CHIBA UNIVERSITY

Benchmarking System Monitoring on Quality Improvement in Percutaneous Coronary Intervention: A Nationwide Registry in Japan

千葉大学医学部附属病院 循環器内科

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JUL-25, CVIT2024

JACC: ASIA

ORIGINAL RESEARCH

Benchmarking System Monitoring on Quality Improvement in Percutaneous Coronary Intervention

A Nationwide Registry in Japan

Yuichi Saito, MD,[a] Taku Inohara, MD,[b] Shun Kohsaka, MD,[b] Hideki Wada, MD,[c] Hiraku Kumamaru, MD, ScD,[d] Kyohei Yamaji, MD,[e] Hideki Ishii, MD,[f] Tetsuya Amano, MD,[g] Hiroaki Miyata, PhD,[d] Yoshio Kobayashi, MD,[a] Ken Kozuma, MD,[h] on behalf of the J-PCI Registry Investigators

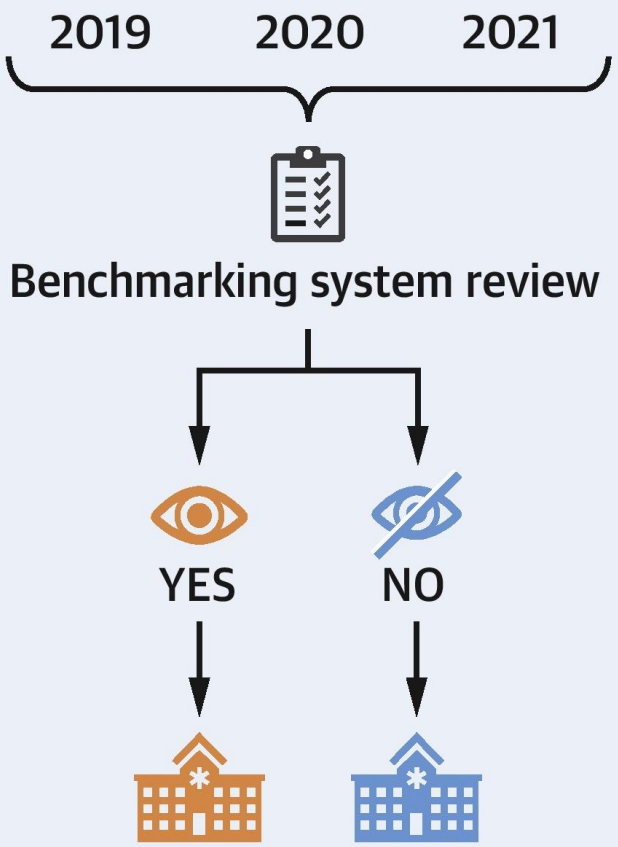
- Saito Y, et al. ***JACC Asia.*** 2024;4:323-31.

CENTRAL ILLUSTRATION: Study Flow and Summary of Results

Seven QIs by the CVIT

1. Proportion of ACS
2. Proportion of non-elective PCI
3. Door-to-balloon time in STEMI
4. Pre-PCI antiplatelet use
5. Proportion of TRI
6. Proportion of pre-PCI stress test *
7. Proportion of side-branch PCI *

(* Applicable only to elective cases)

