December 30, 2010. A cohort of 1030 LLINs owned households, with their household members, were randomly selected and involved in the study. The data were collected in four waves every other week via interviews and observations. A Generalized Estimating Equation (GEE) was used for data analysis.

Results: Consistent use of LLIN declined towards the end of the malaria season. Early in the season 2236(41.6%) individuals were consistent users and at the end of the season it declined to 10.2%. The presence of LLINs on hanged position (Adjusted IRR = 3.41, SE = 0.181, P<0.0001), availability of an adequate number of LLINs (Adjusted IRR = 1.25, SE = 0.052, P<0.0001), and the presence of children under five years age (Adjusted IRR = 1.24, SE = 0.078, P<0.0001) were more likely to use LLINs consistently than their counterparts.

Conclusion: Residents in malaria endemic areas tend to be less protected at the end of malaria transmission season. Individuals tend to use bed net if it is kept in a ready to use position in the household.

Type: Poster Presentation

Multi resistant VIM-positive Pseudomonas aeruginosa in the health care setting - Lessons learned to combat transmission

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Background: Multi drug resistant (MDR) *Pseudomonas aeruginosa* are increasingly seen in the hospital. Especially vulnerable patients are involved. In our 1320-beds university hospital, Rotterdam, the Netherlands, we experienced an outbreak of MDR –VIM positive *P. aeruginosa*.

Methods & Materials: The outbreak was investigated by identifying environmental sources, transmission routes and by implementing preventive measures. P. aeruginosa can be found in high humidity places(e.g. water taps, sinks, respiratory therapy equipment). Therefore, source environment was extended to these reservoirs or sources. Furthermore, we performed a systematic review to further elucidate sources and transmission routes.

Results: This outbreak was atypical in the number of patients affected (n= > 150) and the period of time (5-6 years). Many interventions were consecutively applied. Increase of compliance of general prevention measures was not successful. However, the ongoing transmission could be explained by persistent sources, the sinks. Measures to prevent transmission were adapted after this finding; separation of clean and dirty procedures and materials in the neighborhood of the sink, whih led to a decrease in transmission. However, these measures depend highly on the compliance to keep away from this contaminated place. Disinfection of the sink and syphon was not successful on the long term.

Cultures of hands health care workers have been performed, but they all were tested negative. Environmental cultures were negative except sinks.

Furthermore, device related transmission was detected and outbreak management was aimed at contacts of the device instead of contacts of patient. after the device was removed, the transmission stopped.

The systematic review and meta-analyses showed that carbapenem use and medical devices are the leading risk factors for carbapenem-resistant *Pseudomonas aeruginosa*. This highlights the importance of antibiotic stewardship and reduction of device days.

Conclusion: Outbreak management of MDR *P. aeuruginosa* was more complicated than expected. This was primarily due to newly recognized sources and difficulty in removing these reservoirs. Classical contact search by looking back and screen contact patients (epidemiological relations in time and space) did not stop transmission. Therefore, in case of P. aeruginosa one of the starting points of outbreak management should be the detected reservoirs followed by a prospective and retrospective contact search.

Type: Poster Presentation

Antibiofilm and antimicrobial activity of bacteria from hard corals and sponges in Indonesia

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Background: Antibiotic usage is the most important treatment to overcome the problem of pathogenic bacteria. Pathogenic bacteria that can form biofilm are even more dangerous than single bacterium due to high resistance against antibiotics and host immune system. Marine ecosystem is a high potential source of antimicrobial agent produced by organisms and microorganisms associated with them, which included hard corals and sponges. Therefore, the discovery of new metabolite that show antimicrobial activity as well as inhibit biofilm formation is required as alternative approach to fight infection of pathogens.

Methods & Materials: In this study, we screened hard corals and sponges associated bacteria with antimicrobial activity and antibiofilm activity for both inhibition and destruction activity. We used several pathogen bacteria to be tested for antimicrobial activity including Staphylococcus aureus ATCC 29213, Streptococcus pneumoniae ATCC 49619, Shigella flexneri, Vibrio cholera, Pseudomonas aeruginosa ATCC 27853, and ETEC using agar well diffusion method. While for antibiofilm activity certain isolates were analyzed against some pathogenic bacteria including Staphylococcus haemolyticus, Streptococcus pneumonia ATCC 49619, Staphylococcus aureus ATCC 29213, Pseudomonas aeruginosa ATCC 27853, Vibrio cholera C43, Enterotoxigenic Escherichia coli, Enteropathogenic Escherichia coli. Several isolates were further identified using PCR amplification of 16S rRNA gene sequencing. Characterization of the antibiofilm compound also done to classified the compound as polysaccharide, nucleic acid or protein

