

QI Project Application/Report for Part IV MOC Eligibility

Instructions

Complete the project application/report to apply for UMHS approval for participating physicians to be eligible to receive Part IV MOC credit through the Multi-Specialty Part IV MOC Pilot program. Questions are in bold font and answers should be in regular font (generally immediately below the questions). To check boxes electronically, either put an “X” in front of a box or copy and paste “☒” over the blank box.

Only a final application describing the completed project is required. However, submitting an earlier version helps assure that planned activities will meet Part IV requirements. Actions regarding the application depend on the stage of the project, as described below. As stages are accomplished, you may submit updates of the application with the description of planned activities replaced by descriptions of actual activities performed.

Preliminary approval. Plans are developed for the expected activities, but little actual work has been performed.

(Complete at least items 1-11, 13a, 16-18a, 19a, 20a, 21, 22a, 23a, 27-33.)

Part IV credit approval. Baseline data have been collected and the intervention performed, with completion of both steps documented on an application (or application update). The project has demonstrated its operational feasibility and the likelihood that subsequent data collections and adjustment will be performed. (Complete at least items 1-18a, 19a, 20a, 21, 22a, 23a, 27-33.)

Participation (“attestation”) forms provided. The project has been completed with the expected sequence of activities performed and documented on a complete final application, which is the “final report” on the project.

For further information and to submit completed applications, contact either:

Grant Greenberg, MD, UMHS Part IV Program Lead, 763-936-1671, ggreenbe@med.umich.edu

R. Van Harrison, PhD, UMHS Part IV Program Co-Lead, 763-1425, rvh@umich.edu

Chrystie Pihalja, UMHS Part IV Program Administrator, 763-936-1671, cpihalja@umich.edu

Application/Report Outline

| Section | Items |
|---------------------------------|---|
| A. Introduction | 1-6. Current date, title, time frame, project leader, specialties/subspecialties involved, funding |
| B. Plan | 7-10. General goal, patient population, IOM quality dimensions addressed, experimental design 11-12. Baseline measures of performance, specific performance objectives 13. Data review and identifying underlying (root) causes |
| C. Do | 14-16. Intervention(s), who is involved, initiated when |
| D. Check | 17-18. Post-intervention performance measurement, data collection, performance level |
| E. Adjust – Replan | 19. Review, continuing/new underlying causes, |
| F. Redo | 20. Second intervention |
| G. Recheck | 21-22. Post-adjustment performance measurement, data collection, performance level |
| H. Readjust plan | 23. Review, continuing/new underlying causes to address |
| I. Future plans | 24-26. Subsequent PDCA cycles, standardize processes, “spread” to other areas |
| J. Physician involvement | 27-31. Physician’s role, requirements, reports, reflections, participation, number |
| K. Project Organization | 32-34. Part of larger initiative, organizational structure, resources, oversight, Part IV opportunity |

QI Project Application/Report for Part IV MOC Eligibility

A. Introduction

1. **Date** *December 4, 2013*

2. **Title of QI project:**

IMPROVING STRESS TEST SAFETY IN HIGH RISK PATIENTS WITH CARDIOVASCULAR DISEASE

3. **Time frame**

a. **At what stage is the project?**

- Design is complete, but not yet initiated
 Initiated and now underway
 Completed (*UMHS Part IV program began 1/1/11*)

b. **Time period**

(1) **Date physicians begin participating (may be in design phase):** July, 2011

(2) **End date:** actual June 2013 expected _____

4. **QI project leader [*responsible for attesting to the participation of physicians in the project*]:**

a. **Name:** David J. Pinsky, M.D.

b. **Title:** Chief, Cardiovascular Medicine

c. **Institutional/organizational unit/affiliation:** University of Michigan Health System

d. **Phone number:** (734) 936-3500

e. **Email address:** dpinsky@umich.edu

f. **Mailing address:** 2141 CVC Cardiovascular Medicine
 1500 E. Medical Center Dr.
 Ann Arbor, MI 48109-5853

5. **What specialties and/or subspecialties are involved in this project?**

Cardiology (general cardiology, also subspecialties in interventional cardiology and heart failure)

6. **Will the funding and resources for the project come only from internal UMHS sources?**

- Yes, only internal UMHS sources
 No, funding and/or resources will come in part from sources outside UMHS,
 which are: _____

The Multi-Specialty Part IV MOC Program requires that projects engage in change efforts over time, including at least three cycles of data collection with feedback to physicians and review of project results. Some projects may have only three cycles while others, particularly those involving rapid cycle improvement, may have several more cycles. The items below are intended to provide some flexibility in describing project methods. If the items do not allow you to reasonably describe the methods of your specific project, please contact the UMHS Part IV MOC Program office.

