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The Socioeconomic Impact of Terminally Sterilized Devices

Aakash Agarwal PhD; Melissa Brodsky; Adam MacMillan; Bruce M. Frankel MD

Spinal Balance Inc.

1510 N Westwood Ave.

Introduction

Sterilization of orthopedic implants in hospital is a labor intensive process and requires great precision and technical knowhow. Ineffective execution can compromise patient's health along with wasting hundreds of thousands of dollars of cost to the healthcare institution.

Methods

We performed a systematic review of literature to gather the evidence, if any, demonstrating the socioeconomic impact of terminally sterilized devices.

Results

Terminally sterilized devices offered three distinct advantages over steam sterilization at the hospitals.

1. Improved logistics: Poor logistics combined with emergency patient arrival, unexpected evolution of surgery, and change of surgeon and hence the preferred devices deems the terminally sterilized devices as the only solution to the conventional predicament.[1] For example, it has been found that when devices arrive in the morning of the surgery, or additional devices are added to the preexisting tray, the surgical procedure is likely to be postponed by at least 5 hours.[2] This surmounts to an average estimated cost of $187.5/hour or $4500/day.[3]

2. Reduction in cost: Selecting a device that doesn't need additional processing is the most direct way for the hospitals to reduce costs. Furthermore, over the years the array of optional devices have grown muiltifold, such that for every implant rack sterilized, only 5-10% of devices are considered for use, adding an indirect cost of about $68,843 to $81,360 per annum.[4] Farrokhi et al and Stockert et al, corroborated this by estimating similar or higher cost savings, with 70% and 78.1% reduction in the sterilization device load.[4]

3. Delegation of liability: A study published in 2011, showed that about 3% of the 2050 devices had visual evidence of attached organic debris even after the completion of the decontamination protocol.[5] This illustrates the fact that despite cleaning, contaminants from previous processes accumulates to a point where it is visually noticeable.

Conclusions

With multitudes of disadvantages associated with processing of devices in the hospital, newer generation implants are making a paradigm shift towards a terminally sterilized devices.

Learning Objectives

1. Devices that don't need sterilization prior to the procedure, eliminates preoperative delay due to implant unreadiness.

2. Terminally sterilized devices provide direct and indirect cost savings, along with the assurance that all assortment of devices are ready to be used, in case the need arises.

3. Terminally sterilized implants are the only true single-use-devices, limiting the patient and surgical problems that may originate from cross contamination.

References

1. van de Klundert, J., P. et al Health Care Manag Sci, 2008. 11(1): p. 23-33. **2.** Huter-Kunish, G.G. AORN J, 2009. 89(5): p. 861-6; quiz 867-70. **3.** Whitehouse, J.D., et al. Infect Control Hosp Epidemiol, 2002. 23(4): p. 183-9. **4.** Stockert, E.W. and A. Langerman J Am Coll Surg, 2014. 219(4): p. 646-55. **5.** Danesi, V., et al. Injury, 2011. 42(10): p. 1101-6.