenem was 100%. Conclusion: Susceptibility of Escherichia Coli, Salmonella and Proteus to Imipenem is satisfactory; however, the susceptibility of Pseudomonas aeruginosa to this antibiotic was dramatically lower in our region. Because of the major health problems caused by Imipenem resistance, attempts have been made to organize a national surveillance program in our country. Keywords: Bacteria resistance, Imipenem, Antibiotic, Pseudomonas

Pre-donation screening questionnaire for emergency transfusion services in Cameroon: a pilot study

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TABUGHANG FRANKLIN CHI Bamenda Regional Hospital Cameroon
Rene K Lamnyam Bali District Hospital Cameroon
Savanna Reid University of Nevada at Las Vegas, School of Community Health Sciences USA

Background Blood transfusion in Cameroon carries a potential risk of transmitting blood-borne infections. Challenges to blood safety include low availability of voluntary blood donors and consequently reliance on unsafe donors, low blood-testing capacities, high clinical demand, lack of transfusion safety protocols and unregulated use of blood; worsened by the high community prevalence of transfusion-transmissible infections (TTI) such as HIV, hepatitis B, hepatitis C and syphilis. Aim Determine seroprevalence and risk factors for TTIs amongst donors in Cameroon, and pilot a screening questionnaire for emergency transfusion services. Method A retrospective study of blood donors at blood-transfusion units of three hospitals in the North-West Region of Cameroon. A preliminary pre-screening questionnaire was developed from a review of the literature and 341 donors presenting over a period of three years between 2006 and 2009 were studied. Socio-demographic information, risk factor exposure and blood samples for pre-donation screening were collected from the donors. Prevalence of HIV, hepatitis B, hepatitis C and syphilis were calculated. Exploratory analyses of the risk factor and demographic variables was done using STATA version 10 to investigate which factors were independently associated with TTIs. The positive and negative predictive value (PPV and NPV) of the full questionnaire was compared with the predictive value of those risk factors independently associated with TTIs in multivariate analysis. Results Nearly all donors were replacement donors (relative- 42.6%; friend- 54%) with few voluntary donors (0.6%) and paid donors (2.7%). 94% of donors were males while 6% were females. TTIs were detected in 13.7% of blood samples and there was no case of multiple infections. The prevalence of HIV, hepatitis B, hepatitis C and syphilis were 6.2%, 6.2%, 1.3% and 0.3% respectively. All TTIs were accounted for by the replacement donors while paid and voluntary donors had no serological evidence of TTIs. In multivariate analysis, risk of a TTI infection increased with an increase in number of lifetime sexual partners; adjusted odds ratio (AOR) 2.03 (95% CI 0.58 - 7.13) for 1 to 3 partners and AOR 6.4 (95% CI 1.6 - 25.2) for more than 3 partners. HIV risk was increased in females; AOR 5.25 (95% CI 1.48 - 18.63) and in those with a past history of sexually transmitted infections; AOR 3.78 (95% CI 1.2 - 11.9). Hepatitis B risk increased with an increase in number of lifetime sexual partners; AOR 0.99 (95% CI 0.23 - 4.17) for 1-3 partners and AOR 6.31 (95% CI 1.35 - 29.4) for more than 3 partners and risk of hepatitis B decreased with increase in age (AOR 0.91; 95% CI 0.84 - 0.99). The PPV of the full questionnaire was 93.9% and the NPV was 22.5%; only 62 donors would have been accepted. Reducing the screening criterion to include only female sex, history of a sexually transmitted disease, and more than three lifetime sex partners improved the predictive value of the questionnaire (PPV 94.1%, NPV 43.4%); using this criterion 206 donors would have been accepted. Conclusions Prevalence of TTIs among blood donors in NW of Cameroon is very high. Further work is required to investigate other risk factors and provide more evidence on blood safety from donors in Cameroon. There is pressing need to set out national protocols for blood transfusion and develop pre-screening questionnaires for donors as well as setting up standard blood banks nationwide. A risk factor analysis is useful to refine the blood screening criterion to reflect local circumstances.

Role of mediailn decreasing the prevalence of HIV/AIDS in Pakistan

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Objectives To explore the role of media in reducing the prevalence of HIV/AIDS in Pakistan Design An integrated review of 30 articles and reports from national and international literature from 2000 – 2008 was done. Result It is "estimated that 5 million people around the world are living with HIV/ AIDS…Pakistan with an estimated 78,000 persons infected" . Improper and inappropriate exposure to media is one of major factors responsible for this. Awareness about HIV/AIDS was found more in those people who had exposure to media. Further, it was found that people who had access to internet, discuss AIDS with their teachers and parents, read columns,

editorial, magazines and scientific section of newspaper and watch talk shows, current affairs and movies had satisfactory knowledge about AIDS. Moreover, urban women are more aware of HIV/AIDS because they have more amenities like TV, telephone, radio, newspaper, magazine etc. I propose a media social cognitive model for health promotion. Conclusion Although in Pakistan AIDS prevalence is low but the high-risk behaviors and factors make Pakistanis at more risk. Thus, the electronic and print media can play a better role to educate and aware people about HIV/AIDS. Recommendations I recommend that social cognitive model for health promotion should be utilized to understand the different aspects of this problem and the ways to control it. Media should air and publish different community appropriate interventions through talk show, dramas and movies portraying AIDS related stories in local languages so that all the people can be benefited. Keywords Media, AIDS, Prevalence, Pakistan.

HIV/AIDS: factors responsible for hindering screening in developing countries

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Purpose: The aim of the review was to identify such factors that are barrier in HIV / AIDS screening in developing countries. Further to assess their impact on HIV/AIDS prevalence. Method: An integrated review of 20 index and non-index articles published during the period of 2000-2008 was conducted. Results: Human immunodeficiency virus (HIV)/AIDS has been one of the most severe disease ever known to human being. It mostly affects economically productive age group i.e. (15-49 years). In developing countries some complex factors have made the HIV infection spread very rapid. These range from social, political, environmental, biological and physical factors including concurrent STDs, deprivation and poverty, socio-economic development, low status of women in society, high labor migration, lack of perceived risk, peer norms, low condom use or unavailability of condoms, adults views on sex and condoms, gender inequality, adolescent view on sexuality and economic empowerment, dignity before health, stigma and discrimination, ignorance, misinformation, internal conflicts and refugees. Thus this deaviasting disease remains in silence and affects every aspect of human life. Conversely, the cases are not reported and thus adding into and boosting the spread of this manic disease. Conclusion: Although, the factors responsible for the spread of HIV infection are complex yet they can be controlled through a collaborative approach of health care system, educational system, community and religious leaders. There is an urgent need for developing and implementing policy and programs that provide AIDS education and awareness, prohibit stigmatization, and advocate compassion. Moreover, if media is effectively utilized it can play a vital role in fighting against HIV/AIDS.

