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ECG makes money: Enhance the Motivation & Accuracy of Emergency Nurses to Recognize High Risk Electrocardiograms

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Introduction

Heart diseases have been the second leading cause of death in Hong Kong since 1960s (Department of Health, 2013). Patients presenting to the emergency department with acute cardiovascular syndromes may not know that they are suffering from life threatening conditions. Nurses are often the first health care professional to assess and evaluate them (Calder, 2008). If emergency nurses are able to identify basic acute ECG changes rapidly and accurately, such that physicians can be notified immediately, timely delivery of appropriate treatments can be facilitated to improve patient outcome (Roberts, 2002; Calder, 2008).

Objectives

Increase the motivation and accuracy of nurses in screening ECGs, so as to identify patients with high risk ECGs early for immediate and proper treatment

Methodology

Continuous Quality Improvement (CQI) was adopted. The focus-analyze-develop-execute (FADE) cycle, which is an integral part of the CQI methodology, was applied. The high risk ECG selected were: ST segment-elevated myocardial infarction (STEMI), Complete heart block (CHB), new onset of left bundle branch block (new onset LBBB) and Fast atrial fibrillation (Fast AF) with rate >120bpm. Paediatric patients and patients requiring resuscitation were excluded. Four FADE cycle were performed from January to December 2013 in the Accident and Emergency Department (A&E) of North District Hospital (NDH).

Result

During January to December 2013, four FADE cycles were performed. Fish bone diagram was drawn to identify the obstacles in aspects of "People", "Procedure", "Policy" and "Plant and Equipment". Action plans were drafted and implemented accordingly. Education sessions and test on interpreting various ECG rhythms were designed to ensure nurses' knowledge. A one week of log book filling was carried out

after each cycle to measure the motivation and accuracy of nurses in screening the ECG encountered within that week. The motivation were: 35% (Cycle 1), 61% (Cycle 2), 91% (Cycle 3). The accuracy were: 98% (Cycle 1), 97% (Cycle 2), 98% (Cycle 3). Among the correct screening, there were some abnormal ECG rhythms being successfully recognized by nurses. 3 abnormal ECG were detected in Cycle 2. 6 abnormal ECG were detected in Cycle 3. Substantial increment in both motivation and accuracy were demonstrated. At three months apart, another one week logbook study was performed to assess the level of motivation and accuracy. Motivation was found to drop to 76%. Accuracy was 96%. The fourth FADE cycle was performed. Screening ECG was made a departmental policy, nurses were required to screen every ECG encountered. Education sessions were organized again. Motivation was 93%. Accuracy was 97%. 5 abnormal ECG were screened out. The motivation and accuracy both showed improvement with the effort input in each cycle. However, CQI should be an endless process. Logbook study should be implemented periodically to measure and maintain the motivation and accuracy of nurses in screening ECG in the long run.