Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1024
The importance of the washing evaluation of flusher disinfector in the medical site: Visual evaluation with the ISO standardized test soil and adenosine triphosphate level
Mari Shima, Former Employee of Tokyo Medical and Dental University Hospital, Division of Infection Control and Prevention, Japan; Rika Yoshida, Division of Infection Prevention and Control, Tokyo Healthcare University Postgraduate School, Faculty of Healthcare, Department of Healthcare, Tokyo, Japan; Takashi Okubo, Division of Infection Prevention and Control, Tokyo Healthcare University Postgraduate School, Faculty of Healthcare, Department of Healthcare, Tokyo, Japan

Objectives: We examined the washing evaluation method of the flusher disinfector installed in the medical site by visual evaluation using an ISO test soil and adenosine triphosphate (ATP) measurement. **Methods:** The test soil shown in ISO15883-5 was applied to the bedpan using 2 methods (N = 10) and was then visually evaluated using a 4-step scale. The ATP value on the surface of the bedpan corresponding to each scale was measured, and the correlation with the visual scale was confirmed. In addition, a visual evaluation was performed using a different flusher disinfector and bedpan (N = 3). **Results:** In the visual evaluation, when the test soil was applied to the entire surface of the bedpan, it remained in the parts where the water flow was hard to hit. When the test soil was applied to the surface of the bedpan except the lid, no soil remained. The 4-step visual evaluation scale and the logarithm of ATP value showed a positive correlation. In visual evaluations with different flusher disinfector and bedpan combinations, the residual soil patterns tended to be different. Some bedpans showed washing failure related to improper design. **Conclusions:** Poor cleaning of flusher disinfectors may occur when the amount of water used is insufficient or when the bedpan is significantly contaminated. It is important to carry out flusher disinfector washing evaluation at medical sites to evaluate the function of flusher disinfectors. An appropriate program must be utilized for staff education and appropriate management. Because flusher disinfectors and bedpans differ, flusher disinfector cleaning evaluations should be carried out at all facilities.

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Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1110
Project quality development of zero stock
Tussanee Nimnaparoj, Central Sterilizing Services Association, Bankok, Thailand

Objectives: Many medical devices and equipment have been reserved in hospital wards and outpatient departments. Among these items, >80% are not often used but are being reserved for emergency situations. We aimed to reduce the number of unnecessarily reserved medical devices and to reduce the cost of unnecessary resterilization of devices and equipment. **Methods:** The central sterile supply department (CSSD), in coordination with other 13 wards within the Thammasat University Hospital, established a standard action plan for improving the efficiency of medical supply stocking and storage. Medical equipment and/or devices were returned to the CSSD, which acted as the center of management and distribution. The CSSD also tracked and solved problems that occurred and reevaluated practice guidelines. User satisfaction was evaluated and statistic data were collected and analyzed. **Results:** Wards no longer reserve medical equipment. Thus, no repeated sterilization was needed for unused medical equipment from the participated 13 wards, and sufficient medical equipment was available for various wards when needed. This project helped reduce the cost of purchasing medical equipment, especially for a newly opened ward. The storage of all medical equipment and devices complied with the practice guidelines because the CSSD storage room had a standard temperature and humidity control system. **Conclusions:** In this project, the CSSD cooperated with the 13 participating wards. As the result of centralizing the supplies, the CSSD has sufficient medical equipment and devices for all other wards, including a newly opened ward. The hospital benefitted from reduced costs of purchasing new medical equipment for a newly opened ward as well as the cost savings of eliminating unnecessary resterilization of unused devices and equipment.

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Abstract Number: SG-APSIC1112
The quality enhancement in sterilization processes at Naresuan University Hospital
Kanokporn Wilachai, Central Sterilizing Services Association, Naresuan University Hospital, Tha Pho, Phitsanulok, Thailand

