

# CDEM/CORD Education Supplement/ Educational Advances Using Medical Student Quality Improvement Projects to Promote Evidence-Based Care in the Emergency Department (ED)

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# CDEM/CORD Education Supplement/Educational Advances Using Medical Student Quality Improvement Projects to Promote Evidence-Based Care in the Emergency Department (ED)

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## Background

The Association of American Medical Colleges' (AAMC) initiative for Core Entrustable Professional Activities for Entering Residency includes as an element of Entrustable Professional Activity 13 to "identify system failures and contribute to a culture of safety and improvement." We set out to determine the feasibility of using medical students' action learning projects (ALPs) to expedite implementation of evidence-based pathways for three common patient diagnoses in the emergency department (ED) setting (Atrial fibrillation, congestive heart failure, and pulmonary embolism). This project analyzed the impact of these ALPs on emergency department practices and how medical student involvement augments perceptions of providers with regards to these interventions.

## Problem Statement

Are medical student ALPs a viable way to expedite quality improvement projects in the emergency room, and does medical student involvement augment provider perceptions of those interventions?

## Methods

These prospective quality improvement (QI) initiatives were performed over six months in three Northeastern PA hospitals. Emergency physician mentors were recruited to facilitate a QI experience for third-year medical students for each project. Six students were assigned to each mentor and given class time and network infrastructure support (information technology, consultant experts in lean management) to work on their projects. Students had access to background network data that revealed potential for improvement in disposition (home) for patients. At the conclusion of the projects clinical providers were surveyed regarding their level of comfort with medical students being involved in future quality improvement initiatives in the emergency department as well as whether medical student involvement affected their likelihood of utilizing the proposed clinical pathways.

## Results

Under the leadership of their mentors, students accomplished standard QI processes such as performing the background literature search and assessing key stakeholders' positions that were involved in the respective patient's care. Students effectively developed flow diagrams, computer aids for clinicians and educational programs, and participated in recruiting champions for the new practice standard. They met with other departmental clinicians to determine barriers to implementation and used this feedback to help set specific parameters to make clinicians more comfortable with the changes in practice that were recommended. All three clinical practice guidelines were initiated at consummation of the students' projects. After implementation, 86% (38/44) of queried ED providers felt comfortable with medical students being a part of future ED QI initiatives, and 84% (26/31) of the providers who recalled communicating with students on these projects felt they were effective.

## Discussion

Under the leadership of their mentors, students accomplished standard QI processes such as performing the background literature search, assessing key stakeholders' positions with respect to patient care, and metrics for measuring success. Students effectively developed flow diagrams, computer aids for clinicians, educational programs and participated in recruiting champions for the new practice standard. They met with other departmental clinicians to determine barriers to implementation and used this feedback to help set specific parameters to make clinicians more comfortable with the changes in practice that were recommended. All three clinical practice guidelines (Figures 1-3) were initiated in an orchestrated manner at the consummation of the students' projects. These guidelines have been implemented for approximately six months. To date, this curriculum is limited by the fact that we do not have statistical outcome measures to report. However, since initiation, the network and ED QI committees following the implementation of these pathways have had no patient adverse or serious events to report. Additionally, the action learning project described is a curriculum portion of a program for medical students (USF SELECT). The SELECT program has faculty trained in lean methodology and leadership. Whether this training is generalizable to other networks that may not have this robust availability of both medical student faculty or QI infrastructure is unclear. Further study with data outcomes to illustrate consistency of algorithm use is needed.