Evaluation of prevalence of Vancomycin Resistant Staphylococci in Hospitals University of Kashan -Iran during 2004-2005

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Background and Objective: Glycopeptide such as vancomycin are frequency the antibiotic of choice for the treatment of infections caused by Methicillin Resistant S. aureus (MRSA) for the last 7 years, incidence of Vancomycin resistant S. aureus (VRSA) has been increasing in various parts of the world. This study was carried out to find out the prevalence of VRSA in The Kashan hospitals university during (2004-2005). Material and Method: A descriptive study was performed over 86 positive culture of hospitalized patients, clinical isolates were from a variety of body sites (blood, urine, wound discharge, trachea, abscess,…) that were referred to Central Laboratory of Kashan hospitals during (2004-2005), antibiotic resistance pattern was determined by disc diffusion method (Kirby- Bauer), results and demographic characteristic

were presented by descriptive analysis. Results: Research showed rate of frequency of VRSA was 40(46.5%), from 86 positive culture 13(29%) belong to blood, 34(74%) to urine, 13(31%) to trachea, 19(38%) to wounds discharge, 1(2.2%) to synovial fluids, 2(4.7%) to CSF, 4(10.9%) to abscess : Antibiotic resistance to different antibiotics were determined: 84% to cloxacillin, 70% to Ciprofloxacin and Cephalexin, 59% to Cephalothin, 62% to Cefazolin. Conclusion: Resistance pattern of staphylococcus particularly S. aureus to various antibiotics especially Vancomycin is to ward in creasing trend. This is betters that the procedure of treatment against infections of VRSA is designed in according to results of susceptibility test in Microbiology Laboratory with National Committee for Clinical Laboratory Standard (NCCLs)

The effects of cultural perceptions and practices on morbidity: the phenomenon of side pain in a rural area in the North West Region of Cameroon.

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Introduction The paper reports on children under five with complaints of side pain after detection of splenomegaly by mothers in rural population of North West Region, Cameroon, and finally diagnosed with malaria requiring admission; how cultural perceptions, mothers' attitudes, determined morbidity and outcome. Attitudes were determined by where mother stopped over (church, hospital or traditional medicine) first. Objectives Determine relationship between detection of splenomegaly and the resulting attitude as shown by first stop over, morbidity from malaria in a rural endemic region. Methods A longitudinal study of 274 cases presenting with complaint of 'side pain' carried out between 2004 and 2005 in Bafut Health District. Those requiring transfusion were those with a haemoglobin level below 6g/dl, had hyperparasaetaemia or anaemic heart failure. Traditional therapy was considered to be any form of treatment using herbs and scarification at home or at a traditional healers home. Results 71.2% sought traditional therapy, 27.4% orthodox medicine and 1.5% spiritual care first (n=274). Morbidity was worse in those who sought traditional therapy first compared to those who came directly to the hospital, this was assessed by degree of anaemia, sepsis, cardiac decompensation, parasitaemia and need for transfusion. Choice of treatment provider was not significantly associated with mortality. Children with greater enlargement of the spleen were more likely to receive treatment from a traditional healer before coming to the hospital (Odds Ratio 10.1, 95% CI 6.3-16.2). Age and sex were not associated with choice of health care provider, but sex was associated with diagnosis; males were more likely to be diagnosed with malaria and sepsis, and females were more likely to be diagnosed with malaria and severe anemia. Older age was associated with severe anemia, and younger age was associated with sepsis. Children experiencing chills or a very high temperature were more likely to be taken to a traditional healer first (Odds Ratio 2.9, 95% CI 1.8-4.6). Children with greater enlargement of the spleen were more likely to be diagnosed with sepsis (Odds Ratio 10.4, 95% CI 5.4-19.8). However, even controlling for size of enlarged spleen, as well as age, sex and temperature, diagnosis with sepsis was significantly associated with traditional scarification (Odds Ratio 5.3, 95% CI 1.6-17.5). This suggests that sepsis is often a secondary infection resulting from the use of unsterile blades by traditional healers. Conclusion: Morbidity and outcome was worse in children seeking traditional therapy from the wrong believe that 'side pain' or 'spleen', or 'la rate' (splenomegaly as is known in various parts of Cameroon) can only be treated with traditional therapy, and this belief stems from community ignorance of the causes of splenomegaly. Thus policy changes to increase rural education of communtiy and traditional healers on relationship between malaria, splenomegaly and various morbidity is required to promote better health practices and change or improve cultural practices which are detrimental to health. The practice of traditional scarification may contribute to a significant burden of serious secondary infections and avoidable skin-piercing procedures should be discouraged for the prevention of bloodstream infections.

Herbal drugs an emerging trend in yoruba healing system: the implication to safe-sex practices among the geriatrics in Ibadan,Nigeria.

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Introduction: Traditional herbal Medicine (TM) has responded to health care delivery needs of majority of Nigerians over the years. However, despite the relegation suffered by orthodox medicine, its contributive result has not been clinically evaluated, to ascertain the efficacious impact. Moreover, TM as an area of sexual healing has received a limited attention. Therefore, this study examined herbal medicine as an emerging trend in sexual medicine in Nigeria. Methods: The study which adopted both quantitative and qualitative methods of data collection was descriptive and cross-sectional in design, comprising 400-geriatrics aged 65 years and above selected using a five-stage sampling technique. The Focus Group Discussions (FGDs) and questionnaires data were analysed using thematic approach and descriptive/Chi-square statistics respectively. Results: Slightly more than half, (50.5%) were males. A total of 20.5% of participants under the influence of concoction engaged in extra-marital sex with non-condom use, while (5.8%) used herbal medicine to prevent infection during sex. Few (3.0%) used herbs and concoction (6.3%) to increase sexual performance. Moreover, (1.5%) suggested that concoction could improve sexual health of the elderly persons. Therefore, TM (23.0%) and use of drug (4.3%) could be used to treat sexual dysfunction. Most (60.3%) postulated that visiting traditional healers; use of herbs (10.3%) and taking drugs (17.3%) would provide prevention and treatment against STD including HIV/AIDS. Majority of the FGD participants believed in the efficacy of TM than contraceptive use. Hence, Magun (thunder belt) which is in form of insertion around the body could help in detection and prevention of diseases. Conclusion: Most geriatrics in Nigeria used herbal medicine to enhance sexual performance. However, these products are yet to pass clinical evaluation for efficacy in sexual medicine. Therefore, there is urgent need to support clinical investigation of the TM especially the claims in relation to improvement of geriatric sexual health.

