

PITFALLS TO THE ATTEMPTED STANDARDIZATION OF THE ANESTHESIA MACHINE-TOP SETUP IN THE OPERATING ROOMS AT TEXAS CHILDREN'S HOSPITAL

Lead Author: Eugenia Y. Chen, M.D. Candidate

Contributing Authors: Titilopemi A. Aina, MD, MPH, Kathleen Chen, MD, MS

Category: Quality, Cost, Value

Background

The practice of anesthesia is a high-stakes endeavor, requiring precision at every turn. In trauma or emergency cases, providers may lack sufficient time to assess the completeness of the room setup. A standardized anesthesia machine-top setup allows for consistency, familiarity with a system, safer patient care, and greater operating room (OR) efficiency during anesthesia room turnovers. Strategies have been implemented to improve OR efficiency, including awareness education, team training, and standardization of anesthesia management amongst others.

Objectives

This study examines the implementation of a standardized anesthesia machine-top setup in the operating rooms at Texas Children's Hospital (TCH) West Tower (WT) and Mark Wallace Tower (MWT).

Methods

In July 2016, TCH anesthesiology faculty were surveyed to assess the completeness of the anesthesia machine-top setup. They were asked: 1) "How was your Anesthesia Machine-top Setup?" and 2) "If Incomplete, what items were missing?" Following this survey, a quality improvement project was developed and implemented at TCH WT and MWT ORs. Over the next two months, key stakeholders held meetings, support staff were trained in the standardized setup, and operating rooms were equipped with pictorial setup protocols. A post-intervention survey was completed in August 2017.

Results

Before the intervention, 73% of TCH WT anesthesia cases and 76% of MWT cases had a complete setup. Following the QI intervention, 88% of WT anesthesia cases and 36% of MWT cases had complete setup.

Discussion

We have completed our first PDSA cycle — aiming to increase anesthesia provider satisfaction and OR efficiency through education and implementation of a standardized machine-top setup. Our limitations include: 1) Workforce - TCH patient care technicians were losing members during this 2016-2017 study period, leading to less manpower in the MWT. Because an increased pressure was shared amongst fewer workers, critical steps for preparation may have been overlooked. 2) Resistance to change - without prior standardized procedures, technicians may not perceive protocol implementations as consequential. 3) Practice variability - TCH members encompass various training backgrounds and lack a universal consensus on the meaning of a standard set-up. Additionally, a standard set-up across all anesthetizing locations was not established. Perhaps with one universal setup, there would have been less discrepancy. The results of this study support the need for increased standardization setup. The underlying theme relays increased communication as key. Inefficiencies occur when providers have unclear expectations. Implementing once-a-month training sessions and educational checkpoints could improve teaching, standardization, and OR efficiency.