

Patricia Jones

January 23, 2011

It's What You Don't See That Can Kill You

Understanding the importance of decontamination is the objective of any successful training program in the sterile processing environment. Unlocking the concept requires a person to see into the world of the unseen. A well-known statement repeated throughout the profession is, "It's what you don't see that can kill you." Our world is composed of a vast array of microscopic living organisms. Most of these organisms would never threaten our human existence. However, there is a small percentage that, if left to their own devices, have the potential to harm or exterminate human life. Thus, decontamination is critical to preserving the quality and extent of human existence.

Decontamination is defined as, "To make safe by removing or reducing contamination by infectious organisms or other harmful substances; the reduction of contamination to an acceptable level" (Central Service Technical Manual 410). Decontamination renders a product safe from harmful microorganisms and foreign debris. The process stops cross-contamination and the spread of disease. It lowers the risk of infection. Decontamination's biggest impact is on the patient: a shorter hospital stay, fewer medications, a faster recovery, and a smaller hospital bill. At best, the process saves lives.

The simple routine of washing hands (decontaminating skin and nails) is still the number one way hospitals can reduce the spread of infection according to the CDC. The relationship between handwashing between patients and reducing the spread of infection

was discovered and documented about one hundred sixty-five years ago in Europe. The following is a glimpse into the background setting which led to this discovery:

Puerperal fever first became apparent when women delivered in central urban maternity hospitals, rather than in their own homes. Postpartum infection was always a risk, but the epidemics of fatal disease that occurred from the mid-1600s to the mid-1800s were often of unimaginable proportions. These epidemics were among the ironies of modernization, which included institutional obstetric care.

In the days before Pasteur and Koch enunciated their concepts of the microbial origin of infectious diseases, puerperal fever presented a baffling picture to the medical profession. Thousands of women bore children without evidence of postpartum infection, but then, for no apparent reason, a series of cases would occur within a few weeks in one locality. Sometimes the circumstances suggested that a particular doctor or midwife attending these women had in some manner transmitted the disease (Charles 411-412).

Charles writes that in 1846, Ignatz Semmelweis was employed as an assistant physician in the maternity department of the Allgemeines Krankenhaus in Vienna, Austria (413).

The clinic was then the largest of its kind in the world. It was composed of A and B divisions to which patients were admitted on alternate days. Division A was used for instructing medical students and Division B was used for the training of midwives. Mortality in both

divisions was excessive compared with that of modern day obstetrics and occurred in >2% of the confinements. Maternal mortality in 1846 in Division A was, however, substantially higher (11.4%) than that in Division B (2.7%). Semmelweis was struck by this difference between the two divisions and reasoned that it was related to the medical students' habit of going directly from postmortem examinations to the Division A obstetric wards, where careful hand washing was by no means an established ritual. The student midwives in Division B, however, were taught on models and did not attend autopsies.

It was clear to Semmelweis that something was being conveyed to the women in labor, possibly on the hands of the medical students. Without a definitely established concept of the nature of the inimical entity - he referred to it sometimes as "decomposed animal organic matter," as "cadaver particles," or simply as "the harmful things" - he nevertheless, though with difficulty, obtained the acquiescence of his colleagues in adopting a routine of hand washing with chlorinated lime. The results were striking; he recorded a decrease in the rate of mortality from approximately 10% to 3% after the institution of hand washing.

During May 1847, it was arranged that no one should examine any woman in the clinic without washing his hands with chlorinated lime and the use of a nailbrush. As early as June of that year it was possible to recognize the significance of such precautions. Of more than 300 women confined in that month, only six died; in July only three died, and in

August there were likewise only three deaths (Charles 413-414).

I work in the Sterile Processing Department of an 199-bed acute care facility. The SPD services eighteen departments. Each of these departments has equipment and/or instrumentation requiring some level of cleaning, disinfecting, and/or terminal sterilization. The extent of decontamination depends upon the usage of the item and the type of microbial exposure. What I stress for myself and my staff to remember is that there is always a patient, technician, nurse, doctor, instrument representative, and/or other staff member that will receive the end product of our service. I also remind my staff that they do not want to take any pets (microbes) home to their families. I personally envision a loved one at the receiving point.

Decontamination is critical to preserving the quality and extent of human existence. Each sterile processing generation will be presented with this wisdom as the main focus of their orientation training and future work ethic. My hope is that each individual worker will take this wisdom to heart and act accordingly. By no means do we want to repeat history as cited in this essay. We no longer live in an uneducated world about microbiology. We have the wisdom to save lives.

Works Cited

Central Service Technical Manual. 6th ed. USA: IAHCMM, 2003. Print.

Charles, David, and Bryan Larsen. "Streptococcal Puerperal Sepsis and Obstetric Infections: A Historical Perspective." *Reviews of Infectious Diseases* 8.3 (1986): 411-422. Web. 6 Jan. 2011.