Use of Cloud Storage and Synchronization of Case Reference Guides to Support Novice Staff Across Cardiac and Thoracic Surgery and Interventional Pulmonology in Real Time

INTRODUCTION

The Cardiac Surgery team at Vanderbilt University Medical Center (VUMC) is responsible for staffing acquired cardiac surgery, congenital cardiac surgery revision, thoracic surgery, combination cases between cardiac surgery and both electrophysiology and the cardiac cath lab, and interventional pulmonology cases across multiple floors of a Level 1 Trauma Center 24 hours a day, 365 days a year. The diversity of procedures and the divergence of surgeon preferences within each specialty supported by this staff require an extensive knowledge base. The vast quantity of information required to support the varied physician requirements and patient populations prolongs the length of time required for novice staff competency.

The Doctor Preference Card (DPC) format is designed to convey information to Central Supply and Central Sterile Processing departments for packing case carts. The DPC is not designed or may not even be available in a trauma situation to show emergent cannulation steps or other essential information.

The CRGs were categorized by surgeon and subcategorized by case to include glove and gown size, bovie settings, topical medications, surgical prep, positioning, equipment, supplies, instruments, sutures, drains, dressings, cannulation, suture kits, and circulator kits. Although these supply lists made up the core of the CRGs, inclusion of explanations and insights was encouraged. All members of the cardiothoracic team were given access to this account in order to show emergent cannulation or other essential information.

METHODS

Recognizing the need to share intraoperative information more efficiently, a cloud account was obtained and a standardized user-friendly format was developed for case reference guides (CRGs). The CRGs were categorized by surgeon and subcategorized by case to include glove and gown size, bovie settings, topical medications, surgical prep, positioning, equipment, supplies, instruments, sutures, drains, dressings, cannulation, suture kits, and circulator kits. Although these supply lists made up the core of the CRGs, inclusion of explanations and insights was encouraged. All members of the cardiothoracic team were given access to this account in order to show emergent cannulation or other essential information.

RESULTS

The CRG system became the single most consulted reference guide used by our staff intraoperatively. It consolidated staff knowledge and improved the ability to view and edit the CRGS. The cloud access to CRGs and the ability to edit them in real time has fostered a sense of engagement among staff members that did not exist with the DPC system or individual note-taking. The CRGs allow us to focus valuable training time on clinical decision making instead of searching for information about surgeon preferences.

The CRGs are not intended to replace critical thought or clinical decision making instead of searching for information. It consolidates staff knowledge and improves the ability to view and edit the CRGs. The cloud access to CRGs and the ability to edit them in real time has fostered a sense of engagement among staff members that did not exist with the DPC system or individual note-taking. The CRGs allow us to focus valuable training time on clinical decision making instead of searching for information about surgeon preferences.

DISCUSSION

The development of the CRG system from an auxiliary role to a principal role has presented challenges. One challenge is the prompt to change the password when a perceived security threat is identified. The initial launch of the CRG system allowed all staff members to share one username, but this is being replaced by granting separate users access.

Another challenge is keeping the content accurate. Granting everyone the ability to edit the CRGs resulted in some misinformation either due to lack of attention or understanding. There are occasionally circumstances prompting the surgeon to deviate from their normal routine, and staff must be able to distinguish those from permanent preference changes before editing the CRG.

New staff members are able to review these CRGs from home even before they are clinically independent. This contribution can simply be the initiation of knowledge sharing, valuing transparency of information, and enhancing communication between team members.

CLINICAL IMPLICATIONS

Hygienic issues of physical binders and reference materials utilized in multiple rooms or multiple cases have been eliminated by using a digital format. Cloud access to CRGs and the ability to edit them in real time has fostered a sense of engagement among staff members that did not exist with the DPC system or individual note-taking. The CRGs allow us to focus valuable training time on clinical decision making instead of searching for information about surgeon preferences.

STAFF FEEDBACK

"It was absolutely helpful learning our service! The information is clear, concise, and user friendly. I think it makes our jobs so much easier!" - Mandy, RN

"The shared drive makes surgical DPC’s functional and accessible for OR nurses." - Gina, RN

"I like being able to bring up case information on my phone when I need to pull sutures." - Kelise, CST

"Every case has the possibility of changing at any point. Giving everyone the ability to edit means that people who don’t understand the case can mess everyone up all day long." - Amy, CST

"The shared drive was a great tool for me when first coming to the cardiac service at Vanderbilt. I can access the information at home, allowing me to be better prepared for my next workload." - Justin, RN

"It’s great for training. Not only is it good for new stuff but also for the new-surgeons." - Victoria, CST

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