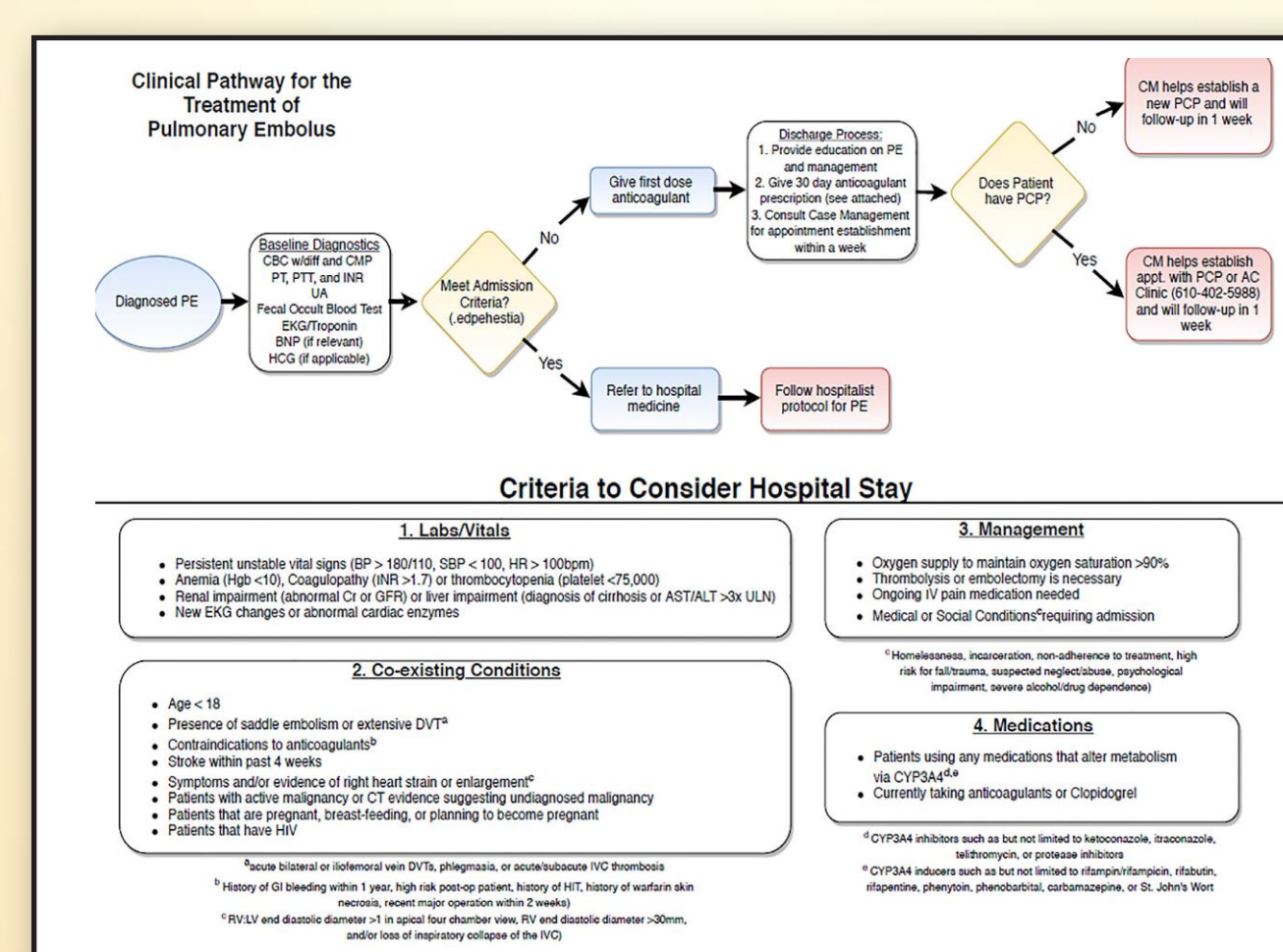
## Conclusions

Using this novel technique of aligning small groups of medical students with seasoned mentors, it is feasible for medical students to learn important aspects of QI implementation and allows for their engagement to more efficiently move evidence-based medicine from the literature to the bedside without greatly impacting provider perceptions.