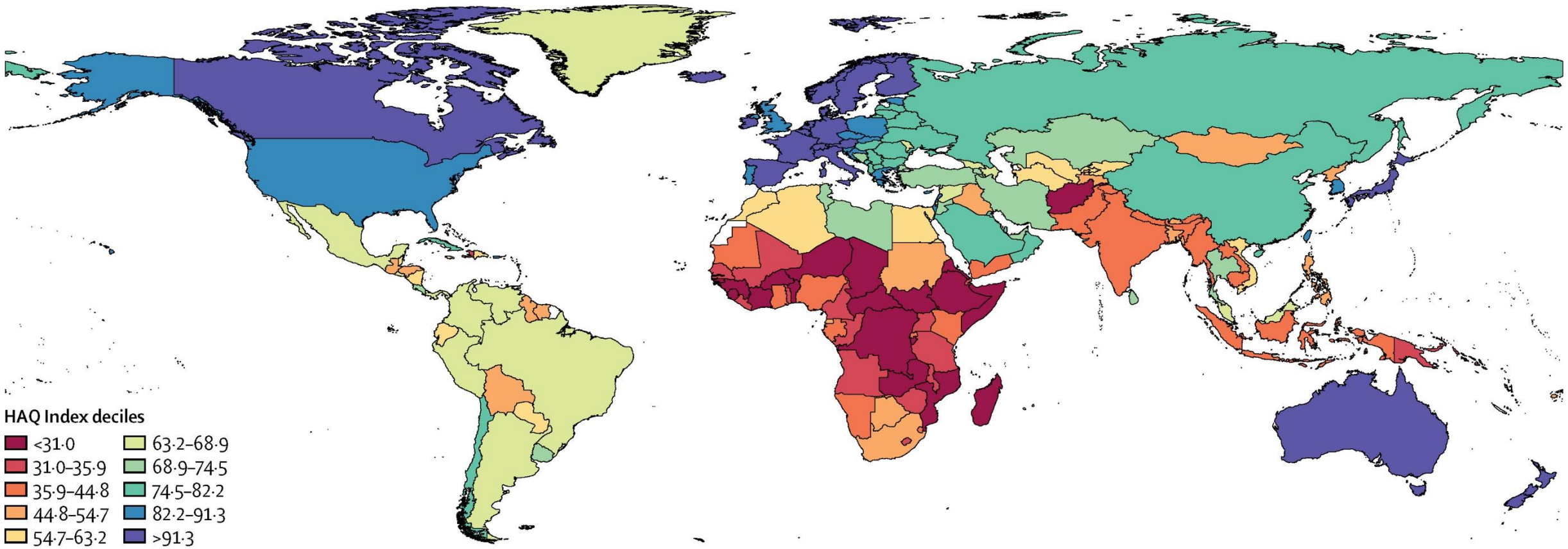


The institutions that reviewed their records had higher PCI volumes.

The benchmarking system review was possibly associated with improved QIs during the first year, but the improvement was attenuated in the subsequent year

Saito Y, et al. JACC: Asia. 2024;10.1016/j.jacasi.2023.12.003

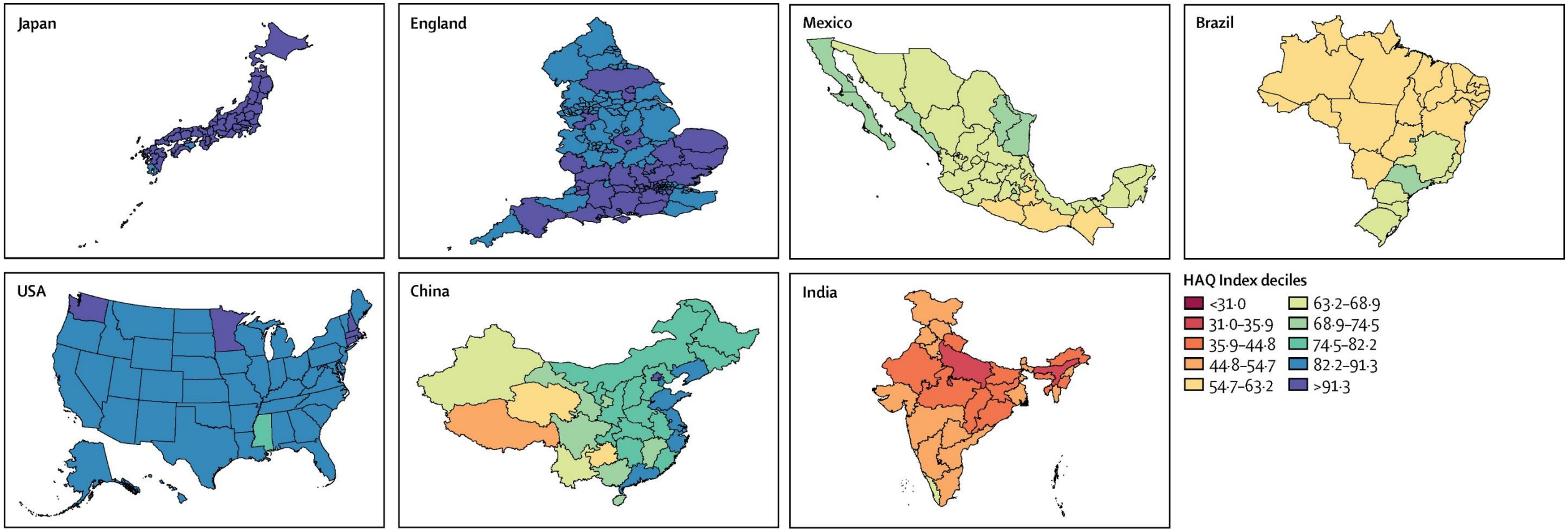
医療の質にはバラつきがある



HAQ, Healthcare Access and Quality

- GBD 2016 Healthcare Access and Quality Collaborators. ***Lancet.*** 2018;391:2236-71.

