



# Reduce the Risk: PCI Bleed

A Campaign of the  
American College of Cardiology



# **ACC REDUCE THE RISK: PCI BLEED CAMPAIGN**

Andrea Price, MS, CPHQ, RCIS, CCA  
Veronica Wilson, CPHQ

**September 18, 2018**



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***Please submit your questions for the  
moderated question and answer session***



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# Webinar Objectives

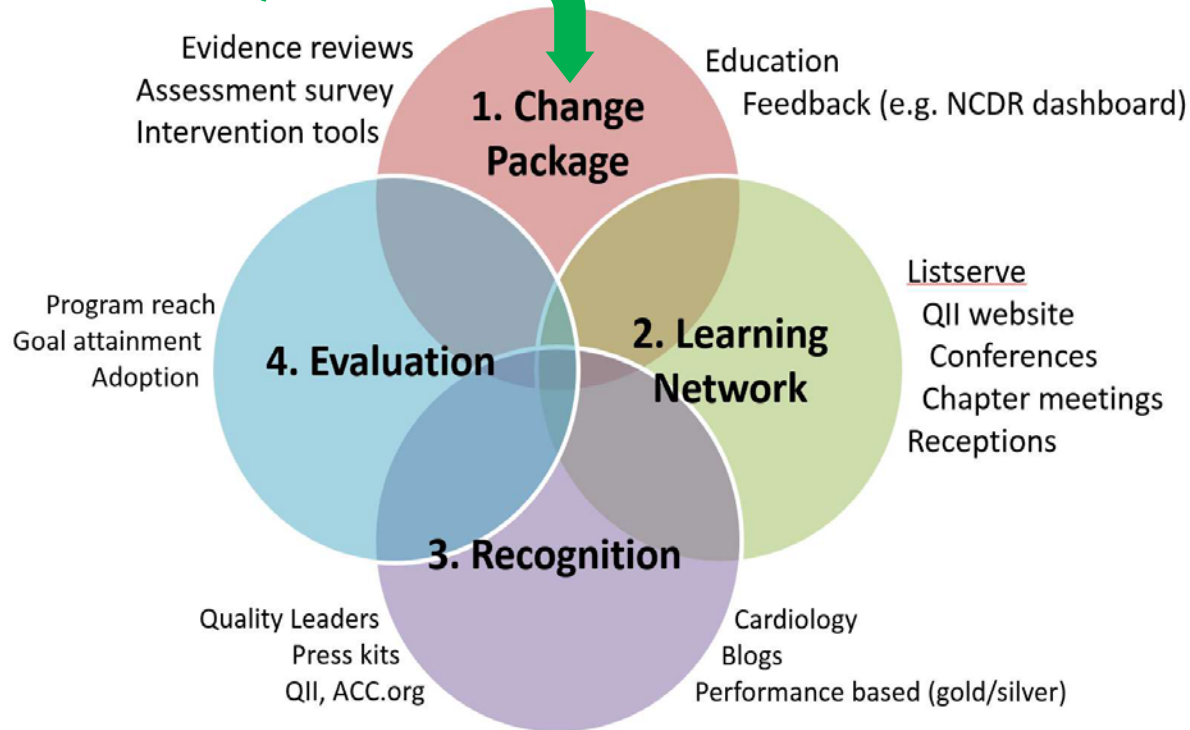
- Describe the goal of the ACC Reduce the Risk: PCI Bleed Quality Campaign
- Verbalize an understanding of next steps for getting started.



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# What's in an ACC Quality Campaign? 4 Parts

NCDR QI Need



## \*Key characteristics of a successful QI program

- Influential
- Credible
- Simple
- Strategically aligned for participant
- Offers practical implementation tools
- Offers Networking
- Sets Attainable goals



# Steering Committee Members

Andrea Price, MS, RCIS, CCA,  
CPHQ Committee Chair

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Jon Jennings, RN

John Messenger, MD, FACC

Julie Miller, MD, FACC

Issam Moussa, MD, FACC

Sunil V. Rao, MD, FACC

Indiana University Health

Barnes Jewish Hospital

HCA

University of Colorado Hospital

Johns Hopkins Hospital

Robert Wood Johnson University  
Hospital

Duke University Medical Center

# The Problem:

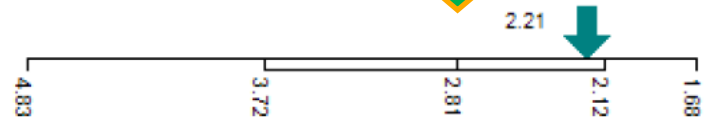
## Our Opportunity for Improvement

40

### PCI In-Hospital Risk Standardized Bleeding (all patients)

My Hospital	US Hospitals 50th Pctl	US Hospitals 90th Pctl
2.21	2.81	1.68

Your hospital's risk adjusted rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model. [Detail Line:1822]



