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.

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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.

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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