

Reducing “Inappropriate” Percutaneous Coronary Intervention Procedures in a Multi-Hospital, Academic Healthcare System

JOE X. XIE, MD

STUDY PI: ABHINAV GOYAL, MD, MHS, FACC, FAHA

EMORY CLINICAL CARDIOVASCULAR RESEARCH INSTITUTE

EMORY UNIVERSITY SCHOOL OF MEDICINE, DIVISION OF CARDIOLOGY

Disclosures

None

Background/Objective

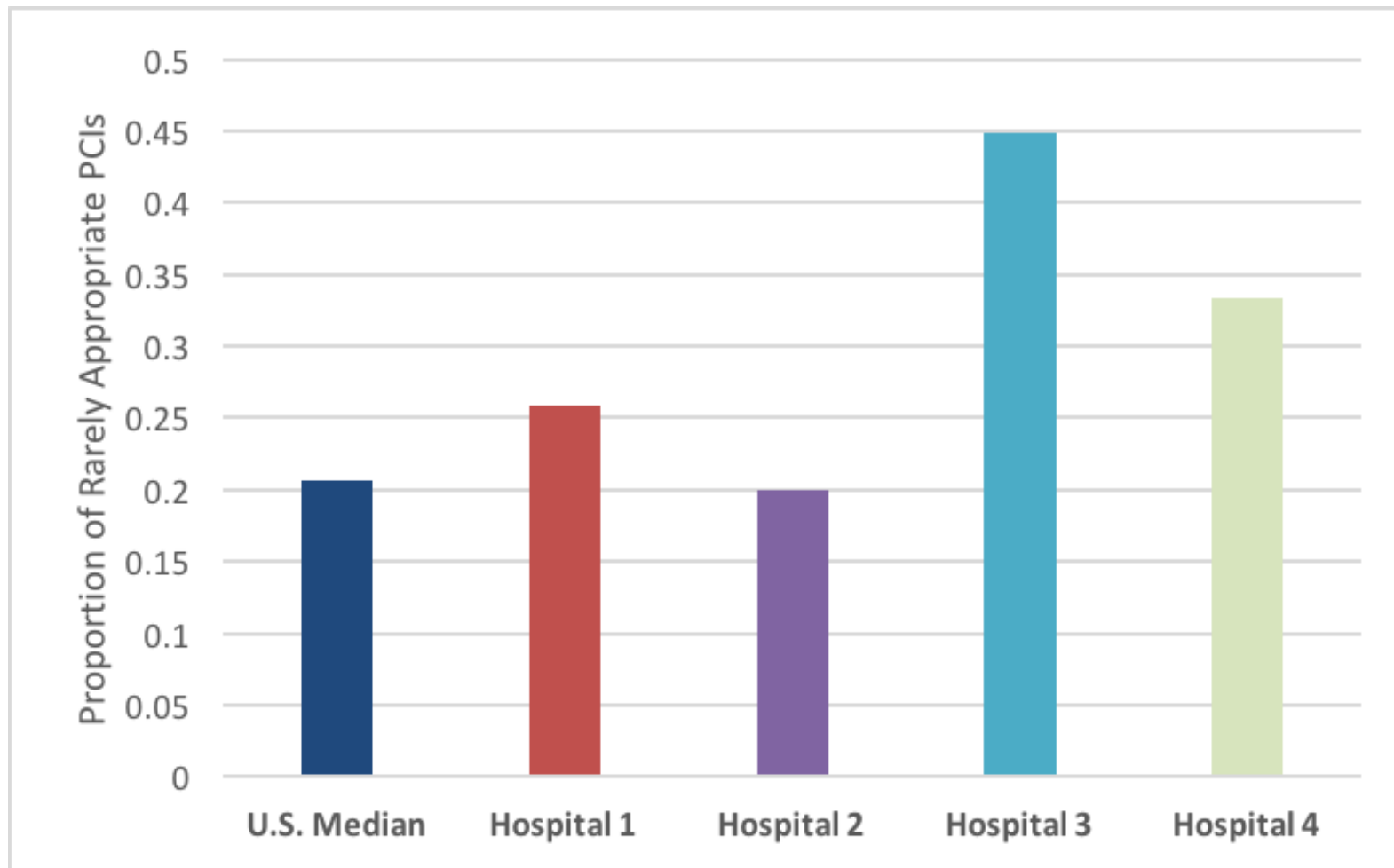
Appropriate Use Criteria (AUC) for Coronary Revascularization:¹

