Improving Compliance of Surgical Hand Scrub

In 2017, a group of Master of Science in Engineering Management (MSEM) students from Johns Hopkins Whiting School of Engineering, along with Institute for Clinical and Translational Research, launched the Patient Safety Collaboration Program (PSCP), helping Johns Hopkins Hospital (JHH) to mitigate the risk of Surgical Site Infection (SSI). According to the Journal of the American College of Surgeons, SSI accounts for almost 20 percent of all hospital-acquired infections. The estimated annual instances of SSIs in the United States ranges from 160,000 to 300,000, resulting in an estimated $3.5 billion to $10 billion. SSIs are caused by multiple factors. In this particular case, the MSEM student consultants developed a three-prong approach to analyzing the problem that included interviews, observations, and surveys and identified one of the most impactful causes: the low compliance of Surgical Hand Scrub usage.

Over seven weeks of work, the student consultants further concluded that the main reason for such low compliance was unclear training regarding correct cleaning procedures. To improve the status quo (Units at JHH only have a 7% compliance rate of hand scrubbing), the student consultants proposed the strategic recommendations below for the long-term and short-term.

- Long-term:
    - Train all surgical staff on a regular basis to inform them of updated sanitation requirements.
- Short-term:
    - Install a video poster near scrub sinks to illustrate the steps of the sanitation process.
    - Assign a designated person to be responsible for monitoring and collecting data for Surgical Hand Scrub (Table 1). The data could be further used to construct sustained improvements.

Table 1. A Sample Metric of Assessing Sanitation Performances

Scenario	**Reaction**
Week 1 performance is less than expected	Verbal Warning
Week 1 and 2 performance is less than expected	Written Warning
Entire Month's performance is less than expected	Strict Action Warning

Combining knowledge from different disciplines, the PSCP not only helped solve a real-world issue but also initiated the possibility of bridging engineering and the healthcare industry, and the PSCP is looking forward to having more units involved.