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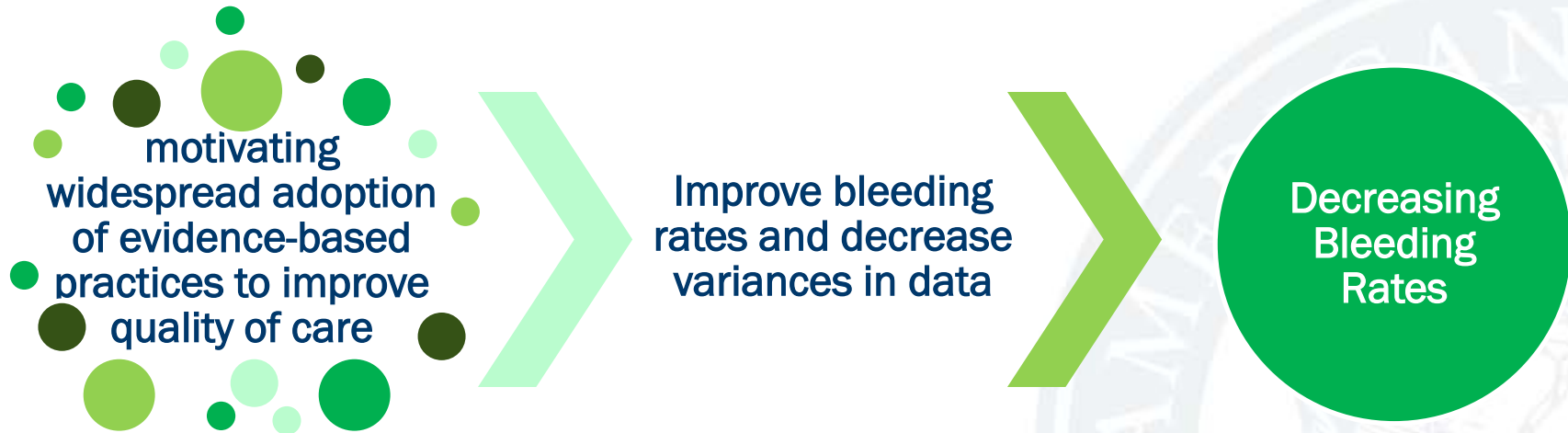
- All patients should be evaluated for risk of bleeding before PCI.
- Patients considered high risk for PCI should be part of a collaborative decision to use a **radial** approach.
- In patients with ACS treated with DAPT after coronary stent implantation who are not at high risk for bleeding complications and who do not have a history of stroke or TIA, it is reasonable to consider Clopidogrel for maintenance P2Y12 inhibitor therapy.
- In patients with SIHD treated with DAPT after DES implantation who are at high risk for bleeding complications or develop significant overt bleeding, discontinuation of DAPT after 3 months may be reasonable.
- In patients with SIHD treated with DAPT after BMS or DES implantation who are not at high risk for bleeding (no history of bleeding on DAPT, coagulopathy, oral anticoagulant use), continuation of DAPT for longer than 1 month in patients treated with BMS or longer than 6 months in patients with DES may be reasonable.

## What are the ACC/AHA Guidelines Saying





# The Program Goal



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#	Program Metric	Metric Description
	<b>PCI in-hospital risk-standardized rate of bleeding events for all PCI patients</b>	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
		Numerator: Count of PCI procedures with a RBC/Whole blood transfusion procedure. Denominator: Count of PCI Procedures The purpose of this metric is to allow identification of potential overuse of transfusion procedures. In addition, it points out blood loss, which predicts poor
3	<b>Procedure</b>	PCI procedure.
4	<b>Anticoagulation utilization</b>	<ul style="list-style-type: none"> <li>Unfractionated Heparin</li> <li>Low-molecular-weight Heparin</li> <li>Direct thrombin inhibitors</li> <li>Bivalirudin</li> </ul>
5	<b>Access site utilization</b>  Indicate the primary location of percutaneous entry. Code the site used to perform the majority of the procedure if more than one site was used.	<ul style="list-style-type: none"> <li>Femoral</li> <li>Brachial</li> <li>Radial</li> <li>Other</li> </ul>
6	<b>Method for closure for arterial access site</b>  Indicate the arterial closure methods used in chronological order regardless of whether or not they provided hemostasis. The same closure method may be repeated	<ul style="list-style-type: none"> <li>Manual compression</li> <li>Mechanical compression</li> <li>Suture</li> <li>Staple</li> <li>Sealant</li> <li>Patch</li> <li>Other, unspecified device</li> </ul>

# Program Metrics

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2	<b>Proportion of PCI procedures with transfusion of whole blood or red blood cells</b>	Numerator: Count of PCI procedures with a RBC/Whole blood transfusion procedure. Denominator: Count of PCI Procedures The purpose of this metric is to allow identification of potential overuse of transfusion after PCI procedures. In addition, it points out blood loss, which predicts poor outcomes.
3	<b>Procedures with an observed bleeding event</b>	
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Outcome Metric

