Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Methods: 20 filters were installed for a two week test in 20 sinks on 2 wards in 9-2005, one in the University Medical Center Giessen and one in Bonn. Following a uniform protocol tap water was sampled before, during and after installation, additionally water samples from the siphon and smears from the sink, it's outlet and the filter outlet were taken. Analyses comprised colony forming units (CFU), Escherichia coli, coliform bacteria, Pseudomonas aeruginosa and Legionella spp. Water pressure and flow were assessed.
Results: Before filter installation CFU and Legionella spp. were up to 5.0×10^3 CFU/ml and 3300 CFU/100 ml respectively. Escherichia coli, coliform bacteria and Pseudomonas aeruginosa were not detectable. After installation only 1 sample showed contamination (2 CFU/ml). After removal concentrations of microorganisms were in the same magnitude to prior filter installation. High concentrations of CFU (up to 106 CFU/ml), coliform bacteria (up to 104 CFU/100 ml) und Pseudomonas aeruginosa (up to 105 CFU/100 ml) were detected in siphon water samples. Pseudomonas were detectable in smears from the sink outlet and once in the sink, while they were not detectable in smears from the filter outlet.
Conclusions: It could be demonstrated that the tested point-of-use filter provides hygienically safe water over the indicated life time, regardless of high bacterial contamination in the siphon and sink outlet. Thus the filter offers efficient protection against retrograde "internal" contamination. The 14 days use gives additional advantages such as reduced costs, waste and work load for staff.

P9.05
The Assesment of External and Internal Environmental Factors in Selected Hospitals

S. Micheal*. *The Org. of Teaching Hospitals and Institute, Egypt*

By the internal and external environmental Conditions. The chosen hospitals 1. Medical Research H. 2. Ahmed Maher H. 3. Fever H.
Methods: Floor cultures were taken.
Results: (1) External Sourees of Polloution: Nine out of eleven were present surrounding both Fever H. in Hadara and Ahmed Maher H. in Mahatet Masser Avn. Those factors are: Sewae overflow in streets, barns and stables, refuse tins, general toilets and markets, Also there is factories, compact houses and are near to rail way station, busseop and Tram station. This can be compared. To 3 sources only surrounding the medical Research H. At fever hospital internal sanitary conditions are the worst. The lowest bacterial count of the floors was found in the operation theater as 24 colonies colonies cm3 in Medical Research H. compared to 232 for fever H. and 122 for Ahmed Maher H. The lowest Total count 73 was found in Medical Research H. The highest 101 was found in fever H. in between Ahmed Maher H. 93. This research was done before the removal of most of the sources of pollution in Mahatet Maeser avn. by governor Mahgoob. Hygienic hospital environment is a major contribution towrds the suppression of H. acquired infection.

P9.06
Relation Between Hospital Design and Hospital Infection

S. Micheal*. *The Org. of Teaching Hospitals and Institute, Egypt*

Objectives: The present study was done at Damanhour Teaching Hospital to identify the following aims: 1. To estimate the prevalence rate % of NI among different departments in the hospital. To determine the influence of the number of sinks on the NI rate %. 2. To assess the knowledge of the medical staff regarding the importance and the proper way of hand washing. 3. To focus on the importance of hospital design in developing countries.
Patients and Methods: The target population for this study consisted of 217 patients admitted at the hospital >ã = 48 hours. A questionnaire was developed by the researchers after reviewing literature. This questionnaire composed of two parts, the first part elicited the clinical examination supported by the laboratory and x-rays investigations to assure the exactly number of the Nosocomial infected patients among 217 patients the, second part included questions covering the number of sinks, number of occupied beds, number of medical staff in the chosen hospital departments. Samples were taken from the wounds aerobically and anaerobically.
Results: The sinks are completely insufficient for hand washing (about one sink for every 40 medical staff). The data showed that E. coli is the microorganism most commonly isolated from Nosocomial infected patients which improve the improper hand washing and the poor personal hygiene.
Conclusion: Hand washing is the most single important means of preventing the spread of infection. Hospital design in developing countries should be taken in consideration in the future for prevention and control of Nosocomial infections.