日本の医療の質は均てん化されている

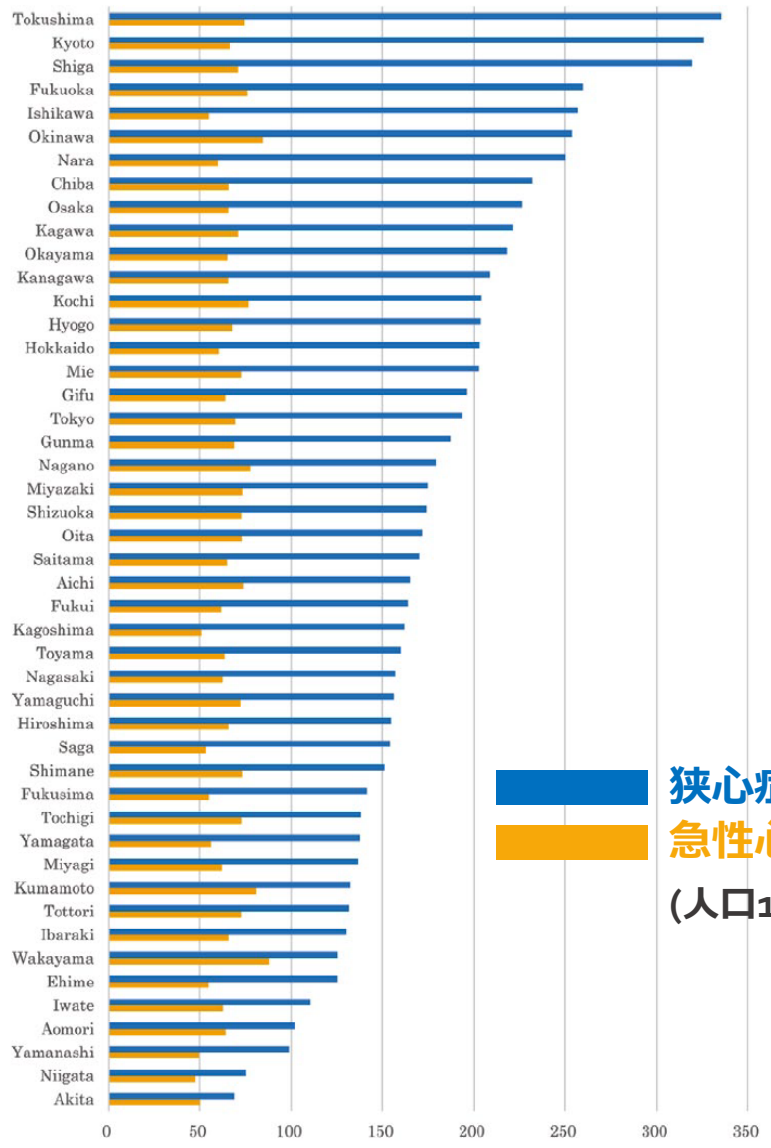


HAQ, Healthcare Access and Quality

- GBD 2016 Healthcare Access and Quality Collaborators. ***Lancet.*** 2018;391:2236-71.

日本のなかにも地域差がある

徳島県

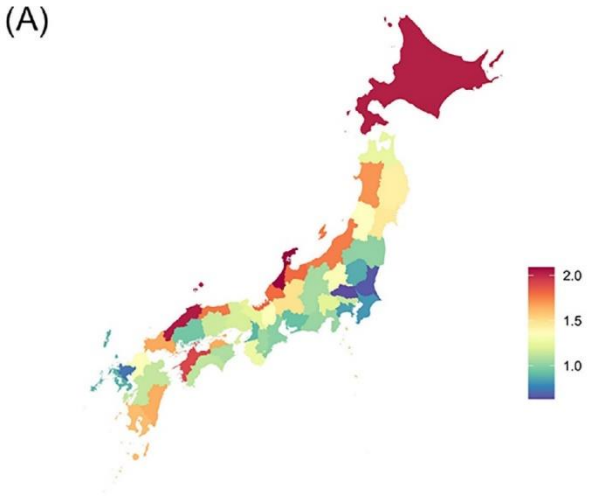


秋田県

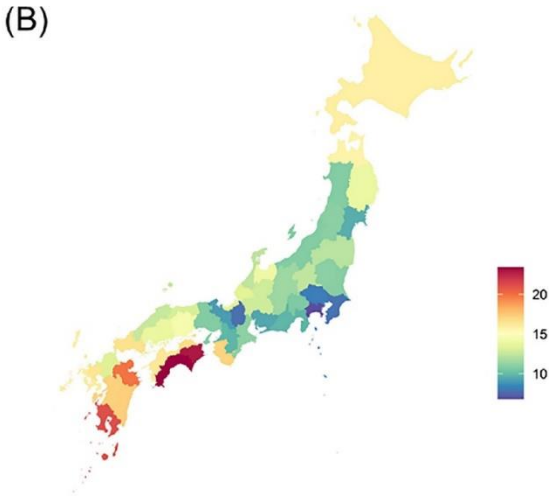
狭心症

急性心筋梗塞

(人口10万人あたりのPCI施行件数, DPC in 2013)



シンチグラフィ台数 (人口10万人あたり)



CT台数 (人口10万人あたり)

- Inoue T, et al. ***Circ J.*** 2017;81:195-8.

- Shoji S, et al. ***Lancet Reg Health West Pac.*** 2022:22:100425.