Outcome Metric



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2	<b>Proportion of PCI procedures with transfusion of whole blood or red blood cells</b>	Numerator: Count of PCI procedures with a RBC/Whole blood transfusion procedure. Denominator: Count of PCI procedures with any use of transfusion after PCI procedures. In addition, it points out blood loss, which predicts poor outcomes.
3	<b>Procedures with an observed bleeding event</b>	Count of bleeding event post PCI procedure.
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← **Process Metric**

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# Performance Measure #40:

## A new, hierarchical risk-standardized model

PCI in-hospital  
risk standardized  
rate of bleeding events  
(all patients)

JACC: CARDIOVASCULAR INTERVENTIONS  
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### NCDR REPORT

## An Updated Bleeding Model to Predict the Risk of Post-Procedure Bleeding Among Patients Undergoing Percutaneous Coronary Intervention

A Report Using an Expanded Bleeding Definition From the National Cardiovascular Data Registry CathPCI Registry

Sunil V. Rao, MD,\* Lisa A. McCoy, MS,\* John A. Spertus, MD, MPH,† Ronald J. Krone, MD,†  
Mandeep Singh, MD,§ Susan Fitzgerald, MS, RN,|| Eric D. Peterson, MD, MPH\*  
Durham, North Carolina; Kansas City and St. Louis, Missouri; Rochester, Minnesota; and Washington, DC

**Objectives** This study sought to develop a model that predicts bleeding complications using an expanded bleeding definition among patients undergoing percutaneous coronary intervention (PCI) in contemporary clinical practice.

**Background** New knowledge about the importance of periprocedural bleeding combined with techniques to mitigate its occurrence and the inclusion of new data in the updated CathPCI Registry data collection forms encouraged us to develop a new bleeding definition and risk model to improve the monitoring and safety of PCI.

**Methods** Detailed clinical data from 1,043,759 PCI procedures at 1,142 centers from February 2008 through April 2011 participating in the CathPCI Registry were used to identify factors associated with major bleeding complications occurring within 72 h post-PCI. Risk models (full and simplified risk scores) were developed in 80% of the cohort and validated in the remaining 20%. Model discrimination and calibration were assessed in the overall population and among the following pre-specified patient subgroups: females, those older than 70 years of age, those with diabetes mellitus, those with ST-segment elevation myocardial infarction, and those who did not undergo in-hospital coronary artery bypass grafting.

**Results** Using the updated definition, the rate of bleeding was 5.8%. The full model included 31 variables, and the risk score had 10. The full model had similar discriminatory value across pre-specified subgroups and was well calibrated across the PCI risk spectrum.

**Conclusions** The updated bleeding definition identifies important post-PCI bleeding events. Risk models that use this expanded definition provide accurate estimates of post-PCI bleeding risk, thereby better informing clinical decision making and facilitating risk-adjusted provider feedback to support quality improvement. *J Am Coll Cardiol Intv* 2013;6:897-904. © 2013 by the American College of Cardiology



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# Performance Measure #40: What's new

- Hierarchical model
- Fewer patient variables
- Risk relationships within and amongst hospitals
- Absolute Hgb decrease from pre-PCI to post-PCI of 4g/dL (previously 3g/dL)





# Performance Measure #40: Model Details

Post-PCI bleeding defined as any ONE of the following:

1. Bleeding event w/in 72 hours OR
2. Hemorrhagic stroke OR
3. Tamponade OR
4. Post-PCI transfusion for patients with a pre-procedure Hgb >8 g/dL and pre-procedure Hgb not missing; OR
5. Absolute Hgb decrease from pre-PCI to post-PCI of  $\geq 4$  g/dL



# Performance Measure #40: Model Details

## Patient eligibility:

1. Patient's with a PCI procedure performed during the Episode of Care.
2. Patients with multiple PCI procedures Include only index PCI procedure.
3. Include patient procedures with non-missing values for outcome variables of bleeding event w/in 72 hours AND transfusion.
4. Exclude patients who died on the same day of the procedure.
5. Exclude patients with CABG.



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# QII Participant Change Package

## Assessment

Includes benchmarking data, and is designed to identify opportunities for improvement.

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## Toolkit

Specific tools and strategies designed to address one general topic area for improvement.

[Read more...](#)



## Calls & Webinars

Listen to community calls and on-demand webinars that review evidence based toolkits and lessons learned.

[Read more...](#)



## Listserv

Collaborate and interact with others on a listserv who share best practices and lessons learned.

[Read More...](#)



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## Reduce the Risk: PCI Bleed Toolkit

The table below displays the Reduce the Risk: PCI Bleed Campaign metrics and the tools and strategies to support facilities participating in this Quality Campaign. These tools and strategies are resources available to all participating facilities to assist with meeting the goal of decreasing overall bleeding events.

Metric 1: in-hospital risk-standardized rate of bleeding events for all PCI patients.