P9.07
Practical Solution for Assure Hospital Laundry Process Success in Removing Fungal, Bacterial & Viral Infections

S. Micheal*. *The Org. of Teaching Hospitals and Institute, Egypt*

There were no standard Laundering Procedure for clarifying the hygienic status of the heavily contaminated hospital linen, specially in developing countries where cleanliness and sanitation are well taken care of. The study suggested a new technique using 3 steps Prechlorination, heat disinfectant and poschlorination.
Methods: The washing procedure in Damanhour hospital laundry routine &new technique were examined for the total bacterial counts as an index of the degree of contamination and disinfections 5 linen were randomly chosen frpm 200 linen (the capacity of the main hospital machine is 200 linen) from all wards surgical medical pediatric burn urology, ENT gynecology and obstetrics. The linens made from white cotton every 5 linen were surveyed once before washing and once after washing This carried in 3 steps1 Prechlorination rinsing with cold water mixed with sodium hypochlorite liquid 50 PPm for 30min. (2) Heat disinfection washing process with detergent and the temp of water raised to 93C for at least 10min3 Postchlorination the last rinsing with cold water mixed with sodium hypochlorite 200PPm for at least 45min.
Results & Discussion: In the present study all the dirty used and unwashed hospital linen were extremely loaded with uncountable microbes. This situation give and idea about the load on the laundering process in Damanhour hospital. (1) Cold process: It is obvious that this very simple program failed completely to remove dirt and microbes from used linen. (2) Hot process: Also failed in complete disinfectant of the used linen. It is very clearly that this suggested 3 steps new program succeed 100%. In removing dirt and microbes from used contaminated linen.
Conclusion: In our study the new technique program of washing and disinfecting succeed in reducing the number of organisms from uncountable.

P9.08
The Quantitative Detection of Mycobacterial Contaminations in Endoscope Reprocessors

Y. Hirai*, R. Sugawara, T. Sasahara, S. Hayashi, H. Shimomura, A. Yoshimura, E. Takaoka, H. Gomi, Y. Morisawa. *Jichi Medical University, Japan*

Background: Mycobacterial contaminations have been detected only qualitatively from water in hospital environments. The

quantitative detection is difficult from environments in which mycobacteria co-exist with usual bacteria.
Aim/Objective: To evaluate a method for the selective and quantitative detection of mycobacteria from water in hospital environments, and to detect usual bacteria and mycobacteria quantitatively using with the new method in endoscope reprocessors.
Methods: We have developed a modified oxalic-acid method (OAM) anew. In the OAM, samples are treated with oxalic-acid solutions for 30 min. After neutralization with a phosphate buffer, samples are filtrated with filters (pore size: 0.45 mm). The filters are placed onto 7H11 agar which contained nalidixic acid and amphotericin B for culture of mycobacteria.
Results: On the concentration of oxalic acid in OAM, a 0.05% solution killed most of gram-negative rods, whereas it did not decrease CFU of M. fortuitum, a rapid grower. Some of methylobacteria survived after the treatment, whose red or orange colonies were easily distinguished from those of other bacteria. A 0.5% solution reduced CFU of M. fortuitum, whereas most of M. avium were still alive after the treatment. Bacteriological surveillance was performed with OAM at 9 water samples in 9 endoscope reprocessors. In contaminated bacteria, range at usual bacteria distributed widely (from 0 to 258 CFU/ml). Mycobacterial contamination surpassed that of usual bacteria (range from 6.8 to 635 CFU/ml, average 251 CFU/ml). The contamination of mycobacteria did not correlate with that of usual bacteria. In contaminated mycobacteria, rapid growers, especially M. fortuitum, were mainly detected. M. avium was also detected to some extent at 4 samples.
Discussion/Conclusion: The new method of ours disclosed that water and supply water pipes in endoscope reprocessors were contaminated with mycobacteria more than with usual bacteria.

P9.09
Air Sampling for Bacterial and Fungal Cultures in Operating Rooms
C. Ezpeleta*, J.A. Alava, C. Busto, I. Atutxa, E. Gómez, M.J. Unzaga, R. Cisterna. *Basurto, Spain*