医療の質を均等に高めるために

Quality indicators for NSTEACS

Table 2. 2023 AHA/ACC Coronary Artery Revascularization Measures

Measure No.	Measure Title	Care Setting	Attribution	Measure Domain	COR/LOE
Performance Measures					
PM-1	Use of Coronary Physiology	Inpatient, Outpatient	Individual practitioner, Facility	Diagnostic	COR: 1, LOE: A
PM-2	DAPT Use With PCI	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-R; COR: 1, LOE: C-LD
PM-3	Antiplatelets and Anticoagulation After PCI	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-R
PM-4	P2Y12 Inhibitors With Fibrinolytic Therapy	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: C-LD
PM-5	Aspirin in Patients Undergoing CABG	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-R; COR: 1, LOE: A
PM-6	Lipid Management	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A; COR:1, LOE: B-NR
PM-7	Glycemic Control and CABG Surgery	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-R
PM-8	Use of the IMA in CABG	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-NR
PM-9	Patients With Diabetes and Multivessel Disease	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
PM-10	Arterial Access for PCI	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
PM-11	Non-Infarct Artery Revascularization in STEMI	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
PM-12	Non-Infarct PCI in STEMI With Shock	Inpatient	Individual practitioner, Facility	Treatment	COR: 3 Harm, LOE: B-R
PM-13	Management of Ventricular Arrhythmias	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-NR
PM-14a	Cardiac Rehabilitation Referral From Inpatient Setting	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
PM-14b	Cardiac Rehabilitation Referral Outpatient Setting	Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
Quality Measures					
QM-1	Shared Decision-Making and Informed Consent	Inpatient, Outpatient (in the case of an office visit to discuss options)	Individual practitioner	Monitoring	COR: 1, LOE: C-LD
QM-2	Periprocedural Hydration in Cardiovascular Angiography	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B; COR: 1, LOE: C-LD
QM-3	Smoking Cessation After Revascularization	Inpatient, Outpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: A
QM-4	Risk Assessment Before CABG	Inpatient, Outpatient	Individual practitioner, Facility	Monitoring	COR: 1, LOE: B-NR
QM-5	Reduction of AF After CABG	Inpatient	Individual practitioner, Facility	Treatment	COR: 1, LOE: B-R
Structural Measures					
SM-1	Preprocedural Assessment and the Heart Team	Inpatient, Outpatient	Individual practitioner, Facility	Structure	COR: 1, LOE: B-NR
SM-2	Registry Participation	Inpatient, Outpatient	Facility	Monitoring	COR: 1, LOE: B-NR

Performance measures for coronary revascularization

- Schiele F, et al. ***Eur Heart J Acute Cardiovasc Care.*** 2021;10:224-33.
- Dehmer GJ, et al. ***Circ Cardiovasc Qual Outcomes.*** 2023;16:e00121.

どのような方法が良いか？

- チェックリスト
- 患者および医療者用の教育資材
- リマインダ（電子カルテ上のアラートなど）
- 経済的インセンティブ（もしくはディスインセンティブ）
- 監視とフィードバック

- Bahiru E, et al. ***Circ Cardiovasc Qual Outcomes.*** 2019;12:e005513.

PCI領域における医療の質を向上するために

Circulation Journal
Circ J 2022; 86: 477–588
doi:10.1253/circj.CJ-20-1282

JCS GUIDELINES

JCS/JSCVS 2018 Guideline on Revascularization of Stable Coronary Artery Disease

Masato Nakamura; Hitoshi Yaku; Junya Ako; Hirokuni Arai; Tohru Asai; Taishiro Chikamori; Hiroyuki Daida; Kiyoshi Doi; Toshihiro Fukui; Toshiaki Ito; Kazushige Kadota; Junjiro Kobayashi; Tatsuhiko Komiya; Ken Kozuma; Yoshihisa Nakagawa; Koichi Nakao; Hiroshi Niinami; Takayuki Ohno; Yukio Ozaki; Masataka Sata; Shuichiro Takanashi; Hirofumi Takemura; Takafumi Ueno; Satoshi Yasuda; Hitoshi Yokoyama; Tomoyuki Fujita; Tokuo Kasai; Shun Kohsaka; Takashi Kubo; Susumu Manabe; Naoya Matsumoto; Shigeru Miyagawa; Tomohiro Mizuno; Noboru Motomura; Satoshi Numata; Hiroyuki Nakajima; Hirotaka Oda; Hiromasa Otake; Fumiyuki Otsuka; Ken-ichiro Sasaki; Kazunori Shimada; Tomoki Shimokawa; Toshiro Shinke; Tomoaki Suzuki; Masao Takahashi; Nobuhiro Tanaka; Hiroshi Tsuneyoshi; Taiki Tojo; Dai Une; Satoru Wakasa; Koji Yamaguchi; Takashi Akasaka; Atsushi Hirayama; Kazuo Kimura; Takeshi Kimura; Yoshiro Matsui; Shunichi Miyazaki; Yoshitaka Okamura; Minoru Ono; Hiroki Shiomi; Kazuo Tanemoto
on behalf of the Japanese Circulation Society Joint Working Group

Table 70. 7 Performance Indices of "Standardized PCI" Initiative

1. Percentage of patients with acute coronary syndrome (Item 11)
2. Percentage of emergency PCI (Item 19)
3. Percentage of patients with preoperative antiplatelet therapy (Item 13–3)
4. Percentage of patients who undergo ischemia assessment before non-emergency PCI (Item 13–1)
5. Door-to-balloon time in patients with ST-segment elevation acute myocardial infarction (Item 19–1)
6. Percentage of radial artery access (Item 121)
7. Percentage of non-emergency PCI in non-main coronary artery (other than segments 1–3, 5–7, and 11) (Item 24 and later)

- Nakamura M, et al. ***Circ J.*** 2022;86:477-588.