B. Plan

7. **General goal:** To improve the safety of exercise stress testing for high risk patients.

a. Problem/need. What is the “gap” in quality that resulted in the development of this project? Why is this project being undertaken?

*The “quality gap” which drove this quality initiative (QI) project was adverse outcomes (death) during stress testing of these high-risk patients. With the increasing numbers of referrals of patients to UMHS for transcatheter aortic valve replacement therapy (TAVR), an increased number of high-risk individuals with aortic stenosis (AS) have been referred to UMHS practitioners for management. Many of these patients are new to the Health System, and many come with some but not all required pre-operative testing from external (or internal) providers. Once symptoms develop, the natural history of critical aortic stenosis is that survival times are very short if the obstructive lesion is not fixed. Symptomatic presentation can consist of any or all of the following features; angina, syncope, and heart failure. Sometimes in patients, symptoms or reported symptoms are subtle or even not recognized to be symptoms by a patient, who may unwittingly self-curtail his/her own activity levels. There is no medical therapy which can improve survival for critical AS, only a surgical or interventional procedure to open the aortic valve can improve both symptoms and survival. Recently, a two part trial (PARTNERS A and B) demonstrated the potential benefit of TAVR over medical therapy in patients who were considered high risk for open surgical replacement of the aortic valve. Given the potential benefit of therapy, two essential questions with which cardiologists and cardiac surgeons must grapple are (1) Is valve replacement indicated?, and if so, (2) what is the optimal timing for the valve replacement intervention? To answer these questions, in addition to a careful history and physical examination and noninvasive and invasive anatomic imaging of the valve, stress testing may be used in cases in which patients appear to have no symptoms. Not infrequently, patients report no symptoms, however, symptoms are often elicited with minimal exercise. Therefore, it is necessary to not avoid *all* stress tests in patients with aortic stenosis, just avoid those with highest risk such as those who are overtly symptomatic, and to proceed with caution and judiciously stress those in whom the option/timing of aortic valve replacement needs to be assessed. *This project seeks to improve the safety of stress testing of high risk patients, particularly those with severe aortic stenosis.**

b. Project goal. What outcome regarding the problem should result from this project?

The overarching project goal was to improve the safety of stress testing of high risk patients. The outcome that was hoped for was a reduction of deaths during high-risk stress testing. Associated project outcomes include (1) improving local care environment by improving protocols for safety during and immediately after stress testing; (2) Defining and refining criteria for stopping tests in high risk patients; (3) improving pre-test recognition of high risk patients with direct pre-test cardiology consultation.

8. Patient population. What patient population does this project address.

Patients at high risk for cardiac stress testing, particularly those with high-grade aortic stenosis.

9. Which Institute of Medicine Quality Dimensions are addressed? [Check all that apply.]

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> Safety | <input checked="" type="checkbox"/> Equity | <input type="checkbox"/> Timeliness |
| <input type="checkbox"/> Effectiveness | <input type="checkbox"/> Efficiency | <input checked="" type="checkbox"/> Patient-Centeredness |

10. What is the experimental design for the project?

- Pre-post comparisons (baseline period plus two or more follow-up measurement periods)
 Pre-post comparisons with control group
 Other: _____

11. Baseline measures of performance:

a. What measures of quality are used? If rate or %, what are the denominator and numerator?

The quality outcome being observed is the # of deaths associated with stress testing of high-risk patients for each quarter (3 month period), beginning with the third quarter of 2011, ending in the second quarter of 2013 [Two Years of observation total]. This outcome being measured, "deaths while stress testing," is expressed as a percentage of total high risk tests being performed; numerator =number of deaths in the quarter, denominator = number of high rik stress tests performed in the quarter.

b. Are the measures nationally endorsed? If not, why were they chosen?

This measure is not nationally tracked, however, it was chosen so as to improve quality of our own operation, which has become a major quaternary care referral center for the highest risk cases.

c. What is the source of data for the measure (e.g., medical records, billings, patient surveys)?

