Quality Improvement

Problem Statement:
At SAMC, patients needing a CT simulation for radiation therapy were placed on the regular radiology CT schedule because there was not a CT scanner in the radiation therapy department. This led to delays in scanning, especially if the patient needed to be rescheduled due to an emergent CT scan that needed to be performed. In fact, there had been times when patients had been pulled off the table because a code alert had been called resulting in the patient being left in the waiting area until the emergent exam was completed. There were also safety issues due to the fact that the CT scanner in radiology is not specific to radiation therapy treatment planning. This also decreased patient safety as the RTT had to walk or take the patient to radiology in a wheelchair and was often left without any kind of patient assistance. Patient satisfaction had also been an issue due to privacy concerns. The radiology scanner was also not equipped with a proper laser system, which added potential risk to accurate patient positioning. Additionally, the radiology scanner has a standard size bore, which does not always accommodate patient habitus resulting in rescans to be done at ABMC.

Goal:
Install a new CT Simulation Machine in the Radiation Department at SAMC called the “SOMATOM Confidence® RT Pro”. SAMC is the first in the nation to have this CT model installed. Advanced treatment techniques such as SRS and SBRT require utmost precision. For imaging systems, a significant challenge in contributing to this precision lies in having to fulfill the needs of two different end users: radiation oncologists and physicists. SOMATOM Confidence® RT Pro is designed to optimally support both. Due to an improved visualization with Dual Energy, metal artifact reduction with iMAR, adaptable kV settings with DirectDensity™, and an all-new detector, it generates personalized images for all RT patients. This is state-of-the-art treatment preparation for both confident contouring and dose calculation produces higher patient satisfaction and optimal precision along the entire RT workflow chain.

Here are some advantages to using the SOMATOM Confidence® RT Pro:

- 80 cm extended FOV to visualize full patient anatomy
- Dual Energy capabilities
- Direct Density – ability to generate electron density and avoid calibration curve for streamlined workflow and improved image quality
- iMAR metal artifact reduction to work in virtually all patient cases
- 80 kW generator and high efficiency tube so that your system does not overheat and shut down during a large patient scan or 4D scans
- 200- second 4D max scan time to acquire a larger volume (GE systems limited to 120 sec).

Methodology: A planning team was formed to include members from physics, dosimetrists, radiation therapists, radiation oncologists and administration. A 3-month timeline was established and maintained

Improvement Action:
- Obtained capital budget approval on February 1, 2017
- Design documents were completed on March 14, 2017
- Patients and staff transferred from SAMC to ABMC beginning on April 1, 2017
- Construction of the area started on May 15, 2017
- Construction was completed on May 30, 2017
- SOMATOM Confidence® RT Pro scanner was delivered on the week of June 12, 2017
- Staff training on the new SOMATOM Confidence® RT Pro began on July 10, 2017
- First patient was treated on the new SOMATOM Confidence® RT Pro on July 18, 2017.
**Follow Up:**

As of July 18, 2017, all new CT simulations at SAMC are being conducted on the new SOMATOM Confidence® RT Pro. The radiation therapy staff is fully trained on the use of the new SOMATOM Confidence® RT Pro and express comfort and confidence with the new system.