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# A Pilot Study of Resuscitative Outcomes at a Downtown Greenville SC Hospital Using Standard Electronic Charting versus a Hand Held Device for Cardiac Arrest Documentation

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## Introduction/Background:

Cardiopulmonary arrest is a major health problem claiming 350,000 to 450,000 lives per year in the United States. Survival has increased to 49% from the use of Automated External Defibrillators (AED) by lay personnel in settings outside the hospital setting. According to the American Heart Association (2002) there are no reliable national statistics on survival from cardiopulmonary arrest, as reporting varies from each treatment facility within the United States and does not allow for a comprehensive reporting system. Furthermore, A preliminary study (Whitcomb, et al 2011) of resuscitative outcomes over a 48 month period demonstrated there were 122 data points not documented and of those 64 were critical elements, such as rhythm at time of arrest, time to first shock, time of first responder and length of arrest

A company recently came out with a new product that is the first complete electronic system for capturing and analyzing code event data. This device gives the recorder more control over the entire resuscitation solving the problem of inaccurate, incomplete, and hard-to-manage data. The result is better information you can use to improve protocols, streamline procedures, enhance TJC compliance, and improve outcomes.

The purpose of this comparative pilot study was to describe the clinical characteristics/outcomes of a cardiac resuscitative event associated with "Code Blue" team response. This pilot study analyzed the current method of documenting and recording cardiac arrest events via electronic documentation and simultaneously used the hand held device to record the same event

## Statistical Analysis:

Comparative descriptive statistics were used in the data analysis. Frequency counts analyzed as percent sample characteristics and mean response times were the major units of analysis.

## Methods:

Chart review (cardiac arrest sheet) of cardiopulmonary arrest over a 3 month period and data collected with the hand held device from cardiac arrest that occur in the ICU and CCU. The two data collection techniques were compared to see which captured the event more comprehensively and accurately.



## Specific Aims:

The specific aims of this study are to describe clinical characteristics of and emergency Code Blue response to patients who require cardiac resuscitation located at a mid-sized hospital (downtown) Greenville over 3 months. The specific aims were to:
1. Describe patient demographics, cardiac risk factors associated with cardiac resuscitative events..
2. Describe the length of time between key code blue sequences.
3. Describe the percent survivability of code blue patients.
4. Compare data collected using current method of code documentation compared to that using the hand held device on all documented codes.

## Implications:

This pilot study comparing a commercial hand held device demonstrated that there is a more accurate way to record cardiac arrest. With positive results more studies need to be conducted that would help improve protocols and guidelines that dictate how a cardiac arrest is documented. Having more information on patient outcomes during a cardiac arrest could help researchers understand which interventions have the best outcomes. This could increase the survival rate of those who have a cardiac arrest and their recovery.



Example of results

## Results:

The results from this pilot study were limited due to the small number of cardiac arrest events within the study location and a more active role of end of life decisions. Age range was 40-83 years of age, 4 males and 1 female. Co-morbidities included HTN, DM, COPD, CHF, ESRD, CAD and morbid obesity. LOS ranged from 1-16 days. Initial CPR was started 14-20 seconds from the onset of arrest. The first epinephrine was given 38-56 seconds from start of arrest. Only 2 subjects survived arrest and zero subjects survived to discharge. Average length of arrest ranged from 3 mins to 49 mins. Rhythm most commonly documented was bradycardia followed by PEA and SVT. Overall the hand held device provided a more detailed description of the cardiac arrest event versus the electronic charting. The standard electronic charting was difficult to document on because of the way in which it is set-up within the system and the multiple pages that needed to be used. The hand held device was much easier to document the events in real-time because of the touch screen and time stamping ability. Greater detail was obtained with the hand-held device increasing data collection by 50% in terms of when CPR was started, when medications were given and over sequence of the code event.



**BON SECOURS ST. FRANCIS HEALTH SYSTEM**



Synchronize defibrillator data.

Record code events.
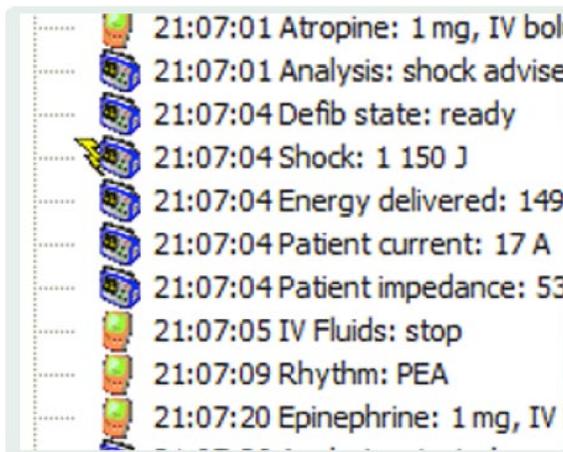
Create code event reports.
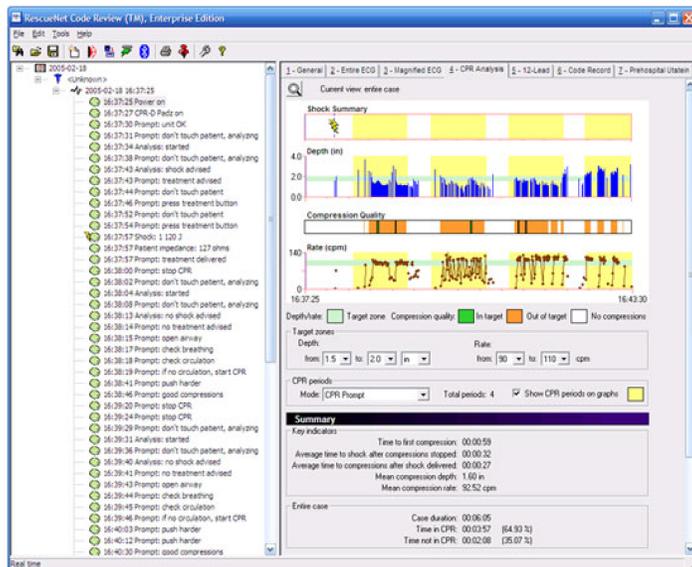
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