



Service Priorities and Programmes Electronic Presentations

Convention ID: 700

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The Perioperative Nursing Information System (PNIS) - An Advanced Advocate for Patient Safety in Operating Theatre using Information Technology

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Keywords:

Perioperative Patient Safety

Intraoperative Counting

Intraoperative Nursing Documentation

Information Technology

Introduction

Patient safety is one of the utmost important elements in perioperative nursing. Retained surgical items (RSI) and medication errors are some common incidents in the operating theatre. As a pioneer, Tseung Kwan O Hospital (TKOH) has developed an integrated electronic Perioperative Nursing Information System (PNIS) aims at improving the perioperative safety standard. The working mechanism is: - Using iPads with PNIS software incorporated as input for intraoperative counting activities and nursing documentation data - Real-time display of intraoperative counting information and other relevant intraoperative information on smart TVs as a substitution of conventional whiteboard and countsheet - Artificial intelligence of PNIS can maintain uniformity and standardization of nursing practice. Safety features included: - Alert on smart TV screen to remind the removal of intraoperative packing of swab - Alert propped up in iPad for missing mandatory data to ensure all counting processes are conducted - The timer function (e.g. for reminding the administration of regular medication), for alerting all disciplinary members in the operating theatre - The user-friendly PNIS also improves accuracy and efficiency of data capture. Digitalized PNIS records are uploaded to Clinical Management System (CMS).

Objectives

- To enhance patient safety in perioperative setting, especially to reduce the likelihood of incidents related to RSI
- To enhance the efficiency and transparency of intraoperative documentation

Methodology

PNIS was designed in TKOH since May 2014. A taskforce was formed to develop the hardware and software with extensive consultation from all levels of staff within the department and experts in the field. Intensive training for staff on the use of PNIS was provided through tutorials and individual coaching. The system was fully implemented since December 2014. Periodic audits of PNIS record on documentation accuracy

were performed with structured checklist. Completeness, clearness and correctness of the records were evaluated.

Result

No RSI and missing medication incidents were occurred since the implementation of PNIS. With the help of software enhancement of PNIS, documentation accuracy of staff increased from 96% to 100% from two audits performed during trial period and half year post-implementation, with 100 PNIS record samples from different specialties randomly collected for each audit respectively. PNIS is successful in enhancing perioperative patient safety. Since launching, staff shows great acceptance with the system. PNIS is persistently updated to add new safety features, and to meet the latest counting and documentation policies.