Patterns and seasonality of malaria transmission

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Seasonality of malaria vector bionomics need to be studied prior to malaria control interventions to reliably determine impact. Surveys were carried out in a transitional belt of Ghana (Kintampo) from November 2003 to November 2005. 23,406 mosquitoes were caught from 919 traps over the two-year period (November 2003 to November 2005): 54.3 % Culicines, 36.2% Anopheles funestus, and 9.4% An. gambiae. Infectivity of Plasmodium falciparum was 4.7% and 1.5% for An. gambiae and An. funestus respectively. Entomological Inoculation Rates were 269 infective bites per person per year (ib/p/y) in the first year (Novembr 2003-October 2004) and 231ib/p/y the following year (November 2004-November 2005). Polymerase Chain Reaction (PCR) analysis indicated An. gambiae s.s species only. Of a total of 19 samples analysed by PCR in the wet season, 88.89% (n=19) were S molecular form, 11.11% (n=19) M molecular form and 5.56% (n=19) hybrids (S/M). In the dry season of a total of 16 samples; S form were 68.75% (n=16), M form 12.50% (n=16) and hybrids 18.75% (n=16). Frequency of knock down resistance (kdr) resistant genotypes F(R) was 0.60. Genotypes kdrRR were M form whereas kdrR/S in hybrids. All susceptible genotypes kdrss were S form. Dynamics and seasonal abundance of vectors was influenced by micro-ecology, rainfall and temperature patterns. Transmission did not differ significantly between the years (2004 and 2005) and An. gambiae and An. funestus were both effective vectors. Kdr genotype frequency F(R) 0.06 is relatively high and kdrRR genotypes in M and kdrR/S genotypes in hybrids requires investigation. Kintampo has high malaria transmission with EIRs estimates between 231ib/p/y and 269ib/p/y. Intensification of malaria control activities in the past five years makes it imperative to determine the current levels of malaria transmission; this will help assess the impact of control measures made in the middle belt of Ghana.

Molecular identification of invasive group a streptococci "flesh eating bacteria"

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Necrotizing fasciitis is a soft tissue infection characterized by high morbidities and mortalities. Molecular detection of streptococcal exotoxins plays an important role in the early diagnosis of the disease. In this study, 20 isolates of streptococcus pyogenes were obtained from suspected clinical cases with necrotizing fasciitis. Eleven out of these 20 isolates were positive by agglutination with GAS-specific antiserum, and categorized as group "A" streptococci. The eleven GAS were further tested using PCR technique for toxin genes" spe A"," spe C" and" fb a", which were detected in five isolates only, in the percentage of" fb a' (45%)," spe A" (36%) and" spe C" (27%). These figures were statistically analyzed using Odd's ratio and relative risk ratio. According to Odd's ratio" spe A' was 3.364, "spe C" was 0.273 and' fb a" 0.455. Using the relative risk ratio" fb a" was 1.25 and 1.66 times that of" spe A" and "spe C" respectively, while "spe A" was 1.33 times that of "spe C". Therefore the value of "fb a' as a marker for toxin production in IGASI is superior to that of "spe A' and "spe C" and its over expression could explain the strong correlation with GAS disease manifestation as in necrotizing fasciitis.

The use of indoor residual spraying using icon and long lasting insectcide treated nets in controlling malaria epidemics in Kanungu District Uganda.

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Introduction: Malaria is a public health problem in Kanungu causing 33.8% of all death. Objective: This study was aimed at identifying whether indoor residual spraying using ICON and the use of Long Lasting Insectcide Treated Nets as interventions had an impact in controlling malaria in the district. Methodology: A retro-spective review of records from 2002 to 2007 was done in 47 health units, interviews with community members, owners of private clinics and drug shops and health workers. Results: The Out Patient cases of malaria seen in 2002 increased from 40,000 to 120,000 in 2004. With the use of Long Lasting Insectcide treated nets (LLITN's) in 2005 this reduced to 110,000 cases. Using a combined strategy of LLITNs and Indoor Residual spraying (IRS) using ICON in February 2007 of 75% of the house holds and protecting 112.8% of the population cases decreased to 80,000. The slide positivity rates reduced from 64% to 18%. Admissions reduced from 400 to 180 cases. The deaths due to Malaria in health units in February 2007 have reduced from 18 to 5 in April 2007. Abortions reduced from above 300 to 200 cases. The communities were receptive about the interventions and appreciated the process with political support from the district leadership and the Policy makers in the Ministry of Health. Conclusions and Recommendations: This Public Health Intervention is very effective and efficient in controlling malaria in an epidemic prone district and If this approach is sustained it can reduce malaria epidemics and prevalence in communities

Evaluation of the hand hygiene improvement program in the canary islands healthcare system, Spain in 2009

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AIM To describe the main results of the evaluation of a coordinate multicentre campaign of hand hygiene (HH) improvement in public hospitals of the Healthcare System in the Canary Islands after the first year of implementation. METHODS Setting: Ten public healthcare hospitals. A core team with regular meetings and a plan for implementation was set at the beginning. Intervention: implementation of the WHO multimodal strategy for improving HH. Measures: Direct observation of 1 and 2 moments (before patient contact and before aseptic task) in emergency and intensive care units. Consumption of alcohol–based products for hand rub was recorded

every six months (liters / 1000 patient-days). Measures were performed in each facility. RESULTS Alcohol-based hand rub products were made available at each centre. 1730 dispensers accounted for the 3861 available beds (44,8%). Seven out of ten hospitals implemented training about HH, but just four centers trained about the concept of "My Five Moments for Hand Hygiene". Medical doctors had the lowest level of attendance. Eight out of ten hospitals have performed direct observation of compliance. Overall rate: 38,1%, (36,7% the first period; 39,6% for the second (p=0,09)). Alcohol-based products were used in 46,7% of occasions in which actions of HH occurred. The consumption ranged from 11,3 to 39,8 L/ 1000 patient-days (average 24,7 mL/1000 patient-days). Reminders were used and a local guide was performed by the team and released. The core team, with coordinate plan of activities, met in three occasions. Each facility was required to address a clear plan of activities for 5 may 2009, including registration to the 2009 WHO initiative "Save Lives: Clean your hands". DISCUSION A clear improvement in HH practices was achieved. In order to get sustainability, new activities including clear commitment of leaders, patient involvement, and a system for ensuring HCW training are required

