# Appropriate Use of Medical Resources: Elective Percutaneous Coronary Intervention

## At a Glance

### At Issue
To support the field’s efforts in the appropriate use of medical resources, the latest toolkit from AHA’s Physician Leadership Forum (PLF) addresses the appropriate use of elective percutaneous coronary intervention (PCI) for patients with acute heart disease. We collaborated with the American College of Cardiology, the American Heart Association and the Society for Cardiovascular Angiography and Interventions to bring hospitals and health systems resources and tools to help in their quest for safe, high-quality care. A 2013 AHA white paper, *Appropriate Use of Medical Resources*, identified five areas where hospitals, in partnership with their clinical staff and patients, should look to reduce non-beneficial care. *Previous toolkits* focused on patient blood management, antimicrobial stewardship and ambulatory care sensitive conditions.

### Our Take:
According to the American College of Cardiology, American Heart Association, the Society for Cardiovascular Angiography and Interventions and other experts, immediate coronary angiography with PCI is recommended for patients with ST elevation myocardial infarction (STEMI). Research has shown, though, for patients with non-acute coronary artery disease, PCI can have little to no effect on outcomes. Appropriate use of PCI with the right patient at the right time can improve outcomes, reduce hospital admissions and readmissions and lower costs.

### What You Can Do:
- Share this advisory with your senior management, senior leaders for quality, clinic managers, nurse managers, key physician leaders, primary and specialty care providers, catheterization lab directors, cardiologists, and patient health educators.
- **Stay tuned for information on the webinar** taking place this summer regarding appropriate use of elective PCIs.

### Further Questions:
If you have additional questions, please contact Elisa Arespacochaga, AHA director, Physician Leadership Forum, at 312-422-3329 or elisa@aha.org.
In *Appropriate Use of Medical Resources*, a 2013 white paper, the American Hospital Association’s (AHA) Physician Leadership Forum (PLF) identified five areas where hospitals, in partnership with their clinical staff and patients, should look to reduce non-beneficial care. To support hospitals’ efforts in the appropriate use of medical resources, the PLF is producing toolkits on each of the recommended areas. The latest toolkit addresses the appropriate use of elective percutaneous coronary intervention (PCI). Previous toolkits, focused on patient blood management, antimicrobial stewardship and ambulatory care sensitive conditions, are available at [www.aha.org/appropriateuse](http://www.aha.org/appropriateuse).

The AHA collaborated with the following organizations to develop the elective PCI toolkit:

- American College of Cardiology
- American Heart Association
- The Society for Cardiovascular Angiography and Interventions

**Background**

**At Issue**

By reducing the utilization of non-beneficial care – care that increases costs without a concomitant increase in value – we can move closer toward achieving the Triple Aim of improving the patient experience of care (including quality and satisfaction), improving the health of populations and reducing per-capita costs of health care. Studies show that when health care providers are well informed on appropriate care options, and those options are fully discussed with engaged patients, health care outcomes improve at reduced costs.

As the nation moves to transform the health care delivery system, all participants need to ensure that finite resources are not used for interventions that do not add to quality of care, but instead channel resources to settings where they can provide the greatest benefit to patients. Caution needs to be taken to preserve clinical judgment on the most appropriate testing, intervention and care setting for each patient.
As medical societies, provider organizations and others look for ways to drive appropriate use of medical resources, hospitals and health systems play an important role in supporting and guiding these efforts within their organizations. As one of the more intense health resource users, hospitals and health systems have a responsibility to encourage appropriate and consistent use of health care resources and give providers the tools to better communicate with patients about the appropriate use of resources.

Striving toward more appropriate use of elective PCI requires understanding of the problem and a commitment to making change. This toolkit features expert consensus documents, guidelines and appropriate use criteria, clinical articles and patient resources.

**ACTION STEPS**

- Share this advisory with your senior management, senior leaders for quality, clinic managers, nurse managers, key physician leaders, primary and specialty care providers, catheterization lab directors, cardiologists and patient health educators.

