

## **45th Biennial Convention (16-20 November 2019)**

### **Improving Bedside Nurse Accuracy in Rhythm Interpretation Using Different Teaching Strategies**

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High quality cardiac care at an academic medical center demands a nursing staff with sound knowledge of ECG rhythm interpretation. However, the competency of our nurses was in doubt when using a dynamic rhythm competency. At our institution there was debate on the adequacy of the current methods of teaching and evaluation of rhythm interpretation. Despite the increasing use of remediation within the nursing education department we identified lower rates of success on our annual ECG rhythm interpretation exam. This quality improvement project tested whether clinical nurses could learn and retain the theory and skill of rhythm interpretation more effectively when given a standardized face to face training session with periodic snack learning. Monthly real time audits and test scores on a static and dynamic exam confirmed that accuracy of rhythm interpretation improved significantly among all nurses.

The AHA recommendation supports the notion that bedside nurses must be competent in identifying common and lethal arrhythmias and intervene appropriately through initiation of resuscitation or notification of the healthcare provider. Still, there is little existing evidence to support innovative teaching strategies to ensure competency and retention of knowledge as it relates to rhythm interpretation and management. Standards are not consistent for annual competency for rhythm interpretation and it is not well understood how well nurses retain the information from year to year or from time to time (Kanyok & Brooks, 2016). Brooks and Kanyok (2016) concluded that bedside nurses need on-going support and coaching testing to sustain the arrhythmia interpretation knowledge. Funk et al (2016) found that nurses who received online education and specific strategies on the unit by nurse champions retained knowledge but by the third time new knowledge on rhythm interpretation was not sustained. Ehrhardt & Grumley (2013) recommended multiple approaches to reinforcing knowledge and supporting rhythm retention including active learning and case studies.

In 2017 over 900 nurses sat for a dynamic interpretation with a 63% pass rate on first attempt. Although all nurses were eventually deemed competent the 2018 program evaluation suggested an education plan built for success. In 2018 the methodology changed to: face to face class, study guide and snack education bites delivered the 3 month period prior to competency evaluation. To evaluate competency a test consisting of dynamic rhythms and a static exam using the policy and procedure as a blueprint was administered. Over 900+ nurses sat for the exam for 2018 97% were successful upon first attempt.

This project measured nurse competency in rhythm interpretation and management over a 2-year period. Results have refocused the importance of reinforcement of knowledge using snack like

learning between mandatory competency evaluation. It is important for hospital educators to recognize spaced snack education over time helps the bedside nurse retain knowledge.

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**Title:**

Improving Bedside Nurse Accuracy in Rhythm Interpretation Using Different Teaching Strategies

**Keywords:**

Teaching strategies and arrhythmias, arrhythmia knowledge and nurse knowledge and retention

**References:**

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**Abstract Summary:**

The ECG interpretation competency of our nurses was brought into question upon changing from static to dynamic evaluation methods during annual testing. Ongoing education and resources were provided and monthly audits were conducted to provide real-time feedback. Subsequent ECG testing and audit results revealed significant improvement

**Content Outline:**

I. Introduction

1. Need for education and training based on results of a dynamic ECG rhythm exam given to nurses at 1000 bed + academic medical center hospital
2. AHA recommendations and AACN endorsement for all nurses who have exposure to ECG rhythm have education and training

## II. Background

1. Nurses self-reported confusion and lack of confidence in interpreting ECG rhythms
2. Data revealed that in some units < 50% of the rhythms was interpreted with 100% accuracy on the first version of the exam. Key deadly arrhythmias (i.e., VT, VF, 3degree HB) and common dysrhythmias (i.e., AF).
1. Expert educators determined inclusion and there was consensus among unit based educators that the exam was reliable, valid and fair.
2. Managers/directors reviewed the test and agreed test was appropriate

## III. Purpose

1. Test whether nurses could learn and retain theory and skill of rhythm interpretation more effectively when given a standardized face to face training session with periodic snack learning

## IV. Review of the literature

1. A literature review was conducted using CINAHL from 2007-2018. The keywords identified were arrhythmia knowledge, nurse knowledge and retention, and arrhythmia standards.
2. The American Heart Association identified that arrhythmia interpretation is an essential competency (Sandau, Funk, Auerbach, Barness, et al. 2017). It is clear from the recommendations that there is benefit for dysrhythmia monitoring across multiple specialties (Sandau, Funk, Auerbach, Barness, et al., 2017; Jastrzebski, Hernandez , Nadis S, Lichtenberg R. ). The AHA recommendation support the notion that bedside nurses must be competent in identifying common and lethal arrhythmias and intervene appropriately through initiation of resuscitation or notification of the healthcare provider.
3. Still, there is little existing evidence to support innovative teaching strategies to ensure competency and retention of knowledge. Standards are not consistent for annual competency for rhythm interpretation and it is not well understood how well nurses retain the information from year to year or from time to time (Kanyok & Brooks, 2016). Brooks and Kanyok (2016) concluded that bedside nurses need on-going support and coaching testing to sustain the arrhythmia interpretation knowledge.
1. Funk et al (2016) found that nurses who received online education and specific strategies on the unit by nurse champions retained knowledge but by the third time new knowledge on rhythm interpretation was not sustained. Ehrhardt, Gromley and Constanzo (2013) wrote that blended learning with review sessions supported knowledge retention.
2. A process for remediation through management and nurse accountability was reinforced after one exam failure. Ehrhardt & Grumley (2013) recommended multiple approaches to reinforcing knowledge and supporting rhythm retention including active learning and case studies.
4. Methodology
  1. The nursing education team developed a plan to educate nurses on accurate proper rhythm interpretation based off policy and procedure expectations, national guidelines.
  2. Over 900 nurses had a 63% pass rate on first attempt in 2017.
1. Study guide developed
2. Dynamic Test
3. 2018 Changes in methodology
  1. Preparation
    1. Study Guide
    2. Face to Face Course
    3. Snack classes and information
  2. Testing

1. Dynamic test 10 question
2. Static test
3. Monthly audits and remediation
5. Results and Discussion ---over 900+ nurses sat for 2018 annual competency testing and passed at 97% on first attempt
6. Conclusion/Recommendations
  1. This project measured competency in arrhythmia interpretation and management over a 2-year period
  2. Results have refocused attention on using a variety of teaching strategies to reinforce knowledge and application between mandatory competency evaluation
  3. It is important for hospital educators to recognize spaced, snack education over time helped the nurse retain knowledge

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**Author Summary:** Dr. Pine has extensive experience in Review and Testing She comes with over 20 years in Academic and Clinical education and has developed multiple program in helping nurses succeed

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