Background: Disinfection and sterilization of medical devices, instruments, and medical supplies are a crucial part of hospital infection control. The significant problems include insufficient cleaning, incorrect registration in the request form, no basic cleaning at the point of use (POS), and incorrect labelling. These problems were analyzed according using the fishbone diagram process. **Objectives:** We sought to decrease insufficient cleanliness of items after washing, to increase data accuracy in transferring contaminated devices from wards (from end users), to increase the rate of decontamination at the point of use, and to decrease incorrect labelling on instrument packaging. **Method:** The Community of Practice in Sterilization (CoP Sterile) team revised the disinfection and sterilization system of the Naresuan University Hospital Central Sterile Supply Department (CSSD) using root-cause analysis of subprocess problems and implementing prioritized solutions. A regular monthly meeting was set up to ensure active response, and closed monitoring was performed to ensure the implementation of the revised protocol according to the plan–do–study–act (PDSA) process. **Results:** From 2019 to 2021, the percentages of annual insufficient cleanliness of items after washing decreased from 4.8% to 3.6% to 3.1% each year. The percentages of incorrect request forms decreased from 14.59% to 2.91% to 1.84% during these same years. The percentages of decontamination ignorance at the point of use decreased from 3.13% to 0.12% to 0.03% from 2019 to 2021. The percentages of incorrect labelling were 0.013%, 0.008%, and 0.013% each year. **Conclusions:** The CoP Sterile team used quality improvement tools and regular monitoring to achieve reductions in insufficient cleanliness and incorrect request forms and to increase knowledge of decontamination procedures.

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Abstract Number: SG-APSIC1151
ZeBox: A prophylactic device against airborne infection
Srividya Janani Venkatraman, Biomoneta Research Pvt Ltd, Bangalore, India; Arindam Ghatak, Biomoneta Research Pvt Ltd, Bangalore, India; Debosmita Kundu, Biomoneta Research Pvt Ltd, Bangalore, India; Santanu Datta, Biomoneta Research Pvt Ltd, Bangalore, India

Objectives: Public health emergencies caused by airborne infectious agents are a significant concern, re-emphasized by the current COVID-19 pandemic. It is therefore vital to employ a technology that destroys microbes of all phyla and genera. We describe a novel technology called "Zebox" that can extract, trap, and destroy microbes from the air. This technology destroys even microbes that are resistant to known antibiotics. **Methods:** Airborne microbial load was enumerated using standard microbiological methods in both hospital ICUs and controlled conditions. Significant microbial reductions due to the ZeBox intervention in the ICUs were confirmed by statistical analysis. **Results:** ZeBox eliminated a broad spectrum of airborne pathogens (ie, viruses, bacteria, and fungi) in laboratory tests and in hospital ICUs, which are characterized by high, stochastic microbial loads. In closed-chamber experiments, ZeBox achieved a >99.999% reduction of airborne microbes. In the hospital

ICU, ZeBox achieved a consistent >90% reduction across several months. Some of the airborne pathogens that ZeBox eliminated in the hospital ICU were multidrug resistant. **Conclusions:** ZeBox is an effective preventive technology against the spread of airborne pathogens and potentially associated infections. ZeBox could be used to reduce healthcare-associated infections in clinics and hospitals, as well as in burns units and immunocompromised patients. Zebox has the potential to be a significant prophylactic device in the global war on antimicrobial resistance.

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Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1047
Patient instrument tracking system
Nanthipha Sirijindadirat, President, Central Sterilizing Services Association, Bankok, Thailand; Pattaraporn Noilek, Sirirajpiyamaharajkarun Hospital, Bagkok, Thailand; Dujdarin Somboonsap, Sirirajpiyamaharajkarun Hospital, Bagkok, Thailand

Background: In the post–COVID-19 era, competency of healthcare workers is very important, and new technology is imperative. The central sterile supply department (CSSD) staff must also improve their response when a patient infection is reported. The sterilization process is more important than ever. **Objectives:** We sought to simplify surveillance to act faster, to reduce the time to obtain patient data, and to eliminate nonvalue stream mapping in the workflow process in order to prevent patient harm and strengthen our infection prevention and control efforts. **Methods:** The CSSD staff met with an IT developer to determine requirements for an electronic surveillance program. Before this intervention, we scanned hard copies of patient records and stored them in a folder on a computer on a daily basis. These data were difficult to search, monitor, and display, and this method wasted time in locating patient data. The IT developer designed a program to track patients and instruments. The program collected data regarding the patient's surgery, instruments used, and monitoring information. With the help of the IT developer, the CSSD staff tested and tweaked the new platform until accuracy and usability were achieved. Staff were trained on the use of the new system before it was implemented. **Results:** This project yielded simplified surveillance that improved the infection prevention process, reduced potential patient harm, and strengthened the ability of the IPC team to analyze and act on data. **Conclusions:** A simple surveillance system for tracking patients and instruments used assists both CSSD and IPC teams. This system assures the performance of sterilization procedures. When adverse events occur, patients who used these devices are tracked, and an analysis is performed to identify and implement improvements.