The data are derived from records from the Cardiovascular Medicine Stress Test Laboratory.

d. What methods were used to collect the data (e.g., abstraction, data analyst)?

Manual abstraction.

e. How reliable are the data being collected for the purpose of this project?

These data are very reliable. The outcome measure (death) is one that needs no adjudication.

f. How are data to be analyzed over time, e.g., simple comparison of means, statistical test(s)?

As the outcome measure tracked is an exceedingly rare event, these data are analyzed by simple comparisons between the tracking periods.

g. To whom are data reported?

Data are reported by the Stress test laboratory to the Chief of Service for Cardiology.

h. For what time period is the sample collected for baseline data?

Baseline data was collected for the third quarter (July-Sept) 2011.

12. Specific performance objectives

a. What is the overall performance level(s) at baseline? *(E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)*

BASELINE

| | |
|--|------|
| | 2011 |
|--|------|

| | Q3 |
|--------------------|------|
| # High Risk Tests | 30 |
| # Tests total | 510 |
| % High Risk | 5.9% |
| # Deaths | 1 |
| % High Risk Deaths | 3.3% |

b. Specific aim: What is the target for performance on the measure(s) and the timeframe for achieving the target?

The target goal is 0% deaths during stress testing of high-risk patients.

c. How were the performance targets determined, e.g., regional or national benchmarks?

Targets were determined based on a goal of improving safety of high risk stress testing, and minimizing complications occurring as part of the stress testing procedure. This is a local goal, not based on a national benchmark.

13. Data review and identifying underlying (root) causes.

a. Who will be/was involved in reviewing the baseline data, identifying underlying (root) causes of the problem(s), and considering possible interventions (“countermeasures”) to address the causes? Briefly describe who is involved, how (e.g., in a meeting of clinic staff), and when.

Two groups of participants were involved in improving high risk stress testing.

Participants in High Risk Stress Test Committee: Theresa Gracik, Melvyn Rubenfire, M.D., David Bach, M.D., Kim A. Eagle, M.D., Todd M. Koelling, M.D., William Armstrong, M.D., Stanley Chetcuti, M.D., and David J. Pinsky, M.D.

Meetings occurred on an *ad hoc* basis, every several months, for external benchmarking, planning and reviewing data. Frequent communications were also done by e-mail interchange as criteria and plans were refined for updating Stress Test Procedures to improve safety.

Participants in Cardiovascular Medicine Leadership Committee: Kim A. Eagle, M.D., Todd M. Koelling, M.D., William Armstrong, M.D., Stanley Chetcuti, M.D., D. Bradley Dyke, M.D., Keith Aaronson, M.D., Peter Hagan, M.D., J. Jalife, M.D., Hitinder Gurm, M.D., Claire Duvernoy, M.D., Theodore Koliass, M.D., and David J. Pinsky, M.D.

This is a weekly meeting of the leaders of Cardiovascular Medicine. Discussions about high risk stress testing which informed the High Risk Stress Committee, and general review of data, were performed in this committee.

b. What are the primary underlying/root causes for the problem(s) that the project can address? (Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately. How the intervention(s) address each primary

underlying cause will be explained in #14.c.)

1. People: Insufficient personnel during stress test procedure to address emergency situations.
2. Processes: *Inadequate stopping criteria*: Develop new stopping criteria based on external benchmarking, then communicate these directly to supervising exercise physiologists as well as cardiology faculty monitoring the tests.

C. Do

14. Intervention(s).

a. Describe the interventions implemented as part of the project.

1. Change "stopping criteria" for high risk stress test.
 - a. Fall in BP or lack of increase
 - b. Chest Pain
 - c. Dyspnea
 - d. ST Depression
 - e. Stop at 85% Max HR or "symptoms", whichever comes first.
 - f. Add cool down period- 2 min slow walk after stress testing
2. Ensure adequate personnel in room during high risk stress test (minimum, 2)

b. How are underlying/root causes (see #13.b) addressed by the intervention(s)? (List each cause, whether it is addressed, and if so, how it is addressed.)

People: Yes, new policies implemented in the high risk stress test laboratory ensured a minimum of 2 people physically available during high risk stress testing. This way, if a complication arises, resuscitative measures can be initiated simultaneous with seeking external emergency respondents.