Quality indicator (QI) のフィードバック

Jan 2018 ~

フィードバック活動の効果検証

厚生労働科学研究費補助金（難治性疾患等政策研究事業）
分担研究報告書

東海大学・医学部内科学系循環器内科・教授　伊苅　裕二
愛知医科大学・循環器内科・教授　天野哲也
慶應義塾大学・医学部・専任講師　香坂　俊
東京大学・医療品質評価学・特任准教授　隈丸　拓

本邦における PCI 診療の質の地域間格差の実態把握 ならびに そのフィードバック活動の検証

研究要旨

本研究では、2021年度はPCI治療の診療の質（Quality Measures: QM）4項目［①術前の抗血小板薬使用、②D2B<90分以内（STEMI症例）、③橈骨動脈穿刺、④術前非侵襲的負荷試験（負荷シンチ，負荷心電図，負荷エコー，負荷MRI：SIHD症例）］の47都道府県における地域間格差を検証した。その結果、術前非侵襲的負荷試験は、特にその達成率は低く、地域間格差が存在し、改善の余地があることが明らかとなった。診療の質向上のためのさらなる努力が必要なことを示唆されたため、2022年度は、学会としてのフィードバックや啓蒙活動を通じたさらなる QM 項目の向上に関する検証活動が行われた。

J-PCI research proposal

様式 1（Proposal 概要）

※申請者および共同研究者の個人情報は記載しないこと

CVIT Registry Research Proposal Form (2022)

研究領域（いずれかを選択し他を削除ください）：J-PCI

研究課題名：CVIT による施設評価のためのフィードバックシステムの検証

【研究背景】（1500 文字以内）

（1） 研究背景（Background）と目的・仮説（Objective・Hypothesis）を明記下さい。
（2） 他の研究（原著やガイドライン）でどこまで明らかになっており、この解析でどの部分を明らかとするのか、ということを重点的に記載ください。
（3） これまで CVIT から出されてきた研究 との関連があれば、明確に記載をお願いします（案件重複を避けるため）。これまで行われてきた研究成果に関しては CVIT ホームページ（www.cvit.jp/registry/）上に掲載しております。

（1）

Background（必須）：PCI は広く普及しており、現在本邦において 1000 以上の施設で行われているが、その治療成績には施設間格差があることも知られる。CVIT では 7 項目の"quality indicator"（1. 急性冠症候群の割合、2. 緊急 PCI の割合、3. STEMI 症例における door-to-balloon time、4. 術前抗血小板薬の使用割合、5. 橈骨動脈による PCI アクセスの割合、6. 非緊急 PCI における虚血評価例の割合、7. 非緊急 PCI における近位部病変以外への PCI の割合）を設定し、施設ごとの PCI の質的評価についてフィードバックを開始している。しかしこの 7 項目の quality indicator が、本邦での現在の PCI における施設評価系として適しているかは明らかでない。

Objective（必須）：7 項目の quality indicator およびそれらを総合した評価系が、各施設へのフィードバック機構として適切かどうかを検証する。

JACC: ASIA

ORIGINAL RESEARCH

Benchmarking System Monitoring on Quality Improvement in Percutaneous Coronary Intervention

A Nationwide Registry in Japan

Yuichi Saito, MD,[a] Taku Inohara, MD,[b] Shun Kohsaka, MD,[b] Hideki Wada, MD,[c] Hiraku Kumamaru, MD, ScD,[d] Kyohei Yamaji, MD,[e] Hideki Ishii, MD,[f] Tetsuya Amano, MD,[g] Hiroaki Miyata, PhD,[d] Yoshio Kobayashi, MD,[a] Ken Kozuma, MD,[h] on behalf of the J-PCI Registry Investigators

- Saito Y, et al. ***JACC Asia.*** 2024;4:323-31.

方法

・2018年1月からCVITによるフィードバックシステムが開始

・J-PCIレジストリは本邦のPCIの90%以上を包括するデータ

・2022年J-PCIレジストリResearch Proposal 公募論文

方法

・2019年1月から2021年12月のPCI症例が解析対象

・<20歳, >100歳の患者やデータ欠損症例は除外

・合計で、n=734,264のPCI症例が解析対象となった

Quality indicators

Seven QIs by the CVIT

1. Proportion of ACS
2. Proportion of non-elective PCI
3. Door-to-balloon time in STEMI
4. Pre-PCI antiplatelet use
5. Proportion of TRI
6. Proportion of pre-PCI stress test *
7. Proportion of side-branch PCI *

(* Applicable only to elective cases)