- **Stay tuned for information on the webinar** taking place this summer regarding appropriate use of elective PCIs.

- Consider enrolling in or better utilizing the CathPCI Registry®, which “assess[es] the characteristics, treatments and outcomes of cardiac disease patients who receive diagnostic catheterization and/or percutaneous coronary intervention (PCI) procedures. This powerful tool captures the data that measure adherence to ACC/American Heart Association clinical practice guideline recommendations, procedure performance standards and appropriate use criteria for coronary revascularization.”

- Ensure clinicians are aware of the guidelines and appropriate use criteria.

- Encourage clinicians to make use of the PCI risk calculator and the appropriateness calculator.

**FURTHER QUESTIONS**

If you have additional questions, please contact Elisa Arespacochaga, director, Physician Leadership Forum, at 312-422-3329 or elisa@aha.org.
Appropriate Use of Medical Resources

Elective Percutaneous Coronary Intervention Toolkit

Developed with resources from:

American Hospital Association

American Heart Association

The Society for Cardiovascular Angiography and Interventions
Over the past two decades, the past five years in particular, a national discussion emerged concerning the increased cost of health care. Perhaps of greater importance, increased health care costs have not always led to improved outcomes. In fact, over-diagnosis, overuse of treatments and a “try everything” approach have contributed to increased health care costs with little discernible improvement in health. At the same time, medical knowledge has increased exponentially and clinical knowledge is doubling as fast as every two years. But with all this knowledge looms a larger debate, when are we doing too much and how do we decide?

Care providers endeavor to provide the most appropriate care to patients regardless of cost, but all too often there isn’t enough discussion with patients about what is appropriate. Further, how can the health care system equip patients to participate in those discussions and make the most informed decision in partnership with their caregivers? As medical societies, provider organizations and others look for ways to drive appropriate use, hospitals and health systems can play an important role in supporting and guiding these efforts.

The AHA, with guidance from its Committee on Clinical Leadership, examined the issue and developed the white paper *Appropriate Use of Medical Resources*, which identifies the drivers of health care utilization and recommends a way to move forward to reduce non-beneficial services and improve care. Among its efforts, the AHA developed a “top five” list of hospital-based procedures or interventions that should be reviewed and discussed by a patient and physician prior to proceeding, including:

- Appropriate blood management in inpatient services;
- Appropriate antimicrobial stewardship;
- Reducing inpatient admissions for ambulatory-sensitive conditions (e.g., low back pain, asthma, uncomplicated pneumonia);
- Appropriate use of elective percutaneous coronary intervention; and
- Appropriate use of the intensive care unit for imminently terminal illness (including encouraging early intervention and discussion about priorities for medical care in the context of progressive disease).

To begin the discussion, the AHA released the *Appropriate Use of Medical Resources*. We encouraged our members to share it with their board, medical staff, and community leaders and use the accompanying discussion guide to explore the issue together.

To further support hospitals’ efforts, the AHA’s Physician Leadership Forum is producing toolkits on each of the five areas. To date, we have released toolkits on patient blood management, antimicrobial stewardship and ambulatory care sensitive conditions. To access all toolkits, please visit www.aha.org/appropriateuse.

**FOR MORE INFORMATION**
Visit [www.aha.org/appropriateuse](http://www.aha.org/appropriateuse).

**CONTACT INFORMATION**
Elisa Arespacochaga, director, Physician Leadership Forum, elisa@aha.org or 312-422-3329.
Elective Percutaneous Coronary Intervention Toolkit

To access the toolkit, visit www.aha.org/appropriateuse.

Developed with resources from:
American College of Cardiology (ACC)
American Heart Association
The Society for Cardiovascular Angiography and Interventions (SCAI)

User Guide
The toolkit is composed of three sections:

Hospital and Health System Resources – for senior management, senior leaders for quality, clinic managers, nurse managers, key physician leaders and risk managers this section includes quality improvement resources and links to the National Cardiovascular Data Registry®.