- History
 - Rising healthcare costs
 - Variability in use of cardiovascular procedures
 - Created in 2009
- Purpose
 - Provide guidance on suitability of revascularization
 - Measure utilization patterns
- Definitions (per 2012 update):
 - Appropriate
 - Uncertain (“Uncertain”)
 - Inappropriate (“Inappropriate”)

Low-Risk Findings on Noninvasive Study						Asymptomatic					
Symptoms Med. Rx						Stress Test Med. Rx					
Class III or IV Max Rx	U	A	A	A	A	High Risk Max Rx	U	A	A	A	A
Class I or II Max Rx	U	U	A	A	A	High Risk No/min Rx	U	U	A	A	A
Asymptomatic Max Rx	I	I	U	U	U	Int. Risk Max Rx	U	U	U	U	A
Class III or IV No/min Rx	I	U	A	A	A	Int. Risk No/min Rx	I	I	U	U	A
Class I or II No/min Rx	I	I	U	U	U	Low Risk Max Rx	I	I	U	U	U
Asymptomatic No/min Rx	I	I	U	U	U	Low Risk No/min Rx	I	I	U	U	U
Coronary Anatomy	CTO of 1-vz.; no other disease	1-2-vz. disease; no prox. LAD	1-vz. disease of prox. LAD	2-vz. disease with prox. LAD	3-vz. disease; no left main	Coronary Anatomy	CTO of 1-vz.; no other disease	1-2-vz. disease; no prox. LAD	1-vz. disease of prox. LAD	2-vz. disease with prox. LAD	3-vz. disease; no left main

¹Patel MR et al, *J Am Coll Cardiol* 2012;59(9):857-881.

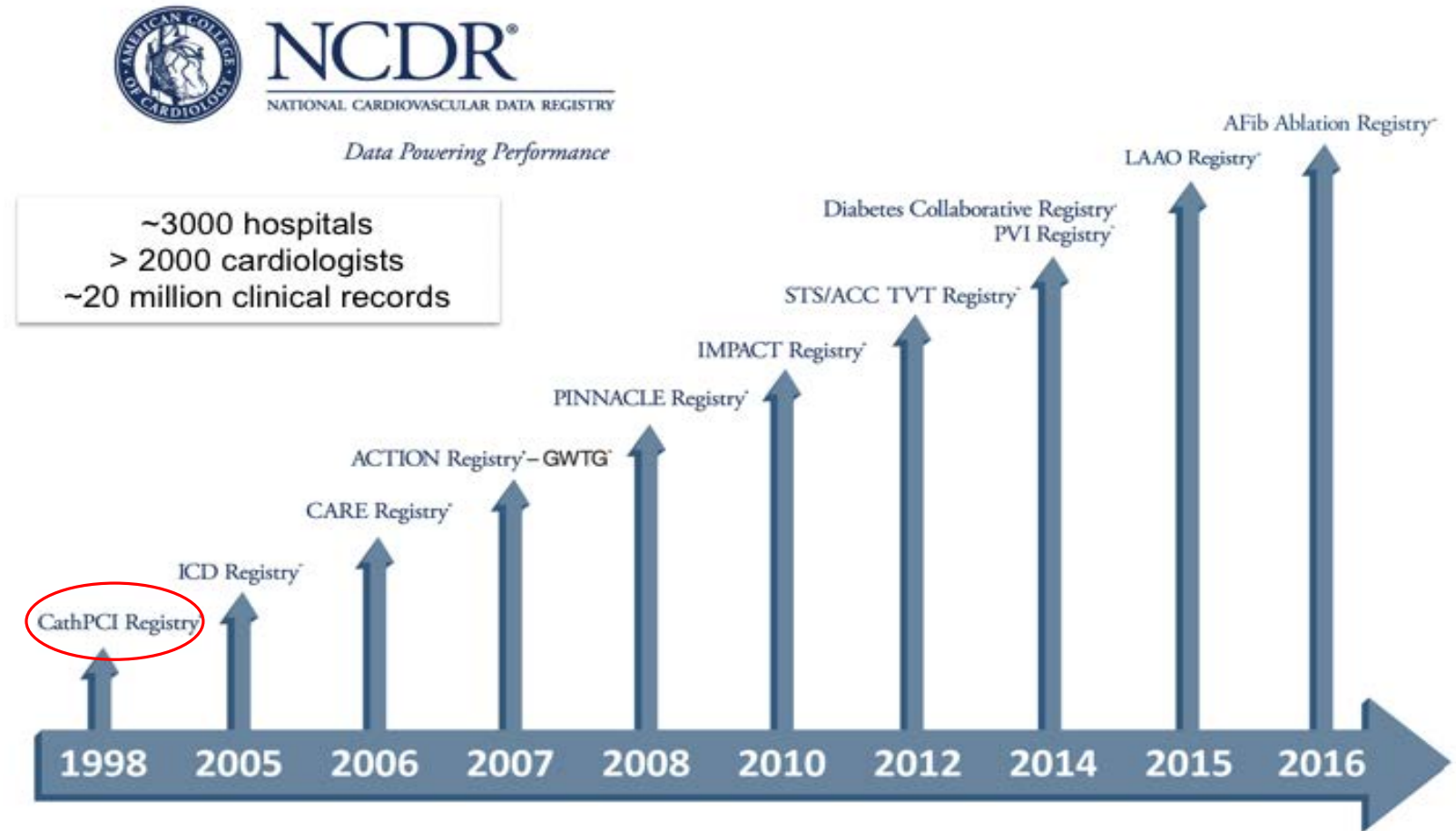
“Rarely appropriate” elective percutaneous coronary intervention (PCI) rates for the Emory healthcare system in 2012:



Objective: To reduce rates of “rarely appropriate” PCI procedures to below the national median.

Methods

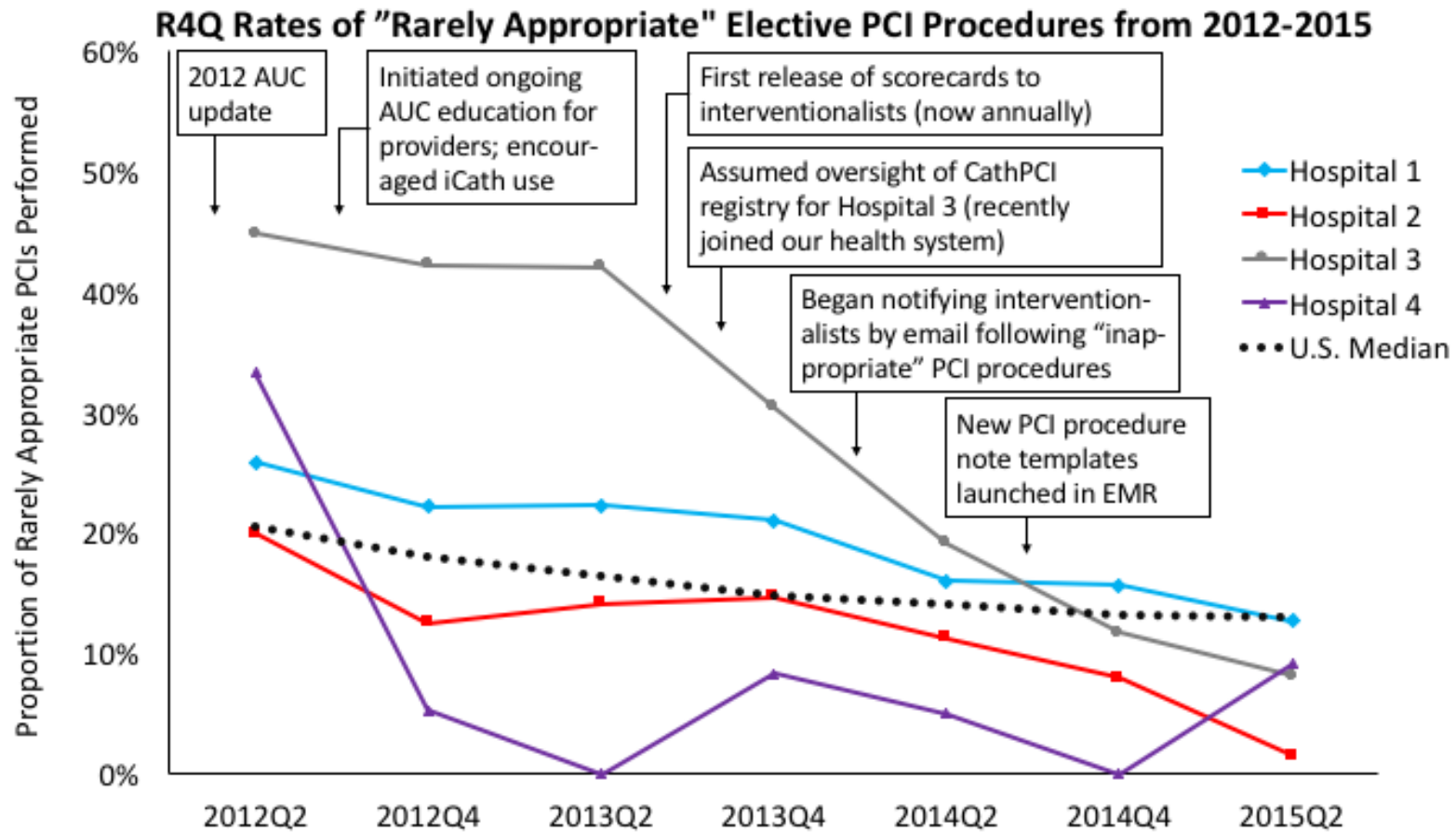
- Data collected from CathPCI Registry quarterly reports