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Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1175
Reusing of single-use devices management
Nanthipha Sirijindadirat, President, Central Sterilizing Services Association, Bankok, Thailand

Objectives: Single-use devices are supposed to be used only once, but under some conditions those devices need to be reused. Therefore, we conducted the "Reuse of Single-Use Devices Management" project in our hospital. We evaluated single-use devices that are reused for the following factors: (1) reuse of the single-use device with the same patient; (2) a manufacturer stop production order; (3) lack of devices in inventory; and (4) device value >5,000 Thai baht (US $150). Every unit in the hospital is able to handle and monitor the reuse of single-use devices systematically for patient safety. We performed a quality surveillance project to monitor and prevent patient infection and injury from worn-out reused single-use devices, and we collected data related to the cost of reusing single-use devices. **Methods:** In a working group that studied single-use devices, responsibilities and roles were assigned and the purposes and scope of work were established. We reviewed the reuse of single-use devices policy. We created a request form for the reuse of single-use devices and a quality record form for use in units that reused single-use devices. We analyzed outcomes, monitored data, and audited the completion of these forms on these units. We assured the completion of single-use device registration. We measured the rate of reuse of single-use devices. We monitored the incidence of surgical wound infections related to reuse of a single-use device. **Results:** Both of these forms were implemented at 100%, and the number of surgical wound infections was zero. **Conclusions:** The project focused on single-use device registration and the rate of devices ready to use. The uptake of new procedures was 100%, and the expected number of surgical wound infections in patients was zero.

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Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1127
Digital transformation of the central sterile supply department: Justify by tracking system
Saharat Kongprajak, Central Sterilizing Services Association, Bankok, Thailand

Background: Avoidable infections in healthcare (healthcare-associated infections or HAIs) occur globally. The causes of HAI are influenced by a complex combination of gaps in policies, infrastructure, organization, knowledge, healthcare worker behavior, and patient-related factors. Through knowledge, best practices, and infrastructure improvement, the infection prevention and control (IPC) team aims to prevent harm to patients and healthcare workers due to HAIs. The most common HAIs are surgical site infections (SSIs) caused by harmful device-reuse practices, inadequate sterilization, and/or inadequate decontamination procedures. Disinfection and sterilization of instruments and medical devices play very important roles in HAI and SSI prevention. World Health Organization (WHO) Collaborating Centre in Quality Improvement Program certification, the first pilot project in Thailand, included the Central Sterilizing Services Association of Thailand and 15 hospital central sterile supply departments (CSSDs). This quality improvement program for sterilization reprocessing aimed to prevent harm to patients and healthcare workers due to HAIs. **Objectives:** We sought to reduce damage to instruments caused by inadequate reprocessing sterilization to zero incidents. We sought to reduce inadequate packing to ≤3 events per month. We sought to reduce the need to resterilize instruments by >80%. **Methods:** A root-cause analysis meeting was held by CSSD staff, and an IT vendor was consulted about developing an electronic alert system. The following changes were implemented: Staff packed instruments using a list of pictures for each set. Sticker labels were applied showing the proper number of pieces in the set. Identification O-rings were added to instruments with inventory dates, serial numbers, and instructions for use. Stickers were added to indicate the method of sterilization, such as ethylene oxide gas only or hydrogen peroxide only. **Results:** Reports of damage due to the sterilization process decreased to zero. No events related to the packing process were reported, and resterilization of instruments decreased by 98.94%. **Conclusions:** In this project, we implemented a quality improvement process and tracking system, reduced defects, and increased healthcare worker competency to improve patient safety.

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Subject Category: Sterilization and Disinfection
Abstract Number: SG-APSIC1181
Design of a temperature and humidity alert system
Nanthipha Sirijindadirat, President, Central Sterilizing Services Association, Bankok, Thailand

Objectives: The central sterile supply department (CSSD) is responsible for sterilization processes, and instruments are then stored in a clean room until use. Environmental controls, such as temperature, and relative