・施設単位でのQI達成率を評価

・施設責任者はreview systemの閲覧を推奨

方法

・フィードバックシステムをチェックしたか？

→ J-PCIの施設責任者がシステムにログインしたか

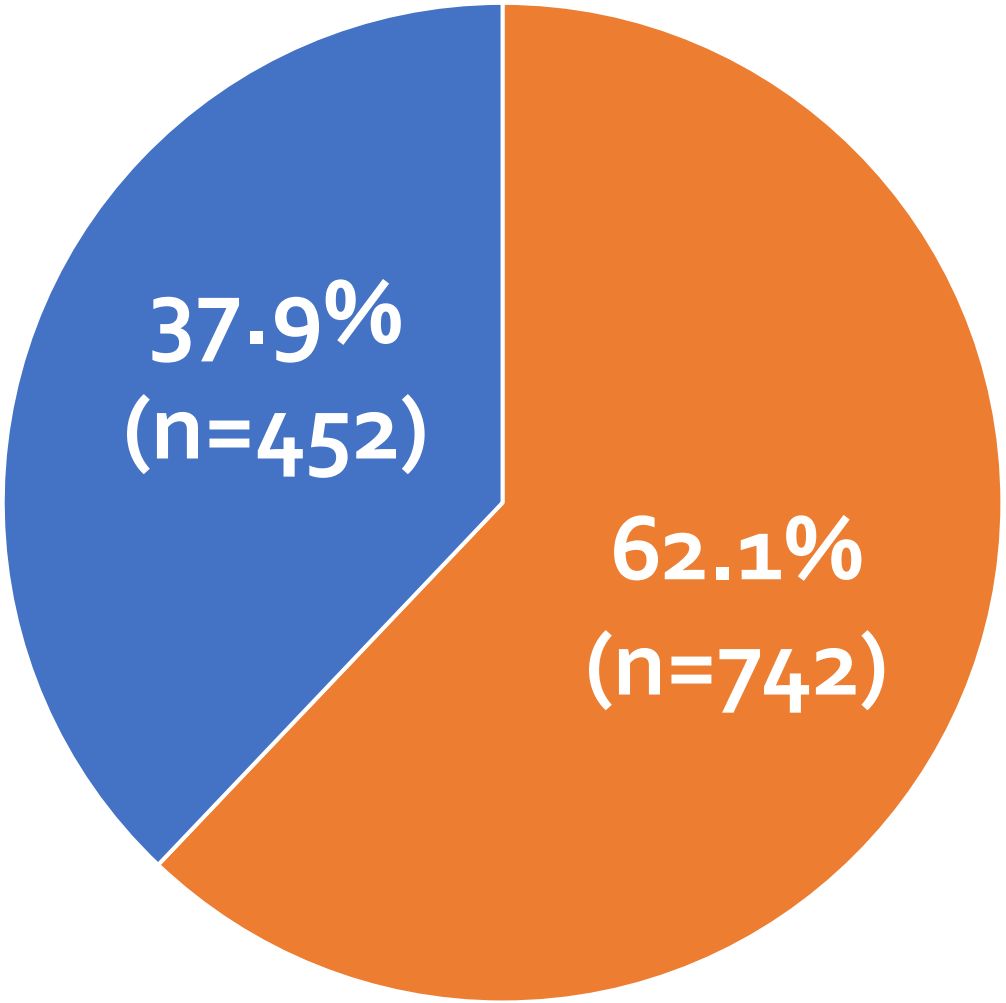
・各施設をフィードバックのチェックの有無で2群に分ける

エンドポイント

・フィードバックのチェックがQIに与える影響

・フィードバックシステムをチェックする施設の特性

結果



(1,194 institutions)

Review system check (+)

Review system check (-)

* 2019年1月～2021年12月までの間に
一度でもシステムにログインされた施設

* 中央値 4回 (IQR, 2-7)

どのような病院でチェックされているか？

TABLE 1 Hospital Characteristics

	Benchmarking System Review		
	No	Yes	*P* Value
Number of hospitals	452	742	
Number of academic hospitals	22 (4.9)	108 (14.6)	<0.001
Number of PCIs for ACS per year	29 (11-58)	97 (58-139)	<0.001
Number of elective PCIs per year	39 (13-74)	134 (78-205)	<0.001
Number of total PCIs per year	72 (27-138)	221 (136-335)	<0.001

Values are n, n (%), or median (Q1-Q3). Academic hospitals are defined as university hospitals and affiliated institutions.

ACS = acute coronary syndrome; PCI = percutaneous coronary intervention.

患者病変背景

TABLE 2 Patient Characteristics

	All (N = 734,264)	Benchmarking System Review		P Value
		No (n = 143,137)	Yes (n = 591,127)	
Age, y	71.2 ± 11.3	71.3 ± 11.3	71.1 ± 11.3	<0.001
Women	172,380 (23.5)	34,419 (24.0)	137,961 (23.3)	<0.001
Hypertension	555,173 (75.6)	107,231 (74.9)	447,942 (75.8)	<0.001
Diabetes	330,710 (45.0)	64,229 (44.9)	266,481 (45.1)	0.157
Dyslipidemia	491,454 (66.9)	94,136 (65.8)	397,318 (67.2)	<0.001
Current smoking	220,284 (30.0)	43,913 (30.7)	176,371 (29.8)	<0.001
Chronic kidney disease	169,763 (23.1)	30,374 (21.2)	139,389 (23.6)	<0.001
Hemodialysis	52,634 (7.2)	9,147 (6.4)	43,487 (7.4)	<0.001
COPD	21,711 (3.0)	4,559 (3.2)	17,152 (2.9)	<0.001
Peripheral artery disease	58,549 (8.0)	9,914 (6.9)	48,635 (8.2)	<0.001
Previous heart failure	114,244 (15.6)	22,442 (15.7)	91,802 (15.5)	0.168
Previous PCI	327,009 (44.5)	62,013 (43.3)	264,996 (44.8)	<0.001
Previous CABG	23,714 (3.2)	3,848 (2.7)	19,866 (3.4)	<0.001
Clinical presentation				
Elective PCI	518,161 (70.6)	100,732 (70.4)	417,429 (70.6)	0.067
ACS	286,269 (39.3)	58,509 (41.3)	227,760 (38.8)	<0.001
STEMI	132,372 (18.2)	26,646 (18.8)	105,726 (18.0)	<0.001
NSTEMI	46,982 (6.5)	8,484 (6.0)	38,498 (6.6)	<0.001
Unstable angina	100,285 (13.8)	22,221 (15.7)	78,064 (13.3)	<0.001
ADHF	31,899 (4.3)	6,454 (4.5)	25,445 (4.3)	0.001
Cardiogenic shock	26,347 (3.7)	5,053 (3.5)	21,294 (3.7)	0.019
Cardiac arrest	14,854 (2.1)	2,600 (1.8)	12,254 (2.1)	<0.001