Clinician Resources – for clinicians, this section includes mobile applications, guidelines and clinical evidence supporting the appropriate use of elective percutaneous coronary interventions.

Patient Resources – for patients, this section includes resources to understand the best use of angioplasty and how to obtain the right tests and treatments.

Hospital and Health System Resources

American Heart Association’s Get With The Guidelines® and Mission: Lifeline®
Get With The Guidelines®, a suite of hospital-based quality improvement programs and registries, offers online tools to provide patient-specific guidelines and track their adherence. Get With The Guidelines® helps hospitals follow the most up-to-date, research-based treatment guidelines, reducing gaps and disparities in the delivery of quality care, while supporting high value registries for cardiovascular research. To access, go to http://bit.ly/1HjsLQ0.

SCAI’s Quality Improvement Toolkit
This toolkit includes information on guidelines, peer review conferences, national database participation, pre-procedure checklists, data collection and inventory management. The toolkit assists hospitals and health systems in identifying strengths as well as opportunities for improvement, and to prepare for pay-for-performance initiatives. To view, go to http://bit.ly/1DrZdve.

National Cardiovascular Data Registry® (NCDR) CathPCI Registry®
An ACC initiative, with SCAI partnering support, the CathPCI Registry® “assesses the characteristics, treatments and outcomes of cardiac disease patients who receive diagnostic catheterization and/or percutaneous coronary intervention (PCI) procedures. This powerful tool captures the data that measure adherence to ACC/American Heart Association clinical practice guideline recommendations, procedure performance standards and appropriate use criteria for coronary revascularization.” To access, go to http://bit.ly/1baOeND.

Understanding the Reporting of Appropriateness Use Criteria in the CathPCI Registry®
This guide explains how to interpret the Institutional Feedback Report organizational self-assessments of the appropriateness of PCI procedures at the hospital level. Each report includes the institution’s rate of appropriate, uncertain and inappropriate procedures for PCIs in patients with acute coronary syndromes and non-acute presentations of coronary artery disease allowing participating hospitals to become more informed about their use of PCI and determine whether there are opportunities to improve the patients selected for coronary revascularization. To download, go to http://bit.ly/1CVJjFV.
**ACC Quality Improvement for Institutions Program**
The ACC Quality Improvement for Institutions program gives health care institutions a comprehensive suite of cardiovascular registries and service solutions that supports quality clinical care and improves patient outcomes. To view, go to http://bit.ly/1cDEbAU.

**Expert Consensus Document: 2014 Update on PCI without On-Site Surgical Backup**
This study updates work on the performance of PCI without onsite surgery, recommendations and best practices for facilities engaged in PCI without on-site surgery. To download, go to http://bit.ly/1Df6DBZ.

**What Each Registry Collects**
A summary of the data collected by the National Cardiovascular Data Registry®, including patient demographics, provider and facility characteristics, history and risk factors appropriate use criteria and compliance with clinical guideline recommendations. To view, go to http://bit.ly/1DfBY4g.

**Clinician Resources**

**ACC’s Guideline Clinical Mobile Application**
In addition to clinical guideline content, the application includes interactive tools for clinicians caring for patients with cardiovascular disease, such as risk scores, dosing calculators and algorithms. The application also includes features such as customizable bookmarks, note-taking and email compatible PDFs. To download, go to http://apple.co/1yAgtiF.

**SCAI PCI Risk Calculator Application**
SCAI teamed up with the Blue Cross Blue Shield of Michigan Cardiovascular Consortium Registry to create the SCAI PCI Risk Calculator that allows clinical users to use one common tool to make a pre-procedure assessment of post-PCI risks including mortality, acute kidney injury and transfusion. To download, go to http://apple.co/1zpUw17.

