

Adenosine triphosphate monitoring of operating room surfaces

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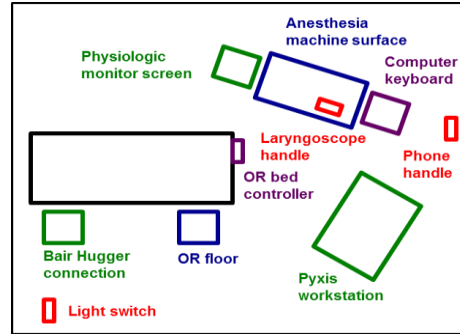
Introduction

- Adenosine triphosphate (ATP) has been used as a surrogate for microbial contamination in infection control surveillance^{1,2}
- Our institution has previously used ATP monitoring to confirm environmental contamination and improve the effectiveness of cleaning practices in the intensive care units (ICUs)
- We hypothesized that contamination, based on ATPase levels, of OR surfaces would increase from morning (AM) to afternoon (PM)
- Secondarily, we compared the degree of OR contamination to various control sites

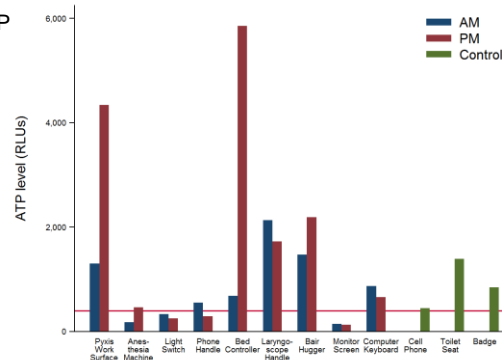
Methods

- Ten sites in each OR, selected based on likelihood of high staff contact, were swabbed using the AccuPoint® HC ATP Sanitation Monitoring device
- AM measurements were taken prior to the start of surgical cases and PM measurements were taken on the same day after cases were completed
- Data were summarized as means with standard deviations and compared using t-tests

Diagram of monitoring sites



Mean ATP levels on operating room surfaces



Results

- The highest average contamination level was found on OR floors (14400±25254 RLUs)
- No OR sites showed statistically significant increase in contamination from AM to PM
- Of other sites, laryngoscope handles had the highest level of AM contamination (2136±2862 RLUs)
- This contamination level was comparable to levels from hospital toilet seats (1392±670 RLUs)

Discussion

- Laryngoscope handles emerged as a key site where improved cleaning practices at the beginning of the day may reduce infection risk
- Results did not show statistically significant increases in contamination between AM and PM samples, offering tentative evidence that cleaning practices during case turnover are effective
- Large increases seen in samples from bed controllers and Pyxis workstations were not statistically significant due to a high outlier in one of the rooms
- ATP monitoring may be effective for guiding infection control in the OR

References

- Messina G, et al. Effectiveness of ATP bioluminescence to assess hospital cleaning: a review 2017;58:E177-83.
- Amodio E, Dino C. Use of ATP bioluminescence for assessing the cleanliness of hospital surfaces: A review of the published literature (1990-2012). J Infect Public Health 2014;7:92-8.