Metric 2: Proportion of PCI procedures with transfusion of whole blood or red blood cells.

Metric 3: Procedures with an observed bleeding event.

Metric 4: Anticoagulation utilization.

Metric 5: Access site utilization.

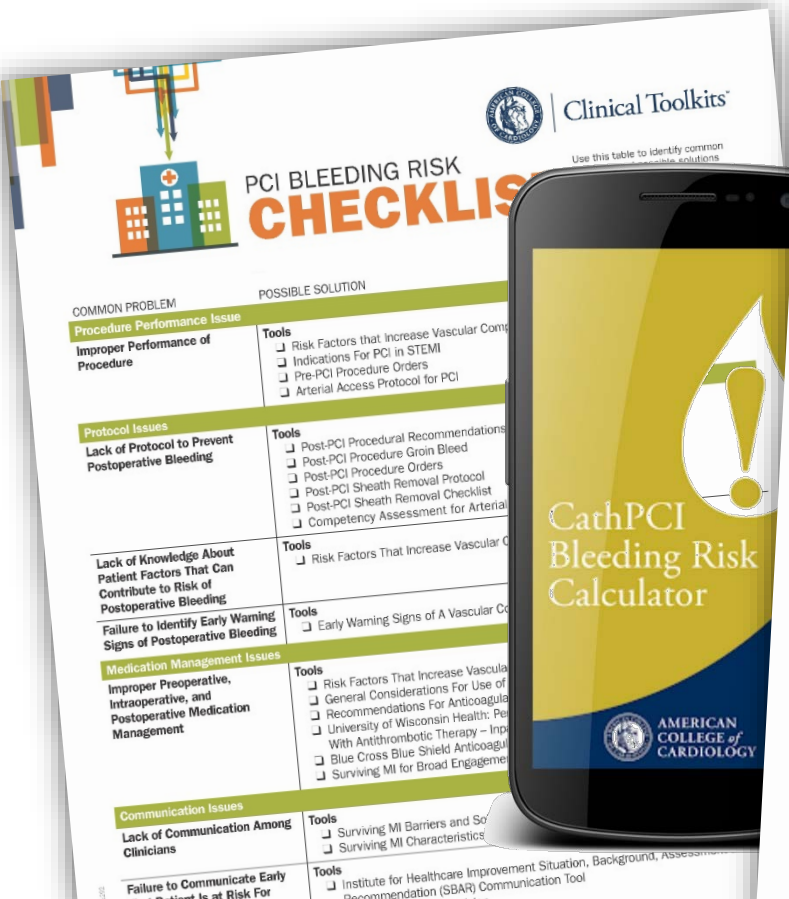
Metric 6: Method for closure for arterial access site.

Check back for more tools coming soon!

[➤ Preprocedural \(Tools to address Metric #1 and 6\)](#)[➤ Intraprocedural \(Tools to address Metric #1, 5, and 6\)](#)[➤ Postprocedural \(Tools to address Metric #1, 5, and 6\)](#)[➤ Pharmacology \(Tools to address Metric # 1, 2, 3, 4, 5, 6 \)](#)



# Toolkit Aligned to Metrics



**PCI BLEEDING RISK CHECKLIST**

COMMON PROBLEM POSSIBLE SOLUTION

**Procedure Performance Issue**

**Improper Performance of Procedure**

**Tools**

- Risk Factors that Increase Vascular Complications
- Indications For PCI in STEMI
- Pre-PCI Procedure Orders
- Arterial Access Protocol for PCI

**Protocol Issues**

**Lack of Protocol to Prevent Postoperative Bleeding**

**Tools**

- Post-PCI Procedural Recommendations
- Post-PCI Procedure Groin Bleed
- Post-PCI Procedure Orders
- Post-PCI Sheath Removal Protocol
- Post-PCI Sheath Removal Checklist
- Competency Assessment for Arterial Access

**Lack of Knowledge About Patient Factors That Can Contribute to Risk of Postoperative Bleeding**

**Tools**

- Risk Factors That Increase Vascular Complications

**Failure to Identify Early Warning Signs of Postoperative Bleeding**

**Tools**

- Early Warning Signs of A Vascular Complication

**Medication Management Issues**

**Improper Preoperative, Intraoperative, and Postoperative Medication Management**

**Tools**

- Risk Factors That Increase Vascular Complications
- General Considerations For Use of Antithrombotic Therapy
- Recommendations For Anticoagulation
- University of Wisconsin Health: Perioperative Antithrombotic Therapy – Implications for the CathPCI Patient
- Blue Cross Blue Shield Anticoagulation Management
- Surviving MI for Broad Engagement