Processes: Yes, the newly revised stopping criteria, developed after much discussion as well as benchmarking with external peer-institutions, resulted in safer protocols for high risk patients.

15. Who is involved in carrying out the intervention(s) and what are their roles?

The exercise physiologists (led by Theresa Gracik) are responsible for ensuring the minimum number of personnel present before commencing a high risk stress test. Physicians as well as exercise physiology staff are responsible for ensuring that stopping criteria during high risk stress testing are adhered to.

16. The intervention will be/was initiated when? (For multiple interventions, initiation date for each.)

The interventions were initiated in the third quarter of 2011.

D. Check

17. Post-intervention performance measurement. Is this data collection to follow the same procedures as the initial collection of data described in #11: population, measure(s), and data source(s)?

Yes No – If no, describe how this data collection

18. Performance following the intervention.

a. The collection of the sample of performance data following the intervention either:

Will occur for the period:

Has occurred for the period: Third and fourth quarters of 2011

b. If the data collection has occurred, what is post-intervention performance level? (E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)

| | 2011 Q3 | 2011 Q4 |
|--------------------|---------|---------|
| # High Risk Tests | 30 | 25 |
| # Tests total | 510 | 500 |
| % High Risk | 5.9% | 5.0% |
| # Deaths | 1 | 0 |
| % High Risk Deaths | 3.3% | 0% |

E. Adjust – Replan

19. Review of post-intervention data and identifying continuing/new underlying causes.

a. Who will be/was involved in reviewing the post-intervention data, identifying underlying (root) causes of the continuing/new problem(s), and considering possible adjustments to interventions (“countermeasures”) to address the causes? Briefly describe who is involved, how (e.g., in a meeting of clinic staff), and when.

The same groups as described above were involved in data review and re-planning. This includes participants in the High Risk Stress Test Committee, as well as the Cardiovascular Medicine Leadership Committee. Meetings occurred *ad hoc* for the first committee, and approximately weekly for the second committee. E-mail correspondence occurred intermittently throughout the replan period.

b. What are the primary underlying/root causes for the continuing/new problem(s) that the project can address? (Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately. How the intervention(s) address each primary underlying cause will be explained in #20.c.)

The new issue to be addressed came about as the result of much discussion, following a death of a patient while stress testing during the third quarter of 2012. Review showed testing protocols which had been developed were followed, but a new issue was revealed which generated a considerable amount of discussion (hence some delays in implementing). The discussion in the various committees revolved around whether or not cardiology should ever be testing high risk patients, especially those with critical aortic stenosis, or whether we must continue to do so but with adequate safeguards. The overall consensus was that it is essential to continue to provide this service, as in asymptomatic patients, stress testing is helpful to understand whether and when aortic valve replacement is indicated. The issue appears to be that it is hard, on brief consultation at the time of testing, to know whether a patient is truly asymptomatic (and therefore the test could proceed), or whether the patient is symptomatic (and therefore, the test is contraindicated).

Communicate new stress test policy cardiology division-wide.

F. Redo

20. Second intervention.

- a. **The second intervention will be/was initiated when?** (For multiple interventions, initiation date for each.)

The second intervention was implementation of a new requirement for pre-test consultation by a UMHS cardiologist, who would then be responsible for performing the stress testing. This enabled the practitioner to be knowledgeable about the patient, potentially understanding inter-current symptoms which may have developed between the time of ordering and performance of the stress test, and to be more familiar with the patient's medical history at the time of testing.

Roll out new stress test policy in draft form, and then at Division-wide faculty meeting.

This second intervention was implemented in the first and second quarters of 2013.

- b. **If the second intervention has occurred, what interventions were implemented?**

Pre-stress test consultation was required for the scheduling of a high-risk stress test patient. This also forced scheduling of the test on a day and at a time at which the cardiologist who had seen the patient in consultation would be available for stress test supervision.

- c. **How are continuing/new underlying/root causes (see #19.b) addressed by the intervention(s)?** (List each cause, whether it is addressed, and if so, how it is addressed.)

The lack of familiarity with the patient by the supervising physician is obviated by pre-stress test cardiology consultation. This avoids the issue of referral to the stress test lab prior to having been seen by a UMHS cardiologist (or sometimes, by any UMHS physician). This also helps the cardiologist understand nuanced symptoms which might result in the cancellation of scheduled tests if it is determined such tests are medically contraindicated.

