Standardized Documentation to Improve Accuracy of Myocardial Infarction (MI) Outcome Data

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BACKGROUND

- Heart Center Data revealed an increase in 30-day hospital readmission rates for patients hospitalized with MI
- Chart review and discussion with documentation specialists revealed a high number of documentation discrepancies regarding type 2 MI
- Heart Center leadership recognized that both misdiagnosis of MIs and inaccurate documentation was contributing to seemingly higher MI re-admission rates

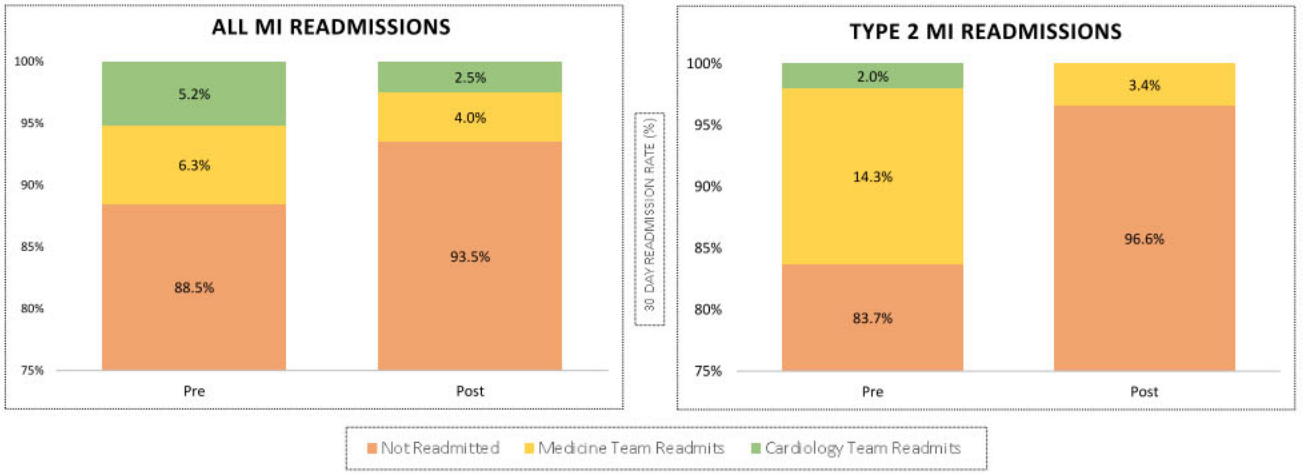
DESCRIPTION

- A team of cardiologists, PAs, and billing specialists developed a documentation tool in the electronic medical record called a Smartphrase
- The Smartphrase included a list of ischemia criteria and guided providers in making an accurate diagnosis that correlated with ICD codes for patients with abnormal serum troponin levels
- The Smartphrase included options for diagnosing type 1 MI, type 2 MI, and non-MI troponin elevation
- The Smartphrase was implemented in all Cardiology discharge summaries and was available to Hospital Medicine providers to respond to documentation queries

METHODS

- Study included adults admitted to Duke University Hospital, with ICD-10 code or DRG that correlated with MI
- Excluded patients who were missing essential data
- Data was obtained by the Duke Heart Data Governance Committee through Duke Heart Data and Epic Caboodle
- Data represents 3 months pre-intervention (Sept 1 – Nov 30, 2020) and 3 months post-intervention (Jan 1 – March 31, 2021) and was filtered by hospital service specialty, ICD-10 code, and 30 day re-admission data

RESULTS



- Hospital-wide MI readmission rate improved from 11.5% to 6.5% after intervention ($p = 0.02$, alpha = 0.05; paired t-test, one tailed)
- Hospital-wide Type 2 MI readmission rate improved from 16.3% to 3.4% after intervention. (No t-test was performed due to 0% re-admissions in cardiology post group)
- Type 2 MI readmissions accounted for 19% of all MI readmissions hospital-wide prior to intervention, and improved to 5.6% after intervention.
- Medicine Team had similar improvements to the Cardiology Team, although MI discharges account for a larger percentage of Cardiology discharges (22.4% pre, 18.4% post) compared to Medicine discharges (2.3% pre, 1.6% post)
- Pearson regression suggests strong correlation between pre and post intervention hospital readmission rates for all MI, Type 1 MI, and Type 2 MI ($r = 1$ for all 3 analyses)

LIMITATIONS

- This data only suggests correlation, not causation, between the troponin Smartphrase intervention and MI re-admission rates
- Several patients were listed by ICD-10 codes that were conflicting between type 1 and type 2 MI; these patients were determined *not* to be type 2 MI and were not included in the Type 2 MI data analysis
- Intervention was more difficult to track on Medicine Team as the Smartphrase was an optional response for documentation queries, whereas the Smartphrase was mandatory in the discharge summaries for 5 of 6 Cardiology Teams

DISCUSSION

- Both the Cardiology and Medicine Teams saw a reduction of MI readmissions after intervention
- By recognizing patients who have non-MI troponin elevations, less MIs were diagnosed, which likely accounts for the decreased MI readmission rate
- Concise and clear documentation for diagnosis of MI and non-MI troponin elevation can impact 30 day MI readmission rates
- Differentiating between Type 1 MI, Type 2 MI, and non-MI troponin elevation is important for patient care, documentation, and billing.
- A Smartphrase can help providers differentiate between these different diagnoses