**Communication Issues**

**Lack of Communication Among Clinicians**

**Tools**

- Surviving MI Barriers and Solutions
- Surviving MI Characteristics

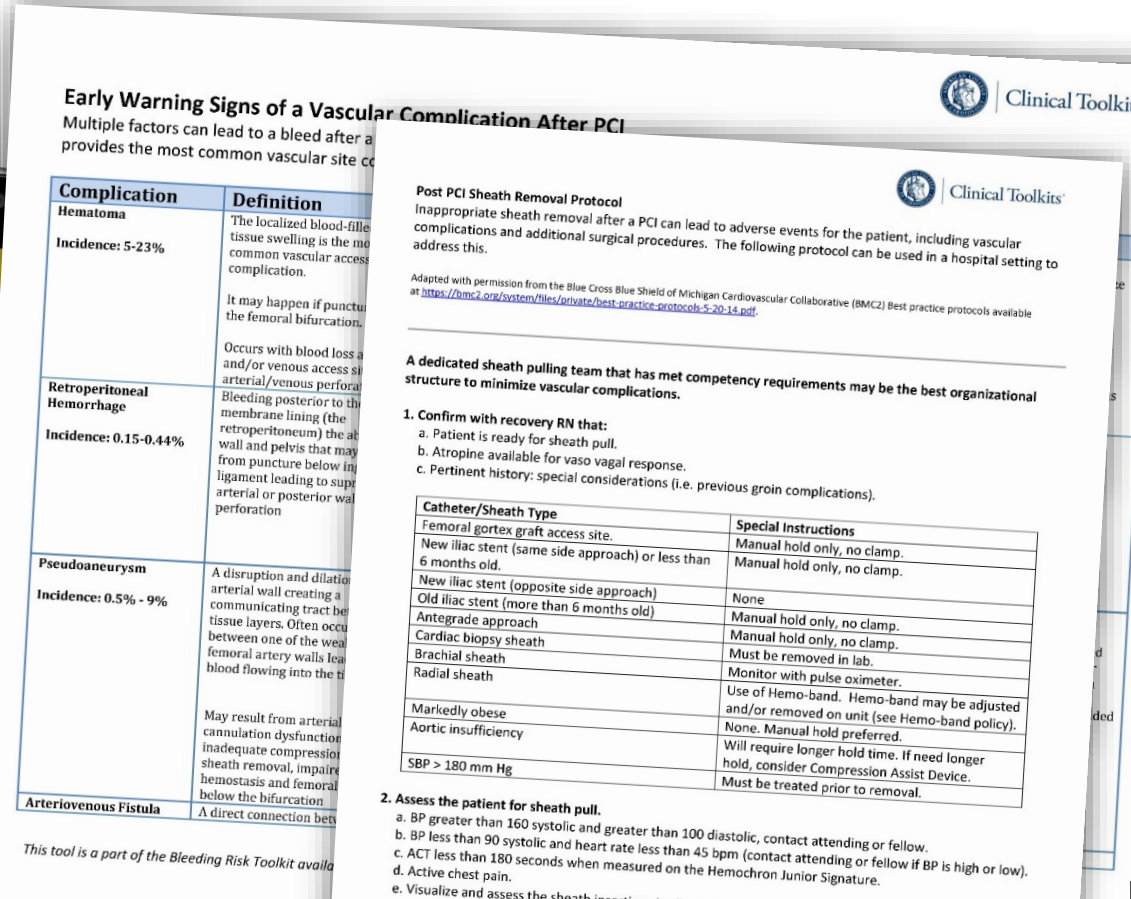
**Failure to Communicate Early Warning Signs of Postoperative Bleeding**

**Tools**

- Institute for Healthcare Improvement Situation, Background, Assessment, and Recommendation (SBAR) Communication Tool

**CathPCI Bleeding Risk Calculator**

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**Early Warning Signs of a Vascular Complication After PCI**

Multiple factors can lead to a bleed after a PCI. This checklist provides the most common vascular site complications.

Complication	Definition
<b>Hematoma</b> Incidence: 5-23%	The localized blood-filled tissue swelling is the most common vascular access complication. It may happen if puncture the femoral bifurcation. Occurs with blood loss at and/or venous access site.
<b>Retroperitoneal Hemorrhage</b> Incidence: 0.15-0.44%	Bleeding posterior to the membrane lining (the retroperitoneum) the abdominal wall and pelvis that may result from puncture below inguinal ligament leading to superior arterial or posterior wall perforation.
<b>Pseudoaneurysm</b> Incidence: 0.5% - 9%	A disruption and dilation of the arterial wall creating a communicating tract between the blood vessel and the surrounding tissue layers. Often occurs between one of the wall femoral artery walls lead blood flowing into the tissue.
<b>Arteriovenous Fistula</b>	May result from arterial cannulation dysfunction, inadequate compression, sheath removal, impaired hemostasis and femoral puncture below the bifurcation. A direct connection between an artery and a vein.

*This tool is a part of the Bleeding Risk Toolkit available at <https://bmc2.org/system/files/private/best-practice-protocols-5-20-14.pdf>.*

**Post PCI Sheath Removal Protocol**

Inappropriate sheath removal after a PCI can lead to adverse events for the patient, including vascular complications and additional surgical procedures. The following protocol can be used in a hospital setting to address this.