Nosocomial infections prevalency investigation in Centre Hospitalier Universitaire Yalgado Ouedraogo (CHU-YO, Burkina Faso)

Dr Joséphine Zoungrana/Kissou Chu-Yo Burkina Faso

Nosocomial infections prevalency investigation in Centre Hospitalier Universitaire Yalgado Ouedraogo (CHU-YO, Burkina Faso) Dr Joséphine ZOUNGRANA/KISSOU, Dr Abdoulaye TRAORE, Pr Laurent OUEDRAOGO Summary Today, nosocomial infections constitute for public health a great problem that unknown to our sanitary districts and in this case can't aster them. This kind of prevalency investigation about nosocomial infections is the first realized by CHUYO. Its objective was to measure per day the prevalence and to describe nosocomial infections and anti-infections treatments characteristics. It was elaborated and proposed by hospital hygiene department to two medicine services and three surgical departments. The data were gathered and approved by each head of service before hospital hygiene received them. Thus, five services which is occupying forty point four six per cent (40,46%) of hospitalizations beds (two hundred and ninety five 295 for a sun of seven hundred and twenty nine 729 available beds) and one hundred and fourteen (114) patients has been included in the survery. The day of investigation, twenty seven (27) patients were infected. That is about twenty three point seven per cent (23,7%) of prevalence. Besides seventy eight (78) patients was under anti-infections cure with sixty eight point four two per cent (68,42%) cure patients of prevalence. Three localities represent seventy-seven point seventy nine per cent (77,79%) of nosocomial infections: urinal infection (fourteen point eight two per cent 14,82%), breathing system infections (eighteen point five two per cent 18,52%), operatory locality infections (forty four point four five per cent, 44,45%). Nosocomial infections prevalence was conditioned by the kind of service (more surgery and resuscitate) and also by the patients futures.

Bacteriology of catheter associated urinary tract infection in a Nigerian tertiary hospital

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Introduction- Catheter associated urinary tract infection (CAUTI) is one of the commonest nosocomial infections affecting almost all patients requiring urinary catheterization. Indwelling urethral catheter generally becomes colonized with microorganisms that cause infection especially if the catheter stays in place longer than necessary. Bladder infection can be caused by reflux of urine from contaminated urine drainage bag. In addition, poor catheter insertion techniques and failure to follow aseptic technique during insertion and catheter care can lead to infection.E.coli is the most common cause of CAUTI, however other nosocomial pathogens are also found responsible. Aim/Objectives - The aim of this study is to determine the microbial pathogen associated with urinary tract infections among catheterized patients in our hospital. Method/results - We reviewed catheter tips from 100 patients in order to establish the pattern of nosocomial pathogens that frequently caused infection in our facility. 76 of the patients were male while 24 were female aged between 1 – 98 years. Samples were asceptically collected and send to the

microbiology laboratory for analysis.76 samples yielded positive cultures in which one of the cultures yielded multiple isolates while 24 were negative.61.0% of the isolates were gram negative in which over 50% was E. coli while 36.4% were gram positive and 2.6% were Candida albicans. About 50% of patients with CAUTI were medical patients while the rest were surgical and pediatrics patients. Conclusion - Our study re- affirmed that there is high incidence of UTI in catheterized patients and E. coli is still the most common cause of nosocomial Urinary Tract Infection. We also able to established that Medical patients have the highest incidence of CAUTI than Surgical and Paediatric patients. Sensitization was thus carried out and we intensify more surveillance and control effort.

Transforming hand hygiene practice in a Nigerian hospital

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Introduction - Hand hygiene remains one of the most important ways of infection prevention in hospital and community settings. This integral component of infection prevention is poorly observed by healthcare providers especially in developing nations, with global adherence rate of about 40%. In most African countries, bar (tablet) soap is still use for hand washing and running water remains great obstacle to hand hygiene practice. Method - To ensure necessary requisite are available for hand hygiene improvement, we provided liquid hand wash and faced out the use of bar soap. Alcohol base hand rubs are produced using WHO formulation guide and made available to all hospital units and wards. Hand hygiene posters are placed on boards and series of infection control sensitization workshops were held to inform and teach staff on how and when to use alcohol base hand rub or liquid soap and water. Result/Conclusion - With good hospital management support and within very short time, our hand hygiene score (using WHO hand hygiene assessment frame work) raised from nowhere to basic level. Increased hand hygiene adherence among staff is observed and we receive timely report when stock level of the consumable is halfway.

Impact of Education on reduction of Occupational Exposure among Healthcare Workers

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Healthcare employees undertaking clinical procedures are at risk for occupational exposure to blood borne pathogens, such as hepatitis B virus, hepatitis C virus and Human immunodeficiency virus. Factors influencing the risk for occupational exposures to blood borne pathogens include, lack awareness, number of infected individuals in the patient population and the type and number of blood contacts. Nigeria has the second largest population living with HIV/AIDS. The disease is a major cause of hospitalization and death among patients seen in our Hospital. Considering the need to prevent blood borne viral transmission to HCW in the course of their work, we came-up with a proposal and guideline to prevent blood borne pathogens transmission and embarked on education of all newly recruited staff and routine sensitization workshops on sharp injury prevention. From 2005 to 2009, we recorded drastic reduction of sharps injuries among some group of staff, increased reporting due increased awareness, and then dramatic decline among others.

Nordic Diploma of Infection Control and Prevention

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Infection control within health care is a relatively small area in each of the Nordic countries. Because of that the individual Nordic countries had significant challenges to establish the theoretical education within infection control with enough participants. Therefore a common Nordic education were established in 2007 at the Nordic School of Public Health in Gothenburg, Sweden. During spring 2009 the first five nurses finished their education and more doctors and nurses complete the education during 2010. I work as an infection-control nurse in Denmark and was among the first five nurses to finish the education. The poster presents the facts and lessons learned during the education to inspire other countries or professional societies to establish a similar co-operation. Facts and lessons learned during the education: • The academic and professional courses, 60 ects • Vocational width through the perspective of public health • The professionalism elucidated in a Nordic perspective • A Nordic network of infection-control professionals • Visibility and the possibility of cooperation with other professionals within the Nordic health sectors • A good study at the school • Option for Master of Public Health, 120 ects • Good experiences in beautiful historic surroundings. The poster will get into more details about the education.