G. Recheck

21. **Post-second intervention performance measurement. Is this data collection to follow the same procedures as the initial collection of data described in #11: population, measure(s), and data source(s)?**

Yes No – If no, describe how this data collection

22. Performance following the second intervention.

a. The collection of the sample of performance data following the intervention(s) either:

Will occur for the period:

Has occurred for the period: Second quarter, 2013

b. If the data collection has occurred, what is the performance level? (E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)

Stress Test Data

| | 2011 Q3 | 2011 Q4 | 2012 Q1 | 2012 Q2 | 2012 Q3 | 2012 Q4 | 2013 Q1 | 2013 Q2 | |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| # High Risk Tests | 30 | 25 | 13 | 25 | 17 | 24 | 11 | 11 | |
| # Tests total | 510 | 500 | 548 | 441 | 443 | 501 | 493 | 441 | |
| % High Risk | 5.9% | 5.0% | 2.4% | 5.7% | 3.8% | 4.8% | 2.2% | 2.5% | |
| # Deaths | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| % High Risk Deaths | 3.3% | 0% | 0% | 0% | 5.9% | 0% | 0% | 0% | |

H. Readjust

23. Review of post-second intervention data and identifying continuing/new underlying causes.

a. Who will be/was involved in reviewing the data, identifying underlying (root) causes of the continuing/new problem(s), and considering additional possible adjustments to interventions (“countermeasures”) to address the causes? Briefly describe who is involved, how (e.g., in a meeting of clinic staff), and when.

The same groups as described above were involved in data review and re-planning. This includes participants in the High Risk Stress Test Committee, as well as the Cardiovascular Medicine Leadership Committee. Meetings occurred *ad hoc* for the first committee, and approximately weekly for the second committee. E-mail correspondence occurred intermittently throughout the re-adjustment period.

- b. What are the primary underlying/root causes for the continuing/new problem(s) that the project can address?** (Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately.)

The requirement for pre-stress testing consultation was going smoothly until there was a rollout of the new electronic medical record system. This resulted in the need to build in a “hard stop” into the MI-Chart order set, so that a high risk stress test could not be ordered without first seeking cardiology consultation with the provider who would then be responsible for supervising the stress test (or cancelling it if contraindicated). After this implementation, there have been no further causes for concern identified.

If no additional cycles of adjustment are to be documented for the project for Part IV credit, go to item #24.

If a few additional cycles of adjustments, data collection, and review are to be documented as part of the project to be documented, document items #20 – #23 for each subsequent cycle. Copy the set of items #20 – #23 and paste them following the last item #23 and provide the information. When the project to be documented for Part IV credit has no additional adjustment cycles, go to item #24.

If several more cycles are included in the project for Part IV credit, contact the UM Part IV MOC Program to determine how the project can be documented most practically.

I. Future Plans

- 24. How many subsequent PDCA cycles are to occur, but will not be documented as part of the “project” for which Part IV credit is designated?**

There are no further planned meetings of the High Risk Stress Test subcommittee. The CVM Leadership meeting continues to meet on a near-weekly basis.

- 25. How will the project sustain processes to maintain improvements?**

Revisions to the High Risk Stress Test policy and procedures will be considered if there are new matters arising, or there is an observed increase in adverse outcomes noted on routine stress test surveillance. This surveillance will be performed by exercise physiology personnel and the Chief of Service.

- 26. Do other parts of the organization(s) face a similar problem? If so, how will the project be conducted so that improvement processes can be communicated to others for “spread” across applicable areas?**

The other area where stress tests occur is in nuclear medicine. The policy was communicated to one of the nuclear medicine cardiologists responsible for these tests, but will be more broadly communicated so as to spread what Cardiology has learned across the organization.