Adapted with permission from the Blue Cross Blue Shield of Michigan Cardiovascular Collaborative (BMC2) Best practice protocols available at <https://bmc2.org/system/files/private/best-practice-protocols-5-20-14.pdf>.

**A dedicated sheath pulling team that has met competency requirements may be the best organizational structure to minimize vascular complications.**

**1. Confirm with recovery RN that:**

- Patient is ready for sheath pull.
- Atropine available for vaso vagal response.
- Pertinent history: special considerations (i.e. previous groin complications).

Catheter/Sheath Type	Special Instructions
Femoral gortex graft access site.	Manual hold only, no clamp.
New iliac stent (same side approach) or less than 6 months old.	Manual hold only, no clamp.
New iliac stent (opposite side approach)	None
Old iliac stent (more than 6 months old)	Manual hold only, no clamp.
Antegrade approach	Manual hold only, no clamp.
Cardiac biopsy sheath	Must be removed in lab.
Brachial sheath	Monitor with pulse oximeter.
Radial sheath	Use of Hemo-band. Hemo-band may be adjusted and/or removed on unit (see Hemo-band policy).
Markedly obese	None. Manual hold preferred.
Aortic insufficiency	Will require longer hold time. If need longer hold, consider Compression Assist Device.
SBP > 180 mm Hg	Must be treated prior to removal.

**2. Assess the patient for sheath pull.**

- BP greater than 160 systolic and greater than 100 diastolic, contact attending or fellow.
- BP less than 90 systolic and heart rate less than 45 bpm (contact attending or fellow if BP is high or low).
- ACT less than 180 seconds when measured on the Hemochron Junior Signature.
- Active chest pain.
- Visualize and assess the sheath location.

Display Whisker Plot \*

Whisker Plot View: \*



Metric Name	My Hospital Baseline	My Hospital 2017Q4				ACTION Registry	Patient Navigator Program Focus MI Hospitals 2017Q4	Patient Navigator Program Focus MI Hospitals 2017Q4	Patient Navigator Program Focus MI Hospitals 2017Q4	Patient Navigator Program Focus MI Hospitals 2017Q4	Box Plot and Whiskers
		Numerator	Denominator	Current Qtr	R4Q						
Process Metrics											
(NAV#3-1) STEMI Performance Composite (ACTION Registry Metric 3)	99.5%	129	130	99.2%	98.5%	98.0%	99.2%	100.0%	99.1%	100.0%	
(NAV#3-2) NSTEMI Performance Composite (ACTION Registry Metric 4)	97.8%	51	51	100.0%	95.5%	95.6%	97.0%	99.4%	97.2%	99.7%	
(NAV#3-3) Overall defect free care (ACTION Registry Metric 2)	90.3%	29	30	96.7%	85.9%	81.3%	86.7%	96.7%	86.7%	97.1%	
(NAV#3-4) Aldosterone inhibitor prescribed at discharge for AMI patients with LV systolic dysfunction (LVEF <40%)(ACTION Registry Metric 30)	37.5%	0	2	0.0%	0.0%	14.8%	37.5%	77.8%	33.3%	63.5%	
(NAV#3-5) In-hospital risk-adjusted bleeding (ACTION Registry Metric 45)	3.5%	N/A	N/A	3.4%	3.4%	4.7%	4.2%	3.3%	4.0%	2.9%	
(NAV#3-6) Cardiac rehabilitation patient referral from an Inpatient setting (ACTION Registry Metric 21)	94.2%	23	23	100.0%	94.0%	88.1%	93.0%	99.4%	91.5%	100.0%	
(NAV#3-7) ASA prescribed at discharge for AMI patients (ACTION Registry Metric 34)	100.0%	24	24	100.0%	96.4%	99.7%	100.0%	100.0%	100.0%	100.0%	