Background: The usefulness of bacterial and fungal cultures in operating rooms has been questioned. In our country air cultures are mandatory because of local regulations.
Objectives: The aim of this study is to assess the efficacy of bacterial and fungal cultures in air samples in operating rooms.
Methods: Operating rooms for vascular, heart, ocular and ortophedic surgery with prosthesis are classified as high risk. Cultures for bacteria and fungi early in the morning with an empty operating room and a second culture on the same day during surgical activity are made every month. The MAS 100 (MERCK) microbial air sampler is used. Samples for bacteria are cultured in blood agar and incubated 48 hours at 35ºC. Fungal cultures are made in Saboureaud + Cloranfenicol and incubated 7 days. Standard for high risk: fungal cultures 0 cfu/1000 liters of air and bacterial cultures <10 cfu/1000 l.
Results: Since March 2005, 306 samples have been recovered in high-risk operating rooms. Bacterial cultures 21.57% positives in the empty room samples, cfu range 10–208; and 70.27% positives during surgical activity cfu range 10–349. Fungal cultures: 4% positives in the empty room samples cfu range 1–8 and 8% positives during surgical activity cfu range 1–2. Repeated positive bacterial cultures were found in early morning samples and in samples during surgical activity in vascular and heart surgery operating rooms. New cultures were made just in the air intake to discard a contamination of the ventilation system. Air intake cultures were negatives, therefore a meticulous review of the cleaning procedure and environmental cultures were made. Bacterial cultures of the fan of the blood exchanger located inside the operating room were positives. The apparatus was cleaned and since then air cultures had been negatives.
Conclusions: Bacterial and fungal cultures in air samples from operating rooms can be useful to check the efficacy of the cleaning procedures in the operating

P9.10
Legionella Control in a Hospital Water Supply System: Missing Sieves in Thermostatic Mixers Causing a Persisting Problem
G. Moen*, M. Van Rijen, J. Kluytmans, P. Van Keulen. *Amphia Hospital, Netherlands*

Background: After the outbreak of Legionella disease related to the Westfriese Flora, flower exhibition and fair, in Bovenkarspel the Netherlands, new more strict guidelines and laws for the prevention of Legionella in water supply systems were emerged by the Dutch government. Conforming these guidelines and laws hot tap and drink water systems of public buildings and institutions have to meet certain requirements. The owner of the water systems is obliged to draw up a Legionella prevention management policy.
Objective: Purpose of our study was to determine the problem causing the contamination of the water supply system, to accomplish less than 50 Colony Forming Units (CFU) Legionella sp. isolated par litre.
Methods: Two times a year microbiological and temperature measurements were performed in an old department of the Amphia Hospital.
Results: In 2002 more than 50 CFU Legionella sp. were cultured in several samples of cold water tap points (range: 50–5000 CFU). At this time temperature measurements showed cold water temperatures >250C (>770F), so called 'hot spots'. Inspection and analysis of the water system (the infected strain) followed. After elimination of dead ends and placement of reflux valves at several places in the water system (i.a. coffeemachines, fire-hoses), still one 'hotspot' was left. To find the cause of this 'hotspot', we explored a thermostatic mixer. We found a shunt between the hot and cold water system, which lead to the high cold water temperature.
Conclusion: Cause of the risk full high cold water temperatures were based on obstruction and wear and tear of a reflux-valve in a thermostatic mixer. We concluded that the required sieves to prevent debris in the water system were not installed. Large particles in the old water system of the department caused the damage to the reflux-valve. Something as little as a missing sieve can cause a major problem in the prevention of Legionella in the water system.

P9.11
A Method to Visualize Exhaled Aerosols Produced During the Use of Oxygen Masks Using Optical Flow
M. Ip[1]*, J. Tang[1], D. Hui[1], A. Wong[1], M. Chan[2], G. Joynt[2], A. So[3], S. Hall[4], P. Chan[1], J. Sung[1]. *[1]Centre of Emerging Infectious Diseases, School of Public Health, Chinese University of Hong Kong, Hong Kong, China, [2]Dept of Anaesthesia and Intensive Care, Chinese University of Hong Kong, Hong Kong, China, [3]Dept of Building & Construction, City University of Hong Kong, Hong Kong, China, [4]School of Mechanical Engineering, University of New South Wales, Australia*

Background: Several infectious agents (measles, chickenpox and tuberculosis) are already known to be transmitted by aerosols. The 2003 severe acute respiratory syndrome outbreaks and the more recent concerns about the human cases of avian influenza (H5N1) have stimulated an interest to improve the effectiveness of aerosol infection control.
Aims: We developed a technique to visualize exhaled aerosols during patients' use of oxygen masks in healthcare settings. From such visualization, the behaviour of exhaled aerosols in various clinical situations will be characterized. This will allow more effective aerosol infection control protocols to be implemented.