Reducing Patient Pressure Injuries at Johns Hopkins Hospital

Patient Safety Collaboration Program (PSCP) is a joint initiative between the Master of Science in Engineering Management (MSEM) program at Johns Hopkins Whiting School of Engineering, Institute for Clinical and Translational Research (ICTR) at Johns Hopkins University, and Johns Hopkins Hospital (JHH). In 2018, a group of MSEM student consultants first forayed into the healthcare industry. While they had no previous experience in the field, they provided recommendations that ameliorated the rate of Unit Acquired Pressure Injuries (UAPIs) at JHH.

Pressure injuries (PIs) occur when the skin and underlying tissues are subjected to shear forces, pressures, and friction over short or extended periods of time. This would further result in tissue necrosis and lead to the development of a pressure wound. Data from 2016 to 2018 revealed that the intensive care units at JHH had continuously recorded a high prevalence rate of PIs (Figure 1). With ICTR's assistance, the MSEM student consultants were able to conduct thorough on-site observations and interviews at JHH.

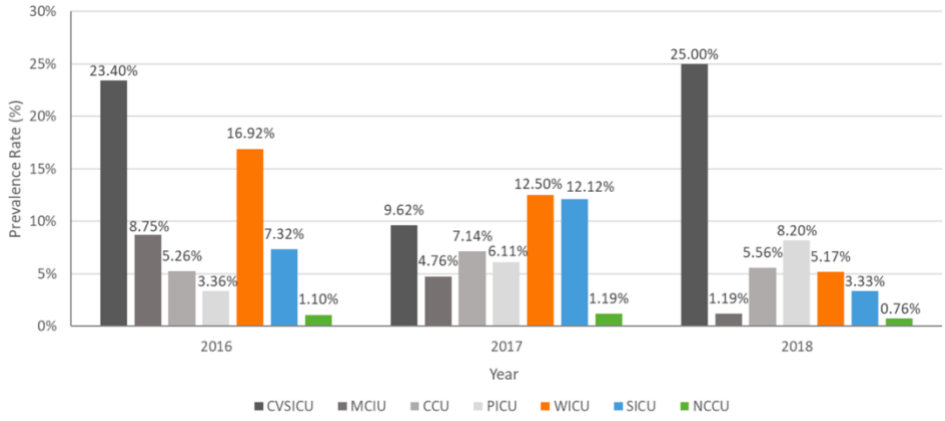

Figure 1. UAPI From 2016 to 2018

Over 8 weeks, the student consultants utilized their engineering acumen to propose the following recommendations from staff communication, human factor engineering, and medical professional perspectives.

- Revamp existing risk assessment metrics by considering more factors such as Hematological Malignancy, Peripheral Artery Diseases etc.
- Enhance communication and data collection between Certified Wound Ostomy Nurses and Unit Registered Nurses
- Bundle tools for preventative care
- Redesign the bed settings
- Investigate viable future technologies

These recommendations were implemented in several units at JHH in 2019 and proved to reduce the PI rate successfully and efficiently. The PSCP bridges the engineering field and the healthcare industry, and the collaborative results are expected to benefit increasing numbers of people.