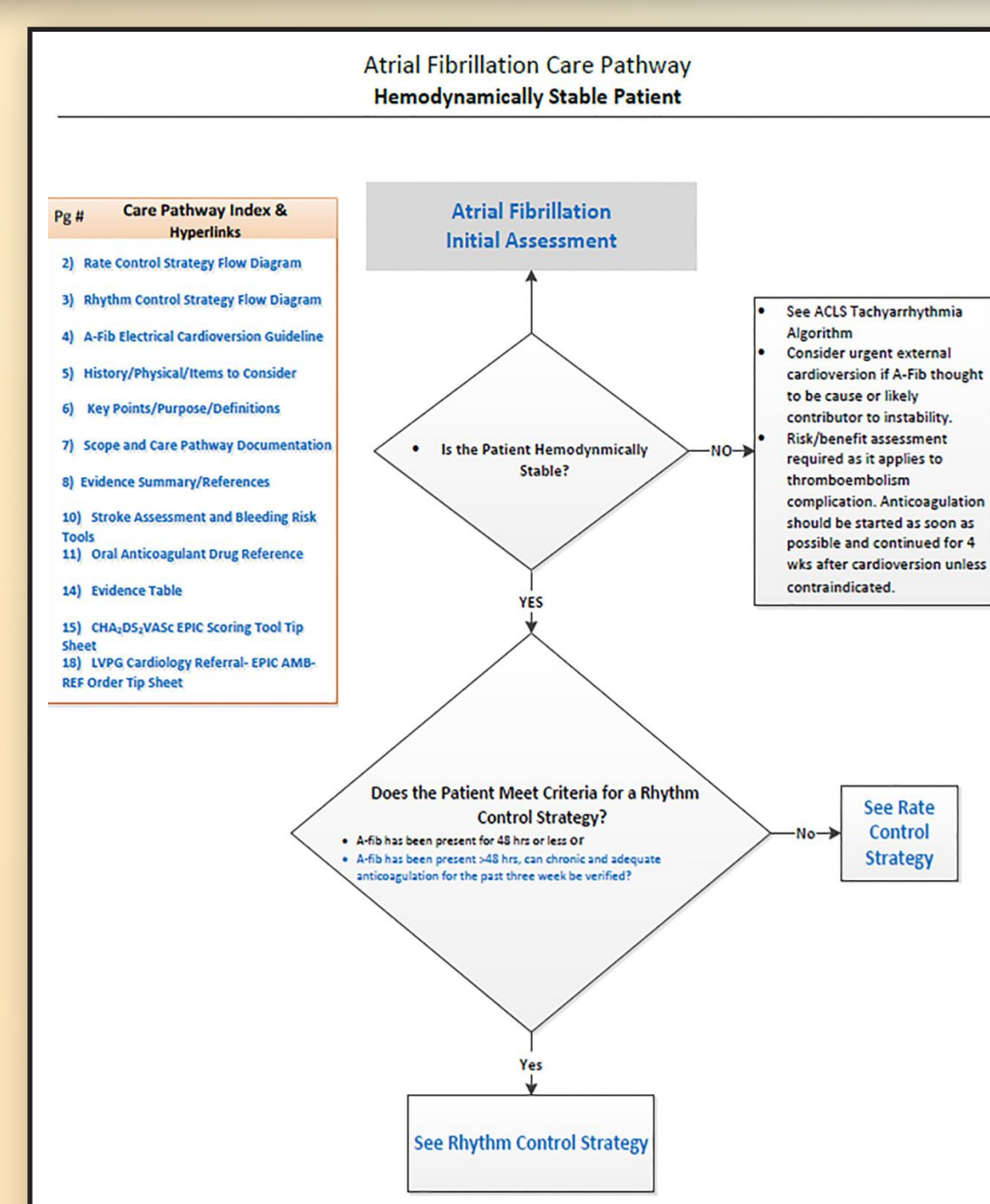
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PE Pathway



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