Subclinical significant bacteriuria among pre-school children in Calabar municipality: A survey

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Asymptomatic urinary tract infection (UTI) has been shown to occur in young children with the attendant long term complications including vesico-ureteric reflux. Little is known about the prevalence of asymptomatic UTI among preschool children in Calabar, Nigeria. The aim was to ascertain the prevalence of significant bacteriuria among pre-school children in an urban community. Pre-school children attending nursery schools in different locations of Calabar city were recruited through computer assisted random sampling methods. Using a structured questionnaire, information such as age and gender of children; educational level and occupation of parents/ guardians were obtained. Anthropometric measurements of the children were also obtained. Urine samples were collected stored and processed using standard laboratory methods while diffusion methods were used to carry out the antimicrobial susceptibility tests. Dipstick was also used to screen the urine for UTI and the results compared with cultural methods. Data obtained was analyzed using Epi Info 6 statistical software. The prevalence of significant bacteriuria among the 455 pre-school children was 7.3% with infection rate increasing proportionately with age ($P < 0.05$) but with no gender difference ($P > 0.05$). Escherichia coli, Proteus mirabilis and Klebsiella spp. were the commonest organisms encountered. Dipstick screening UTI was 87.9% and 96% sensitive and specific respectively compared to the gold standard. UTI is a probable phenomenon among pre-school children and screening for it could be carried out with the aid of urinary dipstick in the absence of appropriate cultural methods and its obvious limitations proportionately factored into medical decision making.

Microorganism colonization in hands of healthcare workers and their prevalence as infecting microorganism in hospital-acquired infection in adult intensive-care unit (ICU)

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TITLE: MICROORGANISM COLONIZATION IN HANDS OF HEALTHCARE WORKERS AND THEIR PREVALENCE AS INFECTING MICROORGANISM IN HOSPITAL-ACQUIRED INFECTION IN ADULT INTENSIVE-CARE UNIT (ICU). AUTHORS: BAQUEIRO-FREITAS, L.F; SANTOS, M.C.I; FERREIRA,F. INSTITUTION: HOSPITAL-INFECTION-CONTROL SERVICE. SANTA LYDIA HOSPITAL. RIBEIRÃO PRETO-SÃO PAULO/BRAZIL.

INTRODUCTION: Healthcare workers' (HCW) hands colonization by microorganisms is a factor one has to reckon with, as well as their dissemination to patients and so causing infection. The lack of appropriate hand hygiene could be an important reason for this occurrence. OBJECTIVES: Evaluating the prevalence of healthcare workers hands colonization by microorganisms and the clinical implication of it as a possible source of hospital- acquired infection agents. METHODS: The profile of microorganisms in hands colonization of HCW were checked once a month by microbiologic analysis from November 2008 to November 2009 and the results were compared with those of hospital-acquired infections agents in that period. RESULTS: Five types of gram-negative (Acinetobacter-62,5%% ; Enterobacter- 18,8% ; Klebsiella, Citrobacter and Serratia-6,3%) and two types of gram-positive (Staphylococcus sp coag neg-72,8% and Staphylococcus aureus-27,2%) bacteria were identified as hand colonizing microorganisms in HCW. The most prevalent agents identified as microorganisms of hospital-acquired infection were: Pseudomonas aeruginosa-33,3% ; Acinetobacter-26,7. As to the identification of the same gram-negative bacteria in both groups, from November 2008 to November 2009, they matched according to the following: February 2009 (100%); June and August (2009) (50% for each one). In the gram-positive group only in January and November (2009) they matched (50%). CONCLUSION: From the analysis it has been demonstrated that the relativity low match of gram negative and gram positive bacteria in both groups during each month from November 2008 to November 2009 could be explained by the efforts in keeping low rates of cross infection transmission in the hospital adult ICU through HCW hands hygiene

Glutaraldehyde and other Aldehyde Resistant Bacteria associated with the use of Washer-Disinfectors used in the Reprocessing of Flexible Endoscopes

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Various bacterial species are well-cited in the literature as adapting over time and resisting the specific anti-microbial activity of various antibiotics. Bacteria have also been shown to be capable in developing transient tolerance and permanent resistance to various biocides. Reports of the development of glutaraldehyde-resistance and other aldehyde-tolerance in various types of bacteria, in particular in atypical mycobacteria, have been reported in many countries. Atypical mycobacteria have been recently found to be more widely distributed in water, including tap water due to some unusual resistance mechanisms and can be routinely detected by specific culturing methods. Resistance in these microorganisms is a particular concern, considering that activity against mycobacteria is currently an essential requirement for the reprocessing of semi-critical devices by high-level disinfection. For example, a recent outbreak associated with Mycobacterium massiliense and M. abcessus in Brazil has been associated with the development of resistance to glutaraldehyde. Similar outbreak investigations have been reported in the UK, Japan, and the Netherlands.

Indeed, it would seem from these investigations that certain strains survived in concentrations of glutaraldehyde normally used for disinfection. The data concerning the isolation, analysis and investigation of various aldehyde-resistant bacteria will be reviewed with a particular consideration of the impact on flexible endoscopy. Many of these strains show dramatic resistance to active concentrations of glutaraldehyde and surviving normal disinfection processes with other aldehydes. Cross-resistance to other biocides has not been shown but new research on the mechanisms of resistance do cause some concerns regarding the potential of cross-resistance to various anti-mycobacterial antibiotics. In addition, a study has been conducted to survey washer-disinfectors in clinical use in the United States and to understand if similar strains can be identified from these washer-disinfectors. The results from this survey are ongoing and will be summarized during this presentation