Methods

- Four system-wide initiatives were implemented from 2012 to 2015:
 1. Email notification after “rarely appropriate” elective PCI
 2. Dedicated cardiac catheterization lab conferences regarding AUC
 3. Incorporate AUC into catheterization note templates
 4. Dissemination of annual scorecards to interventional cardiologists

Results



Conclusion

- “Rarely appropriate” PCI rates fell below the national median within 3 years in all four hospitals.
- Future Directions:
 - Integrate AUC during procedure time-out
 - Assess for association with patient outcomes
 - Apply methodology to additional catheterization metrics

Acknowledgements

- Abhinav Goyal, MD
- Leslee J. Shaw, PhD
- Mary Casey, RN
- Habib Samady, MD
- Henry Liberman, MD
- William Lieppe, MD
- Michael McDaniel, MD
- Tanveer Rab, MD
- Gregory C. Robertson, MD
- Emory Clinical Cardiovascular Research Institute

Supplemental Material

Health System Demographics and Patient Characteristics (R4Q from 2011Q3 to 2012Q2)				
	Hospital 1	Hospital 2	Hospital 3	Hospital 4
Number of PCI procedures	721	817	923	238
Age (median, years)	65	63	65	63
Male	62.9%	59.4%	64.0%	62.4%
Race				
White	72.0%	56.8%	82.3%	71.6%
Black	25.8%	41.9%	13.2%	12.5%
Other*	2.3%	1.5%	4.5%	15.9%
Insurance Payors (not mutually exclusive)				
Private	52.4%	33.7%	83.8%	57.5%
Medicare	57.2%	55.0%	55.0%	39.6%
Medicaid	10.0%	6.7%	5.3%	4.1%
Other **	2.0%	0.4%	1.6%	1.6%
None	3.8%	9.7%	4.8%	4.8%
Physician Practice Type	All Faculty	Mostly Faculty	Combined Faculty/Private	Combined Faculty/Private
* Other races include Asian, American Indian/Alaskan, Hawaiian/Pacific Islander				
** Other payors include military, state, Indian Health Service, or non-US insurance				

EMORY

HEALTHCARE

Name: Joe Stent, MD

Version: October 19, 2015

Anonymized code: 001

Individual physician's performance in each metric is aggregated across 4 quarters (April 1, 2014 through March 31, 2015).

Comparators (EUH, EUHM, ESJHA, EJC, U.S. median, U.S. top decile) are aggregated across 4 quarters (April 1, 2014 through March 31, 2015).

