

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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Patient instrument tracking system

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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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Reusing of single-use devices management

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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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Digital transformation of the central sterile supply department: Justify by tracking system

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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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Design of a temperature and humidity alert system

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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