Disinfectants efficacy against hardy viruses dried onto surfaces

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Some virus species resist harsh conditions, being able to survive on surfaces for long times and being potentially transmitted to susceptible hosts via these contaminated surfaces. For these reasons more studies are needed to evaluate the efficacy of biocides against viruses dried onto supports. In this work we used Porcine parvovirus (PPV), adenovirus type 5 (AD5), poliovirus type 1 (PV1) and vaccinia virus (VCV) as models. Viruses were dried onto stainless steel coupons with or without interference substance. Products to be tested were uniformly distributed onto surfaces and allowed to act for 5 to 10min. For atmospheric decontamination tests, coupons were transferred into an isolator linked to a hydrogen peroxide gas generator (VHP 100P, STERIS) and exposed to controlled concentrations of gas. After exposures, coupons were transferred into neutralizing solution (chemicals) or cell culture medium (atmospheric decontamination tests) and vortexed to allow virus suspension. The suspension was filtered onto sephadex columns to achieve complete neutralization before seeding onto susceptible cells. Residual viruses' titres were calculated using the Spearman-Karber calculation. Alkaline detergents Hamo-100 and ProKlenz-One presented good overall virucidal activities. Only PPV presented limited resistance when these products were used at room temperature. A new Peracetic acid-based product (HASTe) was demonstrated to be very efficient, with nearly complete kill achieved after 10 min contact time. The same results were observed with the hydrogen peroxide/PAA-based product SporKlenz. Gaseous H2O2 atmospheric decontamination using high concentrations for short times or low concentrations for long times in the presence blood constantly demonstrated complete kill for VCV, > 5-log reduction for AD5 and 3 to 4-log reductions for PV1 and PPV. This work demonstrates the efficacy of tested products and aerial decontamination against hardy viral species, thus giving evidence that they can be used in critical environments in which viruses constitute a threat to human health.

Phlebotomy Strategy Development - Nigerian Experience

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Issues: WHO recently published two phlebotomy focussed documents: best practices tool kit and guideline for blood draws that have necessitate the review of injection safety policy and strategy. Unsafe injections, misuse of sharps including unsafe Phlebotomy practices still remain major sources of transmission of blood borne pathogens such as Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) in developing countries, Nigeria inclusive. The rapid scale-up of HIV

prevention activities in Nigeria has resulted in the extension of services, increased ARV and HIV testing and monitoring services, have led to increased demand for phlebotomy services. Description: In Nigeria, there has been moderate injection safety and health care waste management intervention achievement but phlebotomy still remained a major challenge. In 2008, MMIS in collaboration with Federal Ministry of Health conducted a phlebotomy inclusive assessment in some selected health facilities in the country. Consequently, a workshop on phlebotomy was convened in 2009, with experts drawn from all geopolitical zones, confirmed gaps in phlebotomy practices. Therefore, the Government developed documents to address the identified gaps; these are; National Strategy for Phlebotomy and training manual as an add-on to the existing National Injection Safety facilitator's guide. Lesson learnt: The draft documents have been developed and currently undergoing peer review by wider stakeholders. The gaps identified have been addressed using the latest WHO publications. Recommendations: Stronger shared vision with all stakeholders desired to endorse and implement the strategy and training (formal and informal). We therefore recommend that: a National a follow-up national injection safety (IS) and phlebotomy assessment using WHO revised Tool C including in service training on best phlebotomy practices. GON to increase budgetary allocation for injection safety program (HIV/AIDS – FMOH) to include phlebotomy activities and collaborate with Regulatory bodies to ensure compliance with best phlebotomy policy.

Changing Pattern of Pathogens: Causing Urinary Tract Infections in Karachi.

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The study under view is based under the aim to investigate the prevalence and susceptibility pattern of pathogens, causing urinary tract infections (UTIs), to antibiotics commonly used in routine medication. Over a period of 10 months 100 isolates were collected for the determination of their susceptibility to chosen antibiotics, from a health laboratory (MedPath Laboratories) in urban area of Karachi. All Gram-negative and Gram-positive microorganisms, the recognized urinary tract pathogens, were re-identified by their morphological and biochemical characteristics and the susceptibility to seven antibiotics was determined. Pathogens were found as, Escherichia coli, Pseudomona species, Klebsiella species, Enterobacter species, and Staphylococci species. Antimicrobial sensitivity testing of all isolates was performed on Muller-Hinton agar plates by Kerby Bauer method. The discs of antibiotics used were Amoxicillin/Clavulanic acid, Cefixime, Chloramphenicol, Gentamicin, Imipenem, and Ofloxacin. In recent study, more than half of the Escherichia coli isolates were resistant to one or more of the all antimicrobial drugs investigated. Resistance was most common to Amoxicillin/Clavulanic acid and Ofloxacin, Cefixime, followed by Gentamicin. Our results indicate that Escherichia coli and Pseudomonas species were the most common organisms causing UTI in the local community. Other organisms involved were Enterobacter species, Staphylococcus species, and Klebsiella species. Increasing patterns of resistant to gentamicin, Ofloxacin, were also observed. In conclusion, pattern of antibiotic susceptibility to first line antibiotics is changing hence antimicrobial susceptibility testing of all isolates is crucial for the treatment of UTI.

Interventions on medical waste management in Nigeria: Implications for nosocomial HIV transmission

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Issues: The problem of medical waste management (MWM) is global; but of heightened intensity in developing countries. Improper MWM is recognized risk factor for transmitting hospital-acquired blood-borne pathogens including HIV whilst contaminating the environment. Nevertheless, minimal interventions focus on the occupational health and patient safety dimensions in preventing HIV. Description: In pioneering efforts to prevent HIV transmission within health facilities, Action Family Foundation (AFF) and personnel from the Lagos University Teaching Hospital initiated advocacy with the state waste management authority to institute a MWM department in 2005. We undertook formative research, stakeholder enlightenment and community sensitization on hazards of improper MWM. Four annual summits

have been hosted with participants from Nigeria and abroad. With funding from National AIDS Control Agency, AFF implemented a six-month project to mainstream injection safety and safe MWM for prevention of nosocomial HIV transmission involving capacity enhancement for stakeholders across four states. Recently a coalition - Health Care Quality and Patient Safety Association of Nigeria - was formed to scale up actions. Lessons learned: The magnitude of the hazards posed by unsafe MWM in Nigeria is aggravated by the lack of educational windows in the training of health workers as well as HIV prevention programmes capable of effecting sustainable behavioural change amongst the practitioners. The result is numerous cases of reported hospital-acquired HIV infections. The hazards of unsafe injections and improper MWM to health workers, patients and community require targeted investments to assuage. Recommendations: The project is quasi-intervention research work to build local capacity and generate data to inform scaling up of scientific MWM in the regions. Our presentation will share local experiences and proffer evidence-based framework for mainstreaming MWM and injection safety interventions to improve health care quality, safeguard providers from occupational HIV exposure, assure patient safety and prevent environmental contamination