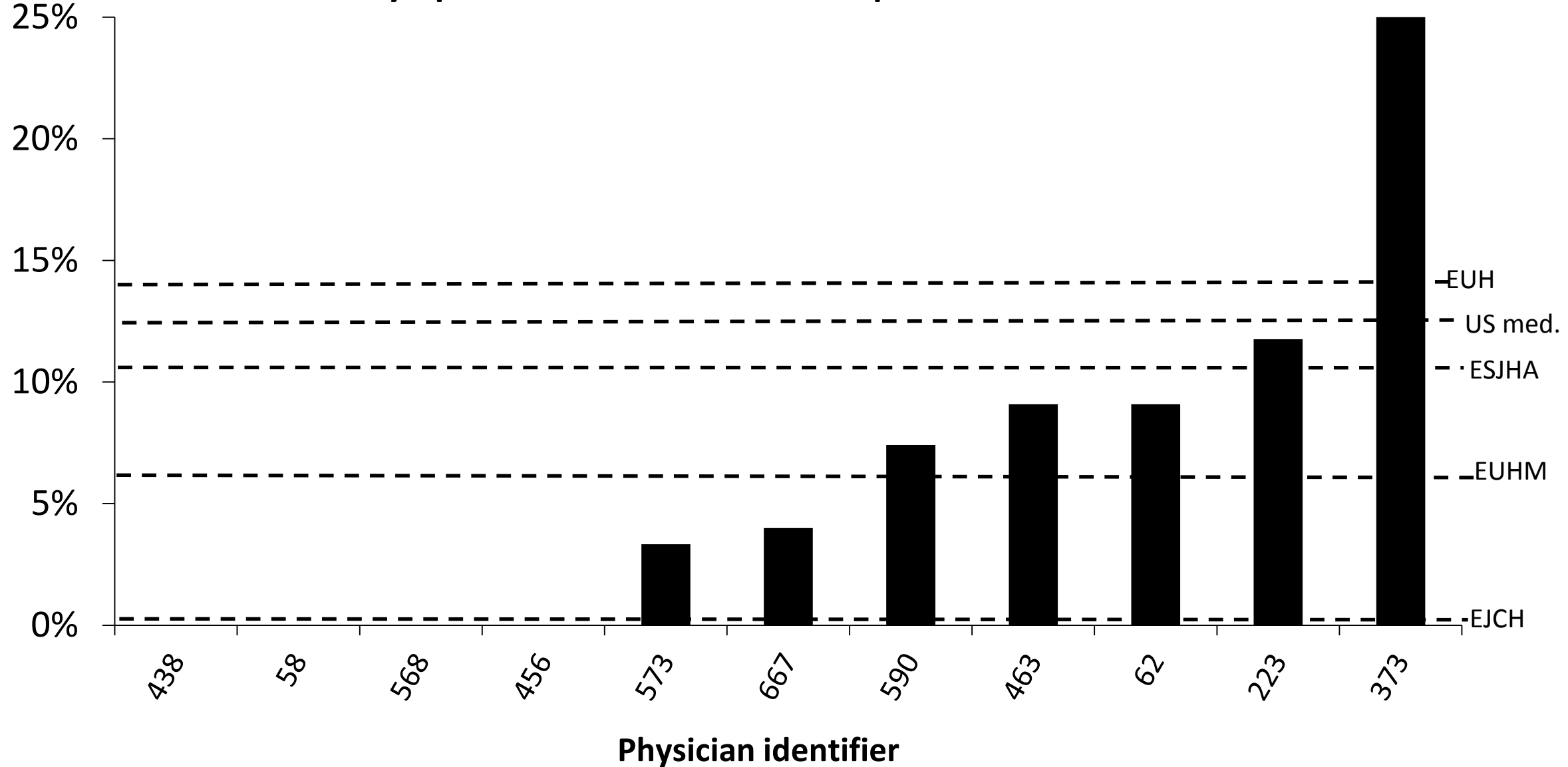
<u>Performance metric</u>	<u>Individual (n/N)</u>	<u>Individual Performance</u>	<u>EUH</u>	<u>EUHM</u>	<u>ESJH</u>	<u>EJCH</u>	<u>U.S. median</u>	<u>U.S. top decile</u>
PCI in-hospital risk-adjusted mortality (O to E ratio)	1/150	0.98	0.84	0.67	0.87	0	1.03	-
PCI in-hospital risk-adjusted mortality (O to E ratio), STEMI only	1/15	1.15	0.45	0.48	0.97	0	1.06	-
PCI in-hospital risk-adjusted rate of bleeding events (O to E ratio)	4/150	1.33	1.98	1.23	1.02	0.21	1.00	-
Rate of radial access, diagnostic cath procedures (%)	150/300	50%	31.9	50.9	42.5	15.2	30.0	-
Rate of radial access, PCIs (%) *	60/150	40%	32.8	39.0	32.8	11.3	26.5	-
Rate of "not classifiable" PCI procedures per Appropriate Use Criteria for Revascularization due to inadequate documentation (%) **	5/150	3.3	2.6	1.0	8.0	3.0	3.6	0.3
Rate of "inappropriate" PCI procedures for patients without ACS (%) **	3/20	15.0	13.9	6.3	10.6	0.0	12.5	0.0
Median time to primary PCI for STEMI (minutes)	15	55	56	56	65	61	60	49

* Excludes same-day procedures where diagnostic cath and PCI were performed by two different attendings.

** These AUC rates have been adjusted for the individual physician scorecards to exclude OHT and TAVR patients, but the hospital and U.S. benchmarks include these patients.

**Rate of "inappropriate" PCI's among patients without ACS; 2014Q2 through 2015Q1;
only operators with ≥ 10 elective procedures included**

Rate of AUC "inappropriate" PCI procedures (%)



Proportion of PCI procedures not classifiable for AUC reporting, each point is R4Q value

Proportion not classifiable for AUC (%)

