Developing a Multi-disciplinary Team for Infective Endocarditis - A Quality Improvement Project

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BACKGROUND
Early diagnosis and treatment improve outcomes, and delays increase mortality in infective endocarditis (IE). Multidisciplinary teams (MDT) have reported improved outcomes but no guideline exists to develop such a team in United States. From our mortality reviews we identified examples showing gaps in caring for IE patients that describe the MDT at our institution.

THE PROBLEM CASE
48 year old lady, ESRD and chronic systolic CHF (LVEF <40% 6 months ago) Transferred from outside facility for septic shock from CONS bacteremia (hi 6 days of weakness and fatigue)

Day 3 (Wed) – TTE noted severe AR with multiple vegetations on multiple cusps, LVEF 50% Day 4 (Thurs) – ID consult, TEE showed root abscess Day 5 (Fri) – CTS consult – CTA to evaluate coronaries, Cardiology following Day 6 (Sat) – Cardiology following CTA pending Day 7 (Sun) – Dynapax, Pulmonary edema on CXR, hypotension transferred to progressive care unit, CT surgery planned, high mortality

Day 8 (Mon) – CTA could not be done due to tachycardia, CT surgery planned, but died and coded.

MISSION STATEMENT
To standardize and improve care for patients with infective endocarditis by developing a workflow approach and a multi-disciplinary team to enable continued quality improvement.

GOALS
Implement a standardized approach to the management of these patients by the following steps.
1. Develop multi-disciplinary team comprising of – ID, Cardiology and CTS.
2. Develop a clinical decision support tool by incorporating the multi-disciplinary team workflow and integrate it into the electronic health record.

METHODS
Tuckman’s model of team development (Forming → Storming → Norming → Performing)
Created a library of evidence, reviewed electronic records of cases for the period January to December 2016, shared evidence with cardiovascular service line, formulated a plan and designed a streamlined workflow for providers.

RESULTS
82 cases total
29 cases met Duke criteria
21 had indication for CTS
9 underwent surgery
21 did not undergo surgery
∗ 12 met criteria for surgery and did not undergo surgery

DISCUSSION
Targets for quality improvement:
- Early identification of patients with high mortality risk and escalate level of care quickly
- Improve communication between subspecialties
- Standard approach to enable measurement of care variation

Aim statement:
Reduce the number of patients with left sided IE who did not undergo surgery despite indications for early intervention by 50% (from 37.1% to 28.6%) by 2020. We are presently working on the deployment of a clinical decision support tool using our institutions informatics personnel.

CONCLUSIONS
Standardized care for infective endocarditis using a care process model incorporating primary teams, infectious diseases, cardiology and cardiothoracic surgery services holds promise to improve care for infective endocarditis.

Keywords: Infective Endocarditis, quality improvement, work group, Tuckman’s model

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For reference only - CTA, CT surgery planned, but died and coded.