

# Impact of Pre-Hospital Myocardial Infarction Alert Process Education on Door to Balloon Times at Sites within a Regional Heart Center

Gerald Coleman DO

*Lehigh Valley Health Network, Gerald.Coleman@lvhn.org*

Andrew C. Miller DO

*Lehigh Valley Health Network, Andrew\_C.Miller@lvhn.org*

David Richardson MD

*Lehigh Valley Health Network, David.Richardson@lvhn.org*

David Cox MD

*Lehigh Valley Health Network, David.Cox@lvhn.org*

Nainesh C. Patel MD

*Lehigh Valley Health Network, nainesh\_c.patel@lvhn.org*

*See next page for additional authors*

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**Authors**

Gerald Coleman DO, Andrew C. Miller DO, David Richardson MD, David Cox MD, Nainesh C. Patel MD, J Patrick Kleaveland MD, Bruce Feldman DO, Ron Freudenberger MD, and Richard S. MacKenzie MD

# Impact of Pre-Hospital Myocardial Infarction Alert Process Education on Door to Balloon Times at Sites within a Regional Heart Center

Gerald Coleman, DO; Andrew Miller, DO; David Richardson, MD; David Cox, MD; Nainesh Patel, MD; J. Patrick Kleaveland, MD; Bruce Feldman, DO; Ron Freudenberger, MD; Richard MacKenzie, MD  
Lehigh Valley Health Network, Allentown, Pennsylvania

## Study Objectives:

Regional heart centers have been designed to disseminate best practices and processes in heart care, to eliminate heart disease as the number one cause of death world-wide. We implemented a pre-hospital Myocardial Infarction (MI) Alert process in September 2007, and as an extension of this process, paramedics were trained to interpret a 12-lead electrocardiogram (ECG) in the field and notify the emergency physician (EP) of the results. We set out to determine if sites that receive an introduction to the overall goals and objectives of the pre-hospital MI Alert process, whose corresponding Emergency Medical Service (EMS) providers received education regarding 12-lead ECG interpretation, decreased average door to balloon (D2B) times as compared to sites whose EMS providers did not receive education.