# Upcoming Webinars



**Webinar #1: TODAY!**

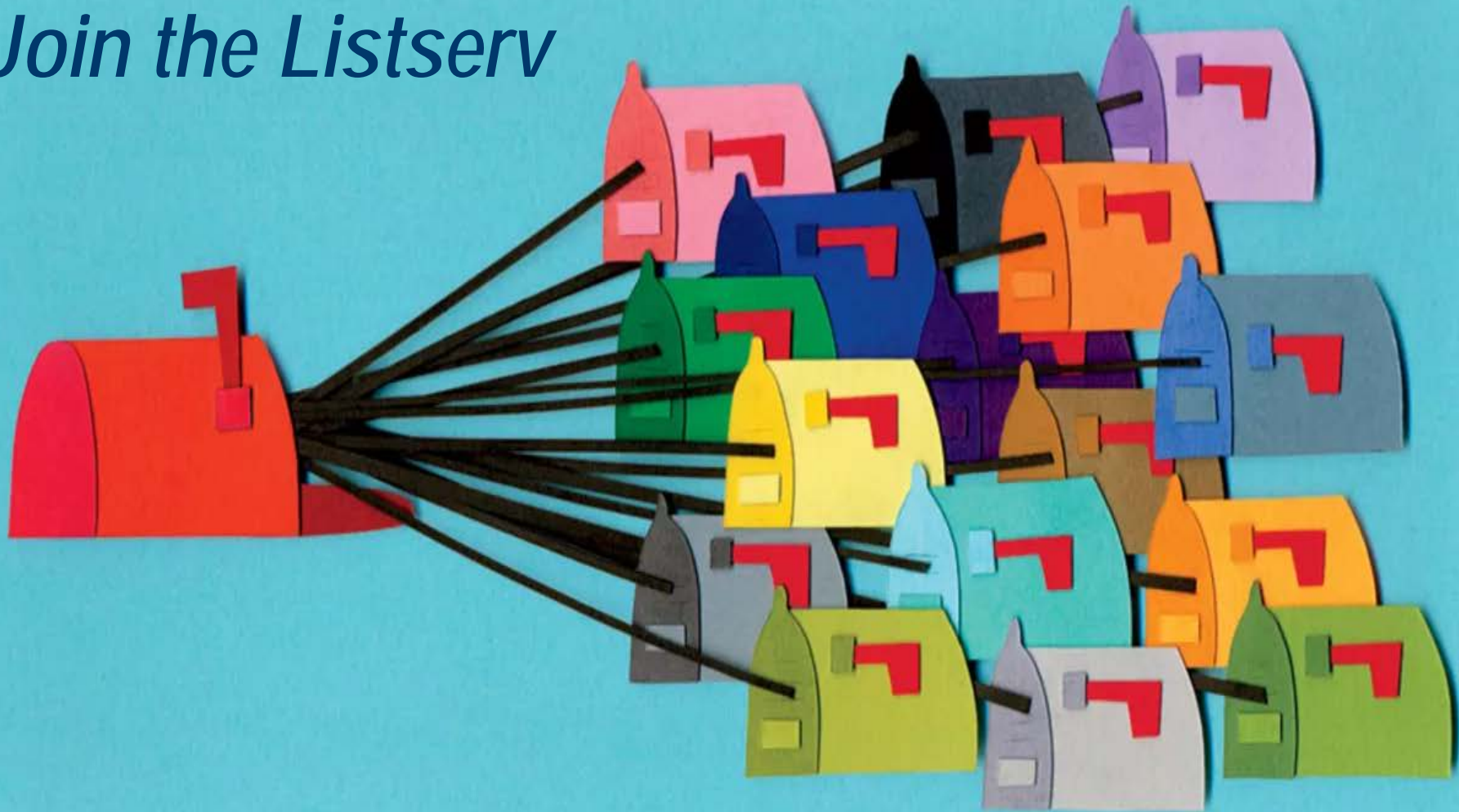
**Webinar #2: November 7, 2018**

**Webinar #3: January 23, 2019**



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# *Join the Listserv*





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Earn “**High**” weighted  
credit for this MACRA  
MIPS Improvement  
Activity!

# Why Should My Hospital Participate?

## Our Core Purpose:

- Improve Patient Outcomes
- Leader in QI process improvement.

## External recognition:

- Support Accreditation
- Strengthen MAGNET Recognition application

## Efficiency:

- No additional data collection
- Custom data dashboard
- No cost to participate

## Reimbursement:

- High-weight MIPS Improvement Activity credit



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# Opt in today!

To become a Reduce the Risk: PCI Bleed facility”

1. Log into NCDR
2. Go to your CathPCI Registry® home page
3. Click “Start Here” on the left navigation bar
4. Opt in!

The Registry Site Manager will be required to log in to opt your facility into the program.



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# Quality Improvement for Institutions

<https://cvquality.acc.org>

## Reduce the Risk: PCI Bleed

Anticipate. Prepare. Save Lives.

The ACC's **Reduce the Risk: PCI Bleed** Quality Campaign is focused on minimizing PCI-associated bleeding risks and saving patient lives through widespread adoption of evidence-based best practices.

Building on the ACC's proven track record in helping hospitals and cardiovascular professionals take advantage of key strategies to close gaps in guideline-recommended care, **Reduce the Risk: PCI Bleed** leverages the power of the [CathPCI Registry®](#) to help hospitals and clinicians anticipate, prepare and save lives.



## Reduce the Risk: PCI Bleed

A Campaign of the  
American College of Cardiology

Join the Reduce the Risk: PCI Bleed Campaign

Join **Reduce the Risk: PCI Bleed** and be recognized for your commitment to Quality! Participation is easy and no additional cost to CathPCI Registry participants!





# NCDR®

NATIONAL CARDIOVASCULAR DATA REGISTRY

## CathPCI Registry®

Switch Registry ▼

CathPCI Registry / Home / Announcements

Home

**START HERE**

Administration

Reports

Dashboard

Corporate Dashboard

Chapters Dashboard

Data

Resources

# Welcome CathPCI Registry Participants

## Introducing the Reduce the Risk: PCI Bleed Campaign

**Focus:** Learn about our campaign goals, metrics, and the support system we've built to help you anticipate and manage risks.