J. Physician Involvement

Note: To receive Part IV MOC a physician must both:

- a. Be actively involved in the QI effort, including at a minimum:

 - Work with care team members to plan and implement interventions
 - Interpret performance data to assess the impact of the interventions
 - Make appropriate course corrections in the improvement project*
- b. Be active in the project for the minimum duration required by the project*

- 27. Physician’s role. What are the minimum requirements for physicians to be actively involved in this QI effort?**

- a. Interpreting baseline data and planning intervention:
Attending either High Risk Stress Test Committee or Cardiovascular Medicine Leadership Committee meetings. Participation in development of high risk stress test benchmarks, e-mail or discussion-based participation in baseline data interpretation and project planning.
- b. Implementing intervention:
Supervise stress testing and/or participate in the re-writing and updating of high risk stress testing policy and procedures manual.
- c. Interpreting post-intervention data and planning changes:
Attending either High Risk Stress Test Committee or Cardiovascular Medicine Leadership Committee meetings. Participation in development of high risk stress test benchmarks, e-mail or discussion-based participation in baseline data interpretation and project planning.
- d. Implementing further intervention/adjustments:
Discussions as to need for stress testing of high risk subjects, and planning for how this could be transacted based on cardiac consultation at the UMHS.
- e. Interpreting post-adjustment data and planning changes:
Attending either High Risk Stress Test Committee or Cardiovascular Medicine Leadership Committee meetings. Participation in development of high risk stress test benchmarks, e-mail or discussion-based participation in baseline data interpretation and project planning.

28. How are reflections of individual physicians about the project utilized to improve the overall project?

The direct involvement of multiple physicians with divergent views, as well as exercise physiologists, helped improve the overall project. There was consensus achieved on most issues- for instance, need for placement of intravenous lines prior to procedure was left to "individual physician discretion" as part of consensus building. The continued performance of high risk stress tests was also accomplished through an iterative series of discussions wherein the need for prior cardiac consultation was enunciated and approved; individual physicians can therefore deem a test too high risk (ie, contraindicated because of the presence of symptoms), or acceptable risk (and perform the test, with enhanced direct knowledge of the patient undergoing testing).

29. How does the project ensure meaningful participation by physicians who subsequently request credit for Part IV MOC participation?

The Project Lead (Dr. Pinsky), who is also the Chief of Service for Cardiology, was personally involved in this project from start to finish, so understands the meaningful contributions of the various faculty involved.

30. What are the specialties and subspecialties of the physician anticipated to participate in the project and the approximate number of physicians in each specialty/subspecialty?

All of the physicians involved are cardiologists, some of them have subspecialty / added competency certificates in interventional cardiology and advanced heart failure. There were about 15 cardiologists who were involved in this project, of whom approximately 3 are also certified in advanced heart failure and approximately 3 of whom are certified in interventional cardiology.

K. Project Organizational Role and Structure

31. UMHS QI/Part IV MOC oversight – this project occurs within:

University of Michigan Health System

• **Overseen by what UMHS Unit/Group?**

• **Is the activity part of a larger UMHS institutional or departmental initiative?**

No Yes – the initiative is:

Veterans Administration Ann Arbor Healthcare System

• **Overseen by what AAVA Unit/Group?**

• **Is the activity part of a larger AAVA institutional or departmental initiative?**

No Yes – the initiative is:

An organization affiliated with UMHS to improve clinical care

• **The organization is:**

• **The type of affiliation with UMHS is:**

Accountable Care Organization type (*specify which*):

BCBSM funded, UMHS lead Collaborative Quality Initiative (*specify which*):

Other (*specify*):

• **Who is the individual at UMHS responsible for oversight of the QI project regarding Part IV requirements?**

Name:

Title:

Institutional/organizational unit/affiliation:

Phone number:

Email address:

32. What is the organizational structure of the project? [Include who is involved, their general roles, and reporting/oversight relationships.]

The project lead (Dr. David Pinsky) oversaw this project. He is the Chief of Cardiovascular Medicine and the Service Chief for Cardiology. He oversees all other cardiology faculty involved in this project. Dr. Kim Eagle is the Chief of Clinical Cardiology who oversaw the benchmarking initiative. Dr. Melvin Rubenfire is the head of Preventive Cardiology and the head of stress testing operation at one of our offsite locations, who has taken a lead faculty role in developing Stress Test Policy. Drs. William Armstrong and Theodore Koliass have sequentially led the echo lab, responsible for performance of many of the stress tests. Dr. Chetcuti heads the TAVR program. Other faculty listed here have unique roles, but were participants in various aspects of this project under Dr. Pinsky’s leadership.

33. To what oversight person or group will project-level reports be submitted for review?

Project-level reports should be submitted to the Chief of Service for adult cardiology for review.