Study of sputum and bronchoscopic lavage for acid fast bacilli in suspected patients of pulmonary tuberculosis

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Introduction: The diagnosis of tuberculosis is based on the detection of mycobacterium tuberculosis on clinical specimens with different methods. There are many techniques, such as molecular methods and direct examination of acid fast stain and cultures. The aims of this study were determination of the reliability of acid-fast stain in diagnosis of suspected patients of pulmonary infections. Methods: In the present study, 2872 specimens (sputum & bronchoscopic lavage) for laboratory diagnosis collected, specimens submitted for smear were stained with Ziehi Neelsen stain and examined under the light microscope for smear examination. Results: From 1726(60%) specimens were isolated from male patients and 1146(40%) were from female. There were 2758 sputum and 114 bronchoscopic lavage. One hundred eighty three (6.4%) of total specimens were positive for acid-fast bacilli which 18.6% were lavage and 81.4% sputum. Also, in specimens positive 60.7% were male and the female were 39.3%. Conclusion: The results of the present study indicated that acid-fast stain (Ziehl Neelsen stain) is the best for all suspected tuberculosis cases. Specimens (sputum and lavage) were more in male patients than female. Keywords: sputum - bronchoscopic lavage - acid fast bacilli - tuberculosis

Prevalence Study of Beta– Lactamase genes TEM-1, SHV-1 and CTX-M in strains of Extended Spectrum Beta-Lactamases producing Enterobacteriaceae by Multiplex

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Objective: Antibiotic resistant due to beta-lactamase is one of the most forms which is seen in many of bacteria especially in Enterobacteriaseae. During a 14 month period we surveyed Extended Spectrum Beta-Lactamases (ESBLs) phenotype production and TEM, SHV and CTX-M genes by Multiplex PCR method. Methods: In this study, Enterobacteriaceae strains isolated from 8000 clinical specimens (except stool) were examined. The isolates were identified by biochemical tests and then primary antimicrobial susceptibility test was performed by Kirby-Bauer disk diffusion method to seven antibiotic disks. ESBLs producing strains detected by phenotypic confirmatory test using single or combined Ceftazidim/ Cefotaxime – Clavulanic acid disks. Then DNA extraction was done by DNP kit procedure and finally presence of blaTEM , blaSHV and bla CTX_M genes were evaluated by Multiplex PCR Method. Results: We identified 420 bacterial strains of Enterobacteriaceae which were isolated from clinical specimens, such as blood, wound and eye samples. Escherichia coli (E. coli) and Klebsiella pneumoniae (Kl. Pneumoniae) were the most common isolates with frequency of 64.5 and 20 percent, respectively. Drug resistance patterns of these strains showed that resistance to Cefotaxime, Ceftriaxone, Ceftazidim, Cefepim,

Cefepirom were 44, 44, 42, 39.5 and 39 percent, respectively. Confirmatory test showed 128 strains (30.5 %) produced ESBLs. Multiplex PCR of the genes among positive ESBLs bacteria (73 strains) showed TEM gene in 65.5% and SHV in 15% strains. Also, 14 isolates (19%) had both TEM & SHV beta-lactamase genes, but CTX-M was not detected in isolated bacteria. Conclusion: This study showed that the prevalence of ESBLs, beta-lactamase genes and antibiotic resistance patterns were noticeable among of Enterobacteriaceae isolates, especially E. coli and Kl. pneumoniae. So, we suggest that combined therapeutic regimens such as beta-lactamase antibiotics and beta-lactamase inhibitors or carbapenems be limited only to patients with serious infections

When hygiene, sustainable development and economy meet: The example of urinary drainage

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30.3% of Nosocomial Infections (NI) are of urinary origin (UNI). These NI can be avoided by the choice of Medical Devices, the quality of their application and the care given in connection with them. The cost of a UNI varies from €1,000 to €2,000 with an increase of 1 to 4 days in the length of the hospital stay. objective: To compare the cost, the conformity of the procedure with regard to French recommendations and the quantity of wastes produced. Methodology This study was conducted by comparing 8 catheterization situations. We used 3 judgment criteria: • conformity with French recommendations: closed system principle, • cost of the catheterization procedure, • weight of the wastes produced. Results Situations of non-conformity with national recommendations : • Situations No. 4 and No. 5: drainage bag not sterile and system not closed, • Situation No.7: use of an indwelling catheter for drainage catheterization. Situations of conformity : • Situations No. 1 and No. 3: Complies with the recommendations and adheres to the conditions of asepsis related to the connection of the catheter to the sterile bag, ,• Situations No. 2 and No. 6: Complies (however, there is no anti reflux valve), • Situation No. 8: Complies with the recommendations (it has an anti reflux valve). The price for the situations in compliance with recommendations (No. 1,2,3,6 and 8) varies from €2.63 before taxes (situation No. 8) to €3.39 (situation No. 2). The production of wastes (situations in compliance with recommendations) varies from 137.57 g (situation No. 8) to 422.72 (situation No. 1). Conclusion: The ready- to-use pre-lubricated catheter (situation No. 8) with a anti reflux valve is the least expensive, the most reliable in terms of placement and produces fewer wastes.

A critical review on aoac udm from a statistical perspective

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The AOAC Use Dilution Method has been the sole method used to evaluate the bactericidal activity of disinfectants in the USA since 1964 and has been shown to produce highly variable results. The objective of this study was to provide a statistical review of the pass/fail test and to estimate the probability of passing a confirmatory test based on product robustness The probability of a product with claims against different organisms being accepted was modeled, based on the binomial nature of the test and given the EPA test criteria. The robustness level for a formulation was defined as the probability that it would pass all bacterial tests. A level of 95% or more, for example, was accepted as a very robust formulation and 50% or less, a non-robust one. For a non-robust product with claims against 6 different bacteria, for which we estimated the probability of failure of a single tube to be 0.0095. Using the binomial probability function we calculated that such a product will pass a confirmatory test for one lot and 60 carriers with a probability of 89%. For a robust product, the probabilities of a single failure and passing the confirmatory test were estimated to be 0.0015 and 99.6% respectively. The Antimicrobial Testing Program in the EPA shows a 33% failure rate for UDM confirmatory tests. The corresponding probability for a positive tube can be estimated as 3.8% based on the operating characteristic curve. If all claimed bacteria are retested, it is estimated that only 0.3% of them will pass all the tests. This implies that either the products are extremely non-robust, which does not seem to be correct, or there is a fundamental flaw in the AOAC UDM method. Consequently the method should be replaced by a reliable one such as a quantitative method