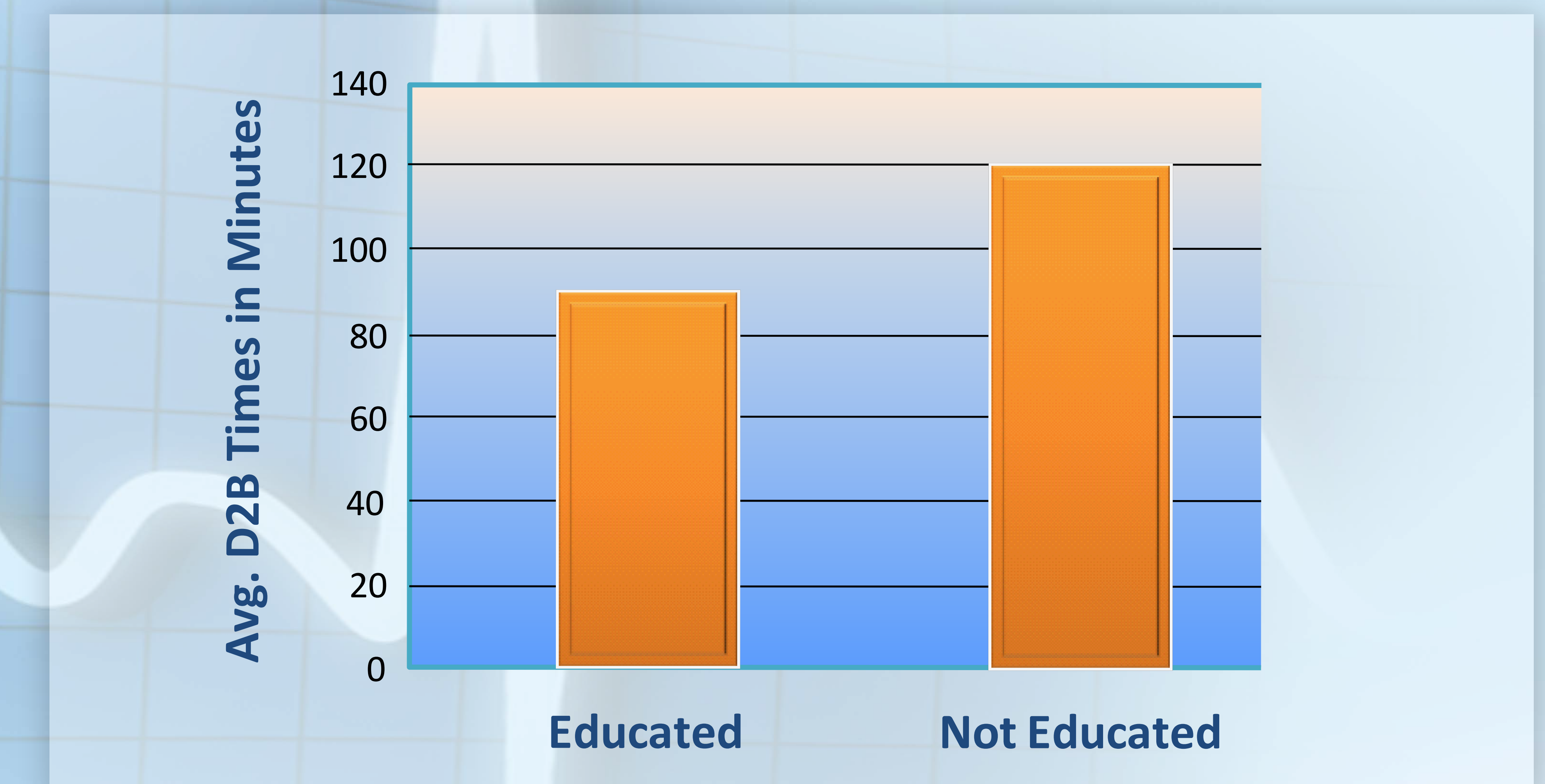
## Methods:

This was an Institutional Review Board approved retrospective cohort study of all patients who presented with a ST Elevation MI (STEMI) to our hospital, between July 1, 2008 and June 30, 2009 (FY09). Our hospital is a 988 bed academic tertiary community medical center accredited by the Society of Chest Pain Centers and serves as the receiving percutaneous coronary intervention (PCI) hospital within a regional heart center. The hospital has an annual emergency department (ED) census of 74,000 patients. Our site currently has 14 additional regional partners who transport patients to us either by air medical or ground EMS from distances that range from 3.7 miles to 57.6 miles away.

Eight of the 15 total sites received education from an EMS fellow or an EMS liaison on the pre-hospital MI Alert process. Training classes for EMS providers consisted of a three hour lecture on 12-lead ECG interpretation including identification of normal, right and left bundle branch block, Wellen's syndrome, STEMI patterns (anterior, inferior, posterior and lateral), and other disease processes that can mimic STEMI ECG patterns. Additionally, EMS providers and regional remote sites were educated on the pre-hospital MI Alert process and goals of the program. The protocol regarding transfer of patients to the Regional Heart Center was standardized among all 15 sites.

## Results:

A total of 401 MI Alert patients were seen in the ED of the receiving PCI hospital during FY09, which included patients transported to our facility by our local EMS and our regional partners. No patients in this cohort received thrombolytics prior to PCI. The average D2B time for the six sites that did not participate in education was 120 minutes, while the average D2B time for the eight sites that did participate in the education was 83 minutes. One site which did not receive the education did not have any patients that required intervention.



## Conclusions:

MI Alert patients that were transported from sites that received education regarding 12-lead ECG interpretation and introduction of the overall goals and objectives of a pre-hospital MI Alert process had clinically decreased average D2B times compared to sites who did not receive the education.

