Implementing Acute Chest Pain Risk Stratification Evaluation in a Rural North Dakota Emergency Department

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Background

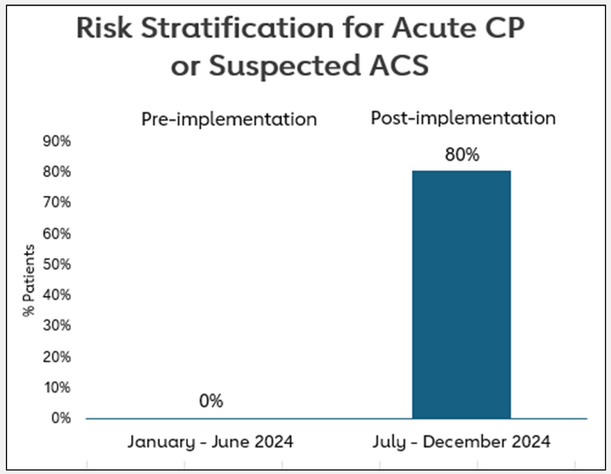
Catholic Health Initiatives (CHI) Lisbon Health is a 20 bed Critical Access Hospital located in southeast North Dakota where the age-adjusted mortality per 100,000 for heart disease and stroke deaths between 2010-2020 was 418.1. CHI Lisbon Health serves approximately 9,155 people throughout 1,731 square miles in a two-county area. In 2024, 86 chest pain patients are seen in their 2 bed Emergency Department (ED) . The nearest tertiary hospital with cardiology services is 70 miles away.

CHI Lisbon Health enrolled in Get With The Guidelines® (GWTG) – Coronary Artery Disease (CAD) and the Rural Health Care Outcomes Accelerator initiative in April of 2024. In June of 2024, the need to implement a diagnostic workup for the evaluation of chest pain patients presenting to the Emergency Department (ED) was identified.

The ED Coordinator presented five evidence-based chest pain risk scores to the Medical Staff Committee for consideration. The HEART (History, ECG, Age, Risk factors, Troponin) Score was selected by the committee and modified to accommodate for the high sensitivity troponin assay utilized by CHI Lisbon Health. The HEART Score assesses patients with chest pain based on their medical history, electrocardiogram (ECG) abnormalities, age, risk factors, and troponin level allowing it to be predictive of 6-week risk of major adverse cardiac events (MACE) in patients with chest pain. In patients with low HEART scores (values 0-3), risk of MACE occurred in 1.7%. In patients with moderate HEART scores (values 4-6), MACE occurred in 16.6%. In patients with high HEART scores (values 7-10), MACE occurred in 50.1%.[1]

Methods

Over the course of four weeks, the ED Coordinator educated the four ED providers and 16 ED nurses utilizing the framework established in the North Dakota Chest Pain Guideline.[2] The ED providers received 1:1 education and the ED Nurses received education during a staff meeting/training. A Risk Stratification order for the HEART Score was added to the existing chest pain order set within the Electronic Health Record (EHR) and paper scoring forms were used at the bedside and scanned into the EHR.



Get With The Guidelines® – CAD, CHI Lisbon Health

Results

From July 1, 2024, to December 12, 2024, 43 patients presented to the ED with chest pain and 10 patients were diagnosed with non-ST-elevation myocardial infarction (NSTEMI), cardiac chest pain, or angina non-specified. The mean patient age was 68.5 years, 4 were male and 6 were female. Five patients were identified as low risk and were able to be discharged to home/nursing home. Five patients were identified as high risk and were transferred to a higher level of care. The median ED throughput time was 143 minutes. Compliance to the AHACAD101: Risk Stratification for Acute CP or Suspected ACS measure has gone from a baseline of 0% to 80%.[3]

Conclusions

One of the strengths of being a small hospital is the ability to mobilize and change processes quickly. CHI Lisbon Health was able to implement this quality project in just four weeks and has had early success with provider adoption of utilizing the HEART Score. A future recommendation would be to add the HEART Score to their EHR allowing it to be completed at point of care. As they continue to utilize the HEART Score, CHI Lisbon Health hopes to see reductions in ED throughput times.

References

1. Backus BE, Six AJ, Kelder JC, Bosschaert MA, Mast EG, Mosterd A, Veldkamp RF, Wardeh AJ, Tio R, Braam R, Monnink SH, van Tooren R, Mast TP, van den Akker F, Cramer MJ, Poldervaart JM, Hoes AW, Doevendans PA. A prospective validation of the HEART score for chest pain patients at the emergency department. Int J Cardiol. 2013 Oct 3;168(3):2153-8. doi: 10.1016/j.ijcard.2013.01.255. Epub 2013 Mar 7. PMID: 23465250.
2. North Dakota Health and Human Services Cardiac Guidelines
3. Get With The Guidelines® - Coronary Artery Disease, Rural Acute Chest Pain and Suspected Acute Coronary Syndrome Measures