Risk of healthcare associated infections by poor emptying and decontaminating of bedpans and urinals

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Background Insufficient decontamination of bedpans and urinals increase the risk for healthcare associated infections (HAIs) and is a risk for occupational health. Manual procedures must be avoided. Since International Organization for Standardization (ISO) nr.15883 Washer-disinfectors (WD) has been published, less attention was paid for part 3 what specified requirements for WD intended to be used for emptying, cleaning and thermal disinfection. This study is done to get insight in the current decontamination methods. Aim To minimize the risk by emptying and decontaminating bedpans. Methods To indentify emptying and decontaminating methods a questionnaire was sent by e-mail to 1176 hospitals in 116 countries. Questions covered emptying of the content and methods of cleaning and disinfection, guidelines for Clostridium difficile and awareness of ISO15883. Final question asked for the role of bedpans and WD in HAIs. Results Response rate from Netherlands was 59% and international from 53 countries 13 %. Reports varied for emptying and cleaning/disinfecting methods. Nurses empty bedpans manually (65%) in toilet or slophopper. Manual bedpan decontamination is 51% and 23% take measures in case of Clostridium difficile. Single use bedpans per stay are used in 8% of hospitals and 7% sent bedpans to the central sterile department. Macerators in place for 14 % and WD 64%. In Netherlands 100% WD and west Europe 97 % WD are used and 76% knows ISO15883 in contrary of the rest of the world (14-37%).. WD or bedpans have played a role in HAI (8%). Many participants never searched for this potential source (68%). 13 hospitals did not have bedpans but used catheters or diapers. Discussion Standardised procedures for handling of human waste containers is needed and attention must be paid for ISO15883. WD improves safety and prevent staff from unpleasant jobs. A patient should never have a catheter or diaper without indication.

Surveillance of Multidrug resistance organisms, the role of a microbiology laboratory

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Introduction Hospitalized patients are at high risk of infection because of their underlying diseases and the invasive procedures that they usually undergo.it may also difficult to differentiate between colonization and infection Aim The aim of our study was determine the trend of the multidrug resistant organism isolated from the blood cultures at the Steve Biko academic hospital. Method: A retrospective study was done in which the laboratory data on blood culture isolates was extracted from the DISA (computerised laboratory data system) for the period January to December 2009 looking at the 3 organisms namely; ESBL positive Klebsiella pneumoniae, Pseudomonas aeruginosa and Acinetobacter baumanni and their susceptibility to the commonly used antimicrobials. Results: A total number of 23197 bottles were submitted and 5034(21%) had positive cultures. The ESBL positive rate among Klebsiella pneumonia isolates per quarter was 59, 51, 56 and 70% respectively. All isolates were still susceptible to the carbapenems and they were 8.7 % of the positive cultures. P.aeruginosa isolates resistant to carbapenems per quarter were 45, 43, 44 and 56% respectively. These contributed 2.6% of the positive isolates. A. baumanni isolates resistant to carbapenems were 57, 65, 70 and 82% respectively. These isolates contributed 3.4% of the positive blood culture isolates. Discussion When looking at the above mentioned results, it is evident that there is an increase in the trend of MDR organisms which needs urgent attention. The resistance to carbapenems by both A.baumanni and P.aeruginosa implies that the only option left is to use colistin which is not readily available in our hospital. Conclusion These laboratory based surveillance findings reflect a magnitude of the potential problems that this hospital is facing and should be used by both the infection control team and the antibiotic forum in an attempt to stop the potential antimicrobial disaster.

Integrating infection Prevention control in clinics providing collaborative TB/HIV activities in Tanzania ; PATHs Experience

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Introduction: PATH in collaboration with the national Tuberculosis and Leprosy program (NTLP) is implementing collaborative TB & TB/HIV activities in five regions since 2005 and has begun scaling up infection Prevention control(IPC) in its supported health facilities since 2008. . Methodology/activities: The coordinators were trained in IPC initially, and started sensitization on infection prevention control in their district as part of their routine activities. IPC was included in their supervision checklists also sensitizing the health care providers(HCP) and health facilities in charges as ongoing job training. They did a quick assessment of health facilities with high burden of tuberculosis patients and 102 HCP were selected to attend Tuberculosis IPC training. The training focused on introduction to IPC, administrative, environmental and Patient protection and learned how to do Health facilities assessment and how to make plans and finally had practical sessions on how to make simple IPC IEC messages like "please cover your mouth when coughing and sneezing" Results/success: Among the 50 HF whom their health care providers were trained 35 HF had developed IPC plans or IPC IEC messages, either most clinicians had changed their sitting positions in attending the TB patients , most of diagnostic center laboratories started to practice IPC in handling and fixing sputum's. Most health facilities TB rooms and waiting bay for TB patients were renovated, and more air circulation was observed. Also health facilities perform group health education three times in a week including cough etiquette to individual and all TB patients and their treatment supporters Challenges: Lack of national IPC manual-manual developed still in draft phase, Lack of national training curriculum, Staff turnover from clinics, Infection control activities not in the current plans, Lack of follow up of trained staff

Burn unit: 5 year survey of Acquired Infections and the Impact of a Prevention Program

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Introduction: Infection is one of the first complications associated with burn injury and a burn unit one of the departments where infection prevention assumes a particularly important role. Our rate of MRSA infections was particularly high in this unit as well as catheter-associated bloodstream infections. Methods: We applied an infection prevention plan on the unit. This plan included a complete cleaning of the environment in the Unit and of the equipment in every common spaces every 2 months, including physical and occupational therapy rooms and patient rooms. The hydrotherapy bath use was stopped for patients burned over 20% body surface area. Results: A clear decrease in the incidence of infections per 10000 presence days was noticed following the introduction of these measures, with a drop over 50% from the year 2005-2006 to 2008-2009 (from 120.4 to 56.4). The incidence of bloodstream infections dropped as well, reaching as much as 75% (from 10.1 per 1000 presence days in 2005-2006 to 2.5 in 2007-2008). A clear decrease in the number of MRSA infections was noticed. However, the incidence of Candida infections increased progressively over the years. Complete data will be presented. Conclusions: This study showed the impact of simple measures on infection incidence in a burn unit, although much work remains to be done.