Values are mean ± SD or n (%). ACS includes unknown myocardial infarction in addition to STEMI, NSTEMI, and unstable angina.

ADHF = acute decompensated heart failure; CABG = coronary artery bypass grafting; COPD = chronic obstructive pulmonary disease; NSTEMI = non-ST-segment elevation myocardial infarction; STEMI = ST-segment elevation myocardial infarction; other abbreviations as in Table 1.

TABLE 3 Lesion and Procedural Characteristics

	All (n = 734,264)	Benchmarking System Review		P Value
		No (n = 143,137)	Yes (n = 591,127)	
Lesion characteristics				<0.001
1	470,625 (64.1)	91,509 (63.9)	379,116 (64.1)	
2	178,560 (24.3)	35,213 (24.6)	143,347 (24.3)	
3	82,621 (11.3)	16,262 (11.4)	66,359 (11.2)	
Left main trunk	28,787 (3.9)	4,646 (3.2)	24,141 (4.1)	
Lesion location				<0.001
RCA	242,118 (33.0)	46,950 (32.8)	195,168 (33.0)	
LAD/left main coronary artery	394,055 (53.7)	77,827 (54.4)	316,228 (53.5)	
LCx	177,568 (24.2)	34,304 (24.0)	143,264 (24.2)	
Bypass graft	2,866 (0.4)	363 (0.3)	2,503 (0.4)	
Year PCI performed				<0.001
2019	253,165 (34.5)	46,464 (32.5)	206,701 (35.0)	
2020	239,440 (32.6)	46,942 (32.8)	192,498 (32.6)	
2021	241,618 (32.9)	49,731 (34.7)	191,887 (32.5)	
Pre-PCI FFR	55,103 (7.5)	10,578 (7.4)	44,525 (7.5)	0.068

Values are n (%).

FFR = fractional flow reserve; LAD = left anterior descending coronary artery; LCx = left circumflex coronary artery; PCI = percutaneous coronary intervention; RCA = right coronary artery.

Reviewの有無とQIの関連

TABLE 4 Quality Indicators and In-Hospital Mortality

	Benchmarking System Review		
	No (n = 143,137)	Yes (n = 591,127)	*P* Value
Proportion of ACS	41.3	38.8	<0.001
Proportion of nonelective PCI	29.6	29.4	<0.001
D2B time for STEMI, min	75 (57-97)	71 (54-91)	<0.001
Antiplatelet therapy use	99.8	99.7	<0.001
Proportion of TRI	76.9	74.0	<0.001
Pre-PCI stress testing[a]	16.7	19.0	<0.001
Proportion of side-branch PCI[a]	21.0	21.1	0.395
In-hospital mortality	1.9	1.8	0.007

Values are % or median (Q1-Q3). [a]Applicable only to elective PCI cases.

D2B = door-to-balloon; other abbreviations as in Tables 1 and 2.

Reviewの有無がQIに与える影響

TABLE 5 Benchmarking System Review in 2019 and Changes in Quality Indicators in a Following Year

	Benchmarking System Review in 2019			
	No		Yes	
	2019 (n = 162,171)	2020 (n = 156,282)	2019 (n = 90,994)	2020 (n = 83,158)
Proportion of ACS	38.7	39.2	38.1	40.2
Proportion of nonelective PCI	38.7	39.2	38.1	40.2
D2B time for STEMI, min	71 (54-91)	72 (55-92)	69 (53-89)	70 (53-90)
Antiplatelet therapy use	99.6	99.6	99.7	99.8
Proportion of TRI	73.7	74.4	72.8	75.1
Pre-PCI stress testing[a]	19.2	18.5	20.2	19.2
Proportion of side-branch PCI[a]	21.4	21.0	21.1	21.0
In-hospital mortality	1.6	1.9	1.9	2.1

Values are % or median (Q1-Q3). [a]Applicable only to elective PCI cases.

Abbreviations as in Tables 1, 2 and 4.

