Microbial flora reduction in educational institutions by antimicrobial copper alloys implementation


1 Microbiology Laboratory of Aretaieio Hospital, Athens University, Greece, Athens, Greece
2 Athens, Greece
3 Microbiology Laboratory of Aretaieio Hospital, Athens University, Athens, Greece

Background: Aim of this report is the application of antimicrobial copper alloys in multi-touch surfaces at educational institutions (mass gathering areas) for the reduction of microbial flora in order to protect public health.

Methods: We used antimicrobial copper alloys (Cu63%-Zn37%) to cover or replace multi-touch surfaces (door handles, railings, hand-push surfaces etc) in specific elementary school. Estimation of microbial flora and viral load carried out in two phases. Prior and after antimicrobial copper implementation. Samples were taken from surfaces, cultured in appropriate-selective culture media for microbial growth and molecular techniques for isolating viruses.

Results: Results showed clear reduction in the amount of microbial loads in all surfaces and objects replaced by antimicrobial copper. The number of bacteria isolated in the respective surfaces before the copper implementation was a multiple of bacteria isolated after copper implementation. The correlation resulted in the findings of a reduction in the number of bacteria colonies (CFU/ml) after antimicrobial copper implementation.

Conclusion: Researchers has shown great interest in antimicrobial copper since usage of both antimicrobial copper and its alloys for the protection of public health gives encouraging results. Usage of the antimicrobial properties of copper in multi-touch surfaces of mass population concentrations, such as in schools, has already started to apply worldwide. Limiting the spread of germs and viruses in those areas in combination with the implementation of the basic methods of infection preventing (clean hands, etc) is a strong antimicrobial ally to Public Health.

http://dx.doi.org/10.1016/j.ijid.2012.05.679
Methods: Interviews were conducted of THPs with the help of a semi-structured questionnaire and plant samples were photographed and identified at the Bangladesh National Herbarium.


Conclusion: Since the population of Bangladesh mostly does not have access to primary medical facilities, the above plants can form the basis of treatment for cancer, pneumonia, tuberculosis, and sexually transmitted diseases without resorting to costly urban visits or allopathic health practitioners. Scientific studies conducted
on the above plants may lead to discovery of more effective drugs than in use at present.

Methods: Our hospital is a 600 bed tertiary care centre located in South India. A total of 450 clinical isolates were studied during the study period from August 2010 till January 2012. Identification and susceptibility testing to ceftazidime, cefepime, piperacillin-tazobactam, cefoperazone-sulbactam and imipenem was done by both Vitek 2 compact (BioMerieux, France) and Kirby-Bauer’s disk diffusion method using CLSI guidelines 2011. Cefepime-tazobactam (30/10 µg Hi Media, Mumbai) was tested by Kirby-Bauer’s disk diffusion method. The cefepime zone size as per CLSI 2011 was used to interpret cefepime-tazobactam sensitivities as no criteria for cefepime-tazobactam is available.

Results: The 450 samples studied included 230 urinary isolates, 70 respiratory isolates, 55 pus samples, 50 bacteremic isolates and 45 isolates from tissue. The antibiotic susceptibility observed is as shown in the table.

Conclusion: Cefepime-tazobactam is a promising option in the management of infections due to enterobacteriaceae and pseu-