

The Impact of Proper Staffing and Immediate Use Steam Sterilization

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Abstract

Efficiency is essential to the proper functioning of an Operating Room team and hindrances on that efficiency can potentially cause negative implications that can affect the surgical patient. The need of instrumentation or sets before or during a procedure that were not previously expected can become such a hindrance as the team may be required to wait for the item to go through a sterilization process before it can be used. Waiting for a specific surgical instrument in order to begin or proceed with essential elements of a surgical procedure not only increases the cost of care but also subjects the patient to a potentially lengthier duration under anesthesia. However, establishing roles within the department may be able to allow a surgical team to proceed with a drastically reduced wait time. Immediate Use Steam Sterilization (IUSS) is a method of sterilizing an instrument or instrument sets when needed immediately for use within the surgical setting and differs from the normal cleaning, decontamination, and sterilization process of the sterile processing department. It is suggested that proper cleaning and decontamination may not be as thorough when the item remains in the Operating Room for cleaning and IUSS because an Ultrasonic and Washer Decontaminator machine may not present as they are in sterile processing. However, the use of trained staff that can mitigate the IUSS

process by using their critical thinking skills and knowledge of instrumentation to provide alternative options will greatly decrease the need for IUSS overall. The statistical analysis shows that having a Core Tech position can help to navigate the needs of Operating Staff more efficiently and make a great impact on decreasing the need of Immediate Use Steam Sterilization.

Keywords: Immediate Use Steam Sterilization, instrument, staff, surgery, ultrasonic decontaminator machine.

Introduction

Immediate Use Steam Sterilization (IUSS) is a method of sterilizing an instrument or instrument sets when needed immediately for use within the surgical setting and differs from the normal cleaning, decontamination, and sterilization process of the sterile processing department. There are three critical steps that are part of the decontamination and subsequent sterilization of surgical items that are performed by trained Sterile Processing Staff and that is cleaning, decontamination and the sterilization of the items which are all performed to meet the manufacturer's recommendations for those products, some of which require lengthier cleaning as well as sterilization processes which may not be a function of an IUSS unit (Nania, 2013). Following the manufacturer's instructions for use (IFU) is a requirement of the Joint Commission (Joint Commission, 2019) and items that are sent through the IUSS process may be in direct conflict with both the IFU and regulating bodies such as the Joint Commission, and Det Norske Veritas (DNV), which provide accreditation to healthcare facilities. Furthermore, surgical instruments are classified by the US Food and Drug Administration as class II medical devices

which mandate that manufacturers validate the proper cleaning and sterilization processes for these items and the details of this validation process, as well as other recommendations, are contained within the IFU (Nania, 2013).

Items that are not sent through the proper channels for cleaning, decontamination and sterilization may present potential hazards as there is an increased likelihood that shortcuts such as improper cleaning that differs from the IFU, for example the lumens of instruments, jaws, box locks, and other mechanical areas may not be thoroughly inspected as recommended (Hutzler, et al, 2013).

IUSS has become a convenience, time saver, and an effective way with dealing with low inventory for many institutions, however, the use of trained and knowledgeable staff may be the best solution for institutions that may not be able to immediately increase inventory. These individuals could utilize their knowledge of the set recipe which details each item and quantity that are housed within a given set, as well of their knowledge of individually peel packed or wrapped items that may greatly reduce the need for IUSS. Analyzing the set priority, management, and ensuring the proper processes are followed per manufacturer recommendations is also a key function and a background in Sterile Processing would be a necessary requirement. The position and job requirements could be determined by the needs of the Operating Room Department and Hospital, for a hospital in a western part of the United States the position created was that of a Core Tech and the individual hired for this position had a wide background in healthcare and substantial knowledge of instrumentation processing. The following analysis goes into a two month comparison when a position was created to help mitigate the issues detailed previously.

Statistical Analysis

The hospital in the western part of the United States recently opened a Core Tech position in September of 2019 and hired an individual with knowledge of sterile processing and the instrumentation available at the facility at the end of October. Utilizing data obtained through the Sterile Processing Management database, or SPM, which is utilized at the site to document sterilization processes, information was gathered to make a detailed statistical analysis determine if this new position had any effect on the rates of IUSS.

Identifying Changes in IUSS over the Course of a Year

SPM data was obtained for October and November of 2018 and compared with October and November of 2019 and a decrease of IUSS was evident. In October and November of 2018, 413 and 516 items respectively were processed via IUSS. 2019 data was also pulled for the same timeframes and the data showed that only 376 items were processed in October and 277 in November. Overall, 2019 saw a decrease of 37 items that went through IUSS in October and 239 in November. That is a percentage decrease of 9% since October and 46% since November 2018.

Identifying Changes in IUSS over the Course of a Month

Since the new position officially began in October of 2019, I also wanted to compare November to October to identify if there was a substantial decrease was present. This data showed that a 26% decrease was observed. However, one must keep in mind that typically surgical procedures increase towards the end of the calendar year as patients opt for surgery before their healthcare maximum copay yearly amount resets. But even with that in

consideration, there was a substantial decrease in the overall number of items in November when compared to the previous year, which I believe shows the skills of the Core Tech as they were able to efficiently find alternative items and sets for surgical procedures, thus bringing down the number from 516 items in November of 2018 when the OR did not have someone in that position to 277 in November 2019 when the position was in full effect.

Conclusion

The establishment of the Core Tech position at the hospital showed an immediate decrease of IUSS usage by 26% upon statistical analysis. Furthermore, the comparison between the November 2019 and November 2018 showed a decrease of 46%.

The statistical analysis shows that having a Core Tech position can help to navigate the needs of Operating Staff more efficiently and make a great impact on decreasing the need of Immediate Use Steam Sterilization. This individual was able to identify when sets were previously sent through the IUSS process for just one item and instead would provide the team with the identical item that was already individually peel packed and sterilized through the normal process. The team was also able to pass off trays to be cleaned, decontaminated and sterilized for a subsequent procedure in a timelier manner and this individual was also able to evaluate priority set usage need between multiple rooms that required similar sets.

This analysis only covers a two month period comparison of the 2019 and 2018 years. In order to determine if this position will continue to create a lasting impact and reduce IUSS within the operating room setting, further research is suggested to ensure all scenarios are examined such as increase in cases during seasons prone to trauma, addition of new surgeons to a facility, or the introduction, or expansion, of a surgical specialty.

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