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### The Association of Patient Navigator Program Features and Hospital Strategies with Processes and Outcome Metrics in Acute Myocardial Infarction and Heart Failure

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## INTRODUCTION

- Acute myocardial infarction (AMI) and heart failure (HF) are prevalent conditions with substantial in-hospital and post-discharge morbidity and mortality
- In 2014, the American College of Cardiology (ACC) launched the Patient Navigator Program to assist 35 acute care hospitals in the implementation of transition-care strategies aimed at improving in-hospital and post-discharge outcomes for AMI and HF
  - The program required hospitals to develop AMI and HF improvement goals based on facility-specific baseline measure results
- The program facilitators at the ACC provided Patient Navigator Program support structures, processes and services to enhance hospital success
- Of hospitals, we previously reported variation in care delivery and in 30-day re-hospitalization rates; however, it is unknown if use of and perceived value of site-specific and ACC Patient Navigator Program-facilitated services were associated with program outcomes (30-day rehospitalization and in-hospital risk adjusted AMI death) and AMI and HF process metrics.

**Purpose:** To prospectively examine 2-year outcome and process metrics based on hospital site perceptions of the use of and value of their own site-specific and also, ACC Patient Navigator Program-facilitated services.

## METHODS

- Design**
- The ACC Patient Navigator Program engaged 35 acute care hospitals in setting goals and implementing strategies aimed at improving structures, processes, and outcomes of transition-care for a 2-year period
    - Outcome and process metrics were prospectively collected 24 months after program implementation
  - After 2 years, sites prospectively completed surveys on their implementation of site-specific and ACC Patient Navigator Program-facilitated structure, system and processes

- Intervention Elements** (and survey response options)
- Hospitals were encouraged to initiate site-specific and ACC-facilitated services to promote transitional-care quality improvements:
    - Number of hospital structure, system and process changes (categorized as low [0-2], moderate [3-5], and high [6-8])
    - Number of site-specific technologies (categorized as low [0-2], moderate [3-5], and high [6-9])
    - Value of using an ACC Patient Navigator Program-facilitated list-serv that promoted site coordinator communication (Likert-like scale from 1-5)
    - Value of ACC Patient Navigator Program-facilitated educational calls and webinars (Likert-like scale from 1-5)
    - Value of ACC Patient Navigator Program-facilitated quality-focused site visits (Likert-like scale from 1-5)
    - Value of ACC Patient Navigator Program-generated data reports (Likert-like scale from 1-5)

- Outcomes and Data Collection:**
- All outcome and process performance metrics had standard inclusion and exclusion criteria
    - Some data were derived from the Chest Pain - MI Registry
  - Sites provided data for HF measures via medical record review
  - Each hospital site had designated personnel responsible for submitting data to a Chest Pain - MI Registry web-based data collection tool.
  - Each hospital provided a minimum of 60 patient-cases per quarter, 30 AMI and 30 HF.
  - Baseline data were collected between July 2013 and August 2014, based on when hospitals entered the program

## METHODS *continued*

- 24-month data were collected between October 2016 and March 2017, based on when hospitals completed 2-years of program participation
- At each hospital, the site coordinator completed a survey in 2017.
- Specific Outcomes — Change at Year 2, Compared to Baseline in:**

30 day unadjusted readmission for AMI	30 day unadjusted readmission for HF	LVSD evaluation	HF patients identified prior to discharge
Beta-blocker for patients with LVSD	Medication reconciliation documentation on admission, for AMI and HF patients	Medication reconciliation documentation at discharge, for AMI and HF patients	Medication reconciliation documentation on admission and at discharge, for AMI and HF patients
ACEi/ARB for patients with LVSD	Self-care education provided to AMI and HF patients	Documentation on all prescribed medications	STEMI performance composite
Follow-up appointment scheduled in 7 days of discharge, HF patients	Overall defect-free care, AMI	Risk-adjusted in-hospital death, AMI	Cardiac rehab patient referral, AMI
NSTEMI performance composite			

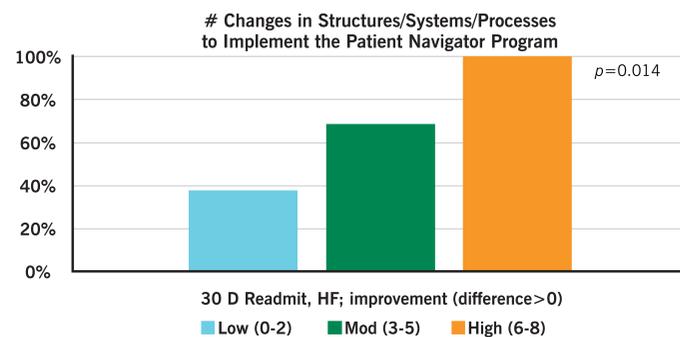
ACEi, angiotensin-converting enzyme inhibitor; ARB, angiotensin-receptor blocker; LVSD, Left-ventricular systolic dysfunction; NSTEMI/STEMI, non-ST/ST elevated myocardial infarction

### Statistical Analysis

- To examine the associations between the level of use of each site and ACC-facilitated process or system and the change in 30-day unadjusted AMI and HF rehospitalization, in-hospital risk adjusted AMI death and 14 AMI-HF process metrics from baseline to 2-years, the Cochran-Armitage test was conducted.
  - All tests were 2-sided, and  $p < 0.05$  was used to determine statistical significance.
  - All analyses were performed using SAS version 9.4 (SAS Institute Inc.; Cary, NC).