Results: Twenty six bacteria were isolated from hard corals and sponges, and twenty of them (77%) showed antimicrobial activity against S. flexneri, S. pneumonia, P. aeruginosa, and Vibrio cholera. We also assayed the susceptibility of all the isolates against several antibiotics. It performed that 30.77% isolates were resistant

to Erythromycin (10μg), 23.07% were resistant to Trimethoprim (5μg), 7.69% were resistant to Kanamycin (30μg), and 3.84% were resistant to Ciprofloxacin (5μg) and Gentamycin (10μg). Six out of fourteen marine isolates showed potential antibiofilm activity and were further sequenced to identify the isolates as well as compound characterization. One isolate showed stable results for the inhibition and destruction assay and were further characterized to identify its bioactive compounds.

Conclusion: Marine bacteria are potential source of antimicrobial and antibiofilm resources and this activity were promising as potential candidate for many industrial application.

Type: Poster Presentation

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Session: Poster Session II
Date: Friday, March 4, 2016
Time: 12:45-14:15
Room: Hall 3 (Posters & Exhibition)

Infection prevention and control - Bridging the knowledge gap among Kenyan health care workers

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Background: National policies and guidelines for infection prevention and control (IPC) have been in existence in Kenya since 2010. In addition, a national Strategic plan for IPC was developed and launched in 2014 and is currently being implemented. However, there are currently no surveillance programs in place for health care–associated infections (HAIs) or formal training course in infection prevention and control for health workers in Kenya.

Methods & Materials: This study was designed to assess the knowledge and practice of infection control among Kenyan health care workers (HCWs) in selected public health facilities. Twenty one (21) health care workers were conveniently sampled from three public health facilities. They comprised nurses (9), pharmacists (3), clinical officers (4) and laboratory technicians (5). The study comprised a fifty question pre- test prior to the administration of the basic training in Infection prevention and Control followed by a post- test after pilot testing the modules to assess knowledge transfer. None of the selected HCWs had not undergone any comprehensive training in infection prevention and control.

Results: The pre-test average score was 41%.

IPC Parameter	% Knew	% Did not know
Application of standard precautions	95	
Cohorting		53
Most Commonly occuring HAI		95
Difference between colonization and infection		100
Right order of processing Instruments		100
Time required toachieve High level disinfection		84
Spectrum of activity of disinfectants		79
Purpose of Handwashing	58	
Proper disposal of injections	79	
Waste segregation	68	

Conclusion: Although several efforts have been made to strengthen IPC programs, major gaps still exist in IPC knowledge, skills and attitudes. These gaps can be attributed to deficiencies in previous training administered which focused on specific areas of IPC like injection safety and medical waste management instead of a comprehensive approach to IPC training. Responses to questions showed specific gaps in prevention of hospital acquired infections and antimicrobial stewardship, instrument processing and sterilization procedures.

The findings from this pilot training provide valuable baseline data for future interventions in providing training on infection prevention and control for health workers. An intergrated yet comprehensive IPC training, is necessary to reach a wider cross section of HCWs to address the above gaps.

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Active fractions from Zanthoxylum acanthopodium fruit modulate inflammatory biomarkers in lipopolysaccharide-induced macrophages in vitro

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Background: The fruit of *Zanthoxylum acanthopodium* has been traditionally used as a traditional medicine in Indonesia. Our previous study demonstrated that *Z. acanthopodium* fruit extract exerted anti-inflammatory effect for prevention and treatment of inflammatory-related diseases.

Methods & Materials: In this study, we isolated active fractions from *Z. acanthopodium* fruits, i.e. polysaccharide, protein, polyphenol, and essential oil fractions, and tested their efficacies on modulating the expression of several inflammatory biomarkers, such as tumor necrosis factor (TNF)-α, interleukin (IL)-6, inducible nitric oxyde synthase (iNOS), cyclooxygenase (COX)-2, and matrix metalloproteinase (MMP)-9, at protein and gene levels in lipopolysaccharide (LPS)-induced macrophages by conducting ELISA and Real Time-PCR assays.

Results: Most fractions at lower dose (10-25 μg/mL) showed a significant inhibition ($\sim$50%) on TNF-α, IL-6, and MMP-9 levels in LPS-induced macrophages treated with LPS. At gene level, essential oil and polyphenol fractions (1-5 μgmL) strongly reduced the mRNA expression of TNF-α, IL-6, iNOS, COX-2, and MMP-9 in cell system.

Conclusion: These results suggest that selected active fractions derived from the fruits of *Z. acanthopodium* may be considered for anti-inflammatory candidates in LPS-induced macrophage system.