**Hosts:** Andrea Price, MS, CPHQ, RCIS, CCA; Susan Rogers RN, MSN, NE-BC, AACC

**Date and Time:** September 18, 2018 @ 12:00pm, Eastern Time

Link for attendees: [Click HERE](#) to register.

**Please register 48 hours in advance**

Posted Sep 14, 2018

**CathPCI Registry Monthly Call Information is Available**



Reduce  
the Risk:  
PCI Bleed

# Opt In

## ACC Reduce the Risk: PCI Bleed Campaign Opt in

### OPT IN

Attention Registry Site Managers: To opt into ACC's Reduce the Risk: PCI Bleed Campaign, please acknowledge your understanding of the [program requirements](#) by clicking the box below and submitting.

☐ Click here to accept the terms and conditions of the Reduce the Risk: PCI Bleed Campaign.

Submit



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# Build Your



## Core Team

- Facilitator
  - Physician Medical Director
  - Hospital Administration Team
- Sponsor

## Multidisciplinary Team



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# Quality Improvement for Institutions

[NCDR](#)[ACCREDITATION](#)[CAMPAIGNS](#)[CLINICAL TOOLKITS](#)[LOG IN/LOG OUT](#)[Home](#) > [NCDR](#)

## NCDR

- ▶ [About NCDR](#)
- ▶ [Registries](#)
- ▶ [Data Collection](#)
- ▶ [Reports](#)
- ▶ [Quality Payment Program](#)
- ▶ [Research](#)
- ▶ [Analytics](#)
- ▶ [NCDR Annual Conference](#)
- ▶ [NCDR Learning Center](#)
- ▶ [Participant Directory](#)
- ▶ [ACC Public Reporting](#)

## Data Power

The National Cardiovascular Data Registry (NCVDR) is a leading source of cardiovascular data. NCDR's mission is to improve the quality of care for patients with cardiovascular disease.

[DOOR TO BALLOON](#)[HOSPITAL TO HOME](#)[SURVIVING MI](#)[PATIENT NAVIGATOR PROGRAM FOCUS MI](#)[REDUCE THE RISK: PCI BLEED](#)

### [Learn about the NCDR's suite of registries](#)

Cardiology's most established, comprehensive registry offering, the NCDR consists of eight hospital-based registries and two outpatient registries.

### [Learn about the benefits of participating](#)

NCDR participation benefits individual providers, care teams and administrators. The NCDR offers the most relevant data elements and metrics, actionable reports, voluntary public reporting and other opportunities to do even more with your data through quality improvement programs.

### [Learn about data collection](#)

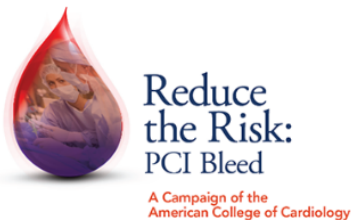
### Join A Registry

Enroll in a registry or get more information.

[Go](#)

### ALREADY AN NCDR PARTICIPANT?

[Registry Login](#)



## Features

The Reduce the Risk: PCI Bleed Campaign leverages evidence-based best practices to improve the care and outcomes of patient who have undergone a percutaneous cardiovascular intervention (PCI).

About Reduce the Risk

**Reduces the Risk  
Features**

Assessment

Toolkit

Webinars

Reduce the Risk Listserv

Reduce the Risk: PCI  
Bleed Participation

### Assessment

Includes benchmarking data and is designed to identify opportunities for improvement.

[Read more..](#)



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Reduce  
the Risk:  
PCI Bleed

► About

Getting Started

▼ Focus MI Features

Assessment

Community Calls and  
Webinars

Focus MI Listserv

Patient Navigator Program:  
Focus MI Compendium of  
Best Practices Toolkit

ADVERTISEMENT

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OF EXCELLENCE

Earn THE ULTIMATE  
RECOGNITION for  
Your Hard Work  
& Dedication  
to Patients

Achieve  
the  
Distinction  
that  
Matters.

# Facility Assessment

View Previous Results:

July 09, 2018

Go

Comparison Report

Results for Assessment Completed:

July 09, 2018



YOUR SCORE

**Overall Score** (90 of 120 possible points)

75%

**Success Metric 1: 30 Day Self-Reported un-adjusted Readmission Rate for AMI (collected quarterly).**

(2 possible points)

0

**Success Metric 2: 30 Day Self-Reported un-adjusted Mortality Rate AMI patients (collected quarterly).**

(2 possible points)

1

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- NO Cost to participate
- No Additional data collection
- 15 minute Delay
- MIPS is annual for 2 years



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# Q&A



***Please submit your questions for the  
moderated question and answer session***



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NOW!**



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