**SCAI PCI Appropriateness Calculator**
Online calculator offered by SCAI that allows determination of the appropriate use score for individual PCI procedures based on individual patient clinical characteristics. To access, go to http://nacs.scai-qit.org.

**Atherosclerotic Cardiovascular Disease (ASCVD) Risk Estimator**
A companion tool to the 2013 ACC/American Heart Association Guideline on the Assessment of Cardiovascular Risk, the ASCVD risk calculator enables health care providers and patients to estimate 10-year and lifetime risks for ASCVD. To access, go to http://bit.ly/1uGpcMK.
Guidelines and Appropriate Use Criteria

The ACC, in collaboration with SCAI, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, Heart Failure Society of America and the Society of Cardiovascular Computed Tomography published this focused update of the 2009 document to include new literature published since the original document and gaps noted during implementation. To download, go to http://bit.ly/166KuKs.

2011 ACC/American Heart Association/SCAI Guideline for Percutaneous Coronary Intervention: Executive Summary

Since 1980, the ACC and the American Heart Association have jointly produced guidelines in the area of cardiovascular disease. This guideline provides recommendations for CAD revascularization, pre-procedural, procedural, post-procedural and quality and performance considerations. To download, go to http://bit.ly/1tGwd17.

Clinical Articles

Variation in Patients’ Perceptions of Elective Percutaneous Coronary Intervention in Stable Coronary Artery Disease: Cross Sectional Study


CASE EXAMPLE:

Blue Cross Blue Shield of Michigan Cardiovascular Consortium PCI Quality Improvement Initiative (BMC2-PCI)

Established in 1997, BMC2-PCI is a collaborative effort to improve care and outcomes for patients with coronary disease who undergo angioplasty. According to the 2015 Fact Sheet, participants include 33 Michigan hospitals and 484 physicians. Approximately 342,420 cases have been entered into the NCDR® since 1997. To learn more, go to https://bmc2.org/pci.
Initial Coronary Stent Implantation with Medical Therapy vs Medical Therapy Alone for Stable Coronary Artery Disease: Meta-Analysis of Randomized Controlled Trials

Patterns and Intensity of Medical Therapy In Patients Undergoing Percutaneous Coronary Intervention

Appropriateness of Percutaneous Coronary Intervention

Meta-Analysis: Effects of Percutaneous Coronary Intervention versus Medical Therapy on Angina Relief

A Meta-Analysis of 17 Randomized Trials of a Percutaneous Coronary Intervention-Based Strategy in Patients with Stable Coronary Artery Disease

Effect of PCI on Quality of Life in Patients with Stable Coronary Disease

Optimal Medical Therapy with or without PCI for Stable Coronary Disease

Percutaneous Coronary Intervention versus Optimal Medical Therapy for Prevention of Spontaneous Myocardial Infarction in Subjects with Stable Ischemic Heart Disease
Coronary Artery Bypass Graft Surgery versus Percutaneous Coronary Intervention with First-Generation Drug-Eluting Stents: A Meta-Analysis of Randomized Controlled Trials

Causes of Short-Term Readmission after Percutaneous Coronary Intervention

Patient Resources

**PCI Choice**
Materials from Mayo Clinic that visually illustrate the probabilities of risk versus benefit from PCI for stable ischemic heart disease in order to help patients make decisions that best fit their values and preferences. To view, go to http://mayocl.in/1aE3kdb.

**What Can Angioplasty Do For You?**
This *Harvard Health Publications* article discusses the benefits and risks of angioplasty for stable angina and the outcomes of the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial. To view, go to http://bit.ly/1Ds34bH.

**SecondsCount.org**
This website, hosted by SCAI, aims to better prepare patients and their families to navigate the medical system and actively participate in care. Resources include explanations about what Coronary Artery Disease (CAD) is, common tests and treatments involved as well as worksheets to assist in understanding medication and questions to ask physicians. To view, go to http://bit.ly/1Hq3v87.