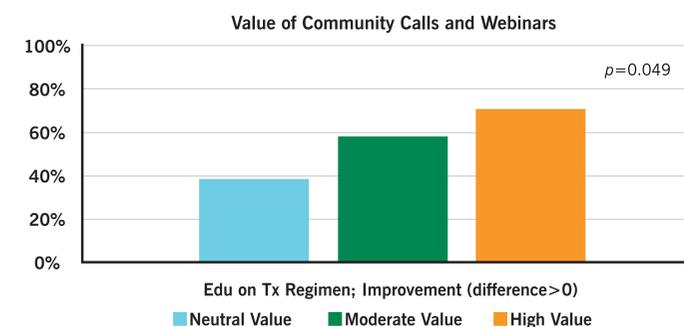
## RESULTS

- Number of hospital structure, system and process changes**
- Sites were more likely to have an improvement in 30-day HF re-hospitalization at 2 year assessment, compared to baseline if they implemented more changes; **Figure 1.**



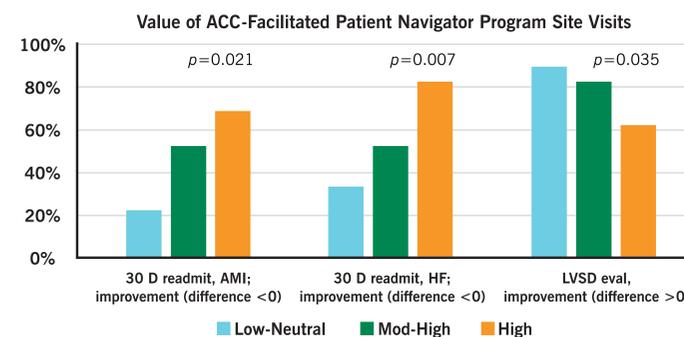
## RESULTS *continued*

- Number of site-initiated technologies**
- The number of site-initiated technologies was not associated with any outcome or process metric changes at program end, compared to baseline.
- Value of using a list-serv to communicate with other program sites**
- Value of the list-serv was not associated with any outcome or process metric changes at program end, compared to baseline.
- Value of program-led educational calls and webinars**
- Sites that rated calls/webinars as high value were more likely to improve AMI-HF self-care treatment education documentation; **Figure 2.**



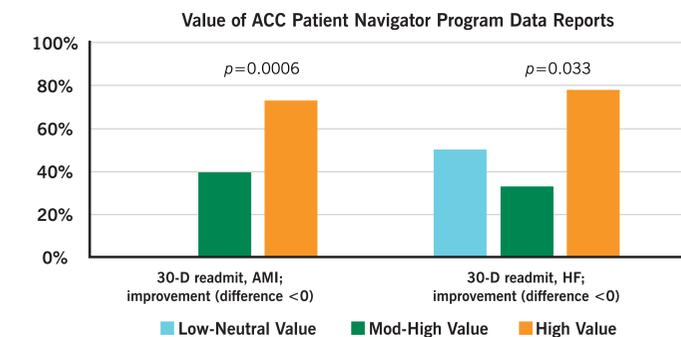
### Value of quality-related site visits

- Sites that rated ACC Patient Navigator Program-facilitated visits as high value:
  - Were more likely to have an improvement in 30-day unadjusted AMI and HF rehospitalization rates at 2 year assessment, compared to baseline;
  - Were less likely to improve LVSD evaluation; **Figure 3.**



## RESULTS *continued*

- Value of ACC-facilitated data reports**
- When sites rated reports as high value:
    - They were more likely to have an improvement in 30-day unadjusted AMI re-hospitalization at 2 year assessment, compared to baseline,
    - They were more likely to have an improvement in 30-day unadjusted HF re-hospitalization at 2 year assessment, compared to baseline; **Figure 4.**



### Limitations

- The Patient Navigator Program was not a randomized clinical trial
- Reported data represent observational process and outcome metrics and site-coordinator perceived survey responses
  - Relationships are confounded by measured and unmeasured variables.
- Because there were not concurrent control hospitals, secular trends could account for some or all of the findings.
- Our findings reflect performance at only 35 hospitals that voluntarily participated in the Chest Pain-MI Registry and received funding to participate.
  - Findings should be interpreted cautiously since other hospitals might not be able to implement or maintain a similar program.

## CONCLUSIONS

- In a geographically diverse cohort of 35 hospitals treating patients with AMI and HF,
  - Sites that implemented more structure, system and process changes advocated by the Patient Navigator Program were more likely to have a decrease in 30-day unadjusted AMI and HF re-hospitalization at 2 year assessment, compared to baseline.
  - Sites that placed high value on ACC Patient Navigator Program-facilitated community calls and webinars, site visits and data reports were more likely to have a decrease in 30-day unadjusted AMI and HF re-hospitalization at 2 year assessment, compared to baseline.
  - Site technology and ACC Patient Navigator Program-facilitated list-serv activities by site coordinators were not associated with any outcome or process performance metrics
  - Many performance metrics of interest, especially most process metrics did not change from baseline based on the site-initiated or ACC Patient Navigator Program-facilitated services.

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