Reviewの有無がQIに与える影響

TABLE 6 Benchmarking System Review in 2020 and Changes in Quality Indicators in a Following Year

	Benchmarking System Review in 2020			
	No		Yes	
	2020 (n = 84,325)	2021 (n = 86,991)	2020 (n = 155,115)	2021 (n = 154,627)
Proportion of ACS	41.1	41.3	38.8	39.2
Proportion of nonelective PCI	41.1	41.3	38.8	39.2
D2B time for STEMI, min	73 (55-92)	74 (57-96)	70 (53-90)	73 (57-96)
Antiplatelet therapy use	99.8	99.8	99.6	99.7
Proportion of TRI	76.1	76.9	73.8	75.2
Pre-PCI stress testing[a]	17.7	15.9	19.3	17.8
Proportion of side-branch PCI[a]	21.6	21.3	20.7	20.8
In-hospital mortality	2.1	2.1	1.9	1.8

Values are % or median (Q1-Q3). [a]Applicable only to elective PCI cases.

Abbreviations as in Tables 1, 2, and 4.

各施設からの声

- Although the rate of transfemoral PCI in our institution exceeded the national standard, a substantial proportion of patients with STEMI achieved D2B time ≤90 min. This achievement may be attributed to effective collaborations between doctors and medical staff, and an established on-call system. We believe that the proactive use of non-invasive and invasive ischemia testing can aid in determining appropriate indications of PCI. We remain committed to utilizing the NCD feedback system as a valuable reference when formulating treatment strategies.
- The rate of emergency PCIs is relatively low (21.6%) in our institution and thus, we aim to strengthen the emergency department, catheterization staff, and on-call systems. We understand that the rate of PCI in the branches rather than in the major coronary arteries in elective cases was relatively high (22.1%), and ischemia evaluation in elective cases was infrequently performed (55.8%). We intend to improve these statistics in the future.
- We were concerned that our hospital had a lower rate of radial artery access compared with the national average. This might result in a recent increase in the mortality rate in patients with acute myocardial infarction in our institution. We plan to increase radial artery access shortly.
- Although statistics in our hospital do not significantly deviate from the national average overall, the rate of ischemia evaluation in elective cases was low. We will be more proactive in evaluating lesions suitable for PCI, using FFR and non-invasive stress testing. There is room for improvement regarding D2B time in STEMI, and we would like to improve this by cooperating with the emergency department.
- Although the proportion of patients with ACS was low in our institution, many hospitals in Sapporo City are available for such patients, probably resulting in the low ACS rate. The rate of the radial artery approach was also low, because femoral artery approach is commonly used in patients on hemodialysis and in an emergency setting in our institution.
- This year, D2B time ≤90 min accounted for 51.5% of patients with STEMI in our institution, which was substantially decreased from that in the previous year, probably due to the COVID-19 pandemic. Screening examinations with antigen and PCR tests as well as chest CT evaluation were required before the catheterization, particularly in patients with relatively stable vital signs.
- The rate of ischemia evaluation in patients undergoing elective procedures was impressively high (97%) in our institution, and we believe that the assessment was appropriate. Our goal in the near future is to consistently provide appropriate PCI to patients who require it, while actively avoiding unnecessary procedures.

まとめ

- CVITが開始したフィードバックは6o%超の施設で使用
- システムをチェックする施設はhigh PCI volumeであった
- フィードバックがQI (TRI) の改善に一部寄与した可能性
- QIの改善の持続性には課題があると思われた

Limitations

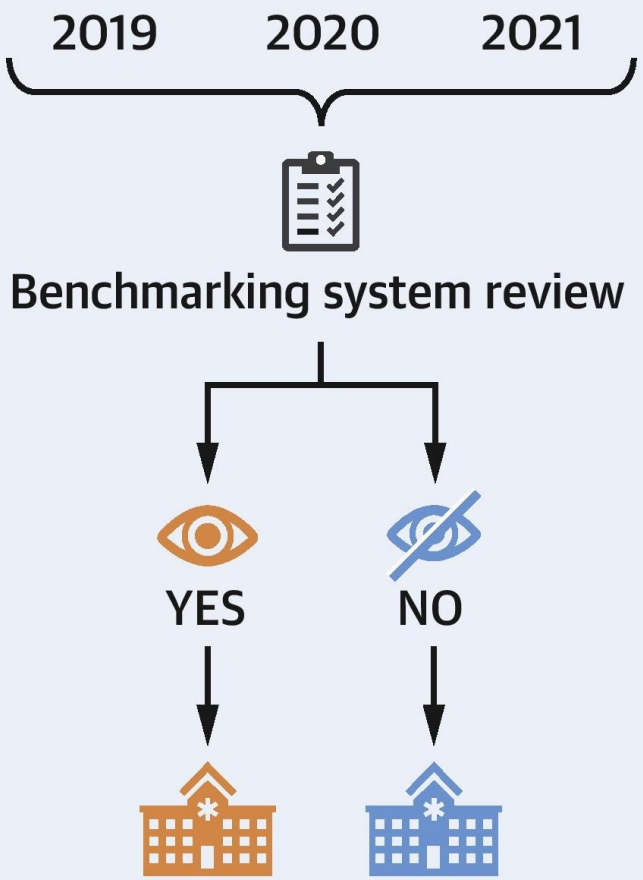
- QIの改善がフィードバックと直接関連したかは不明
- 長期的なfollow-upや臨床転機のデータがほとんどない
- 一部の結果はCOVID-19の影響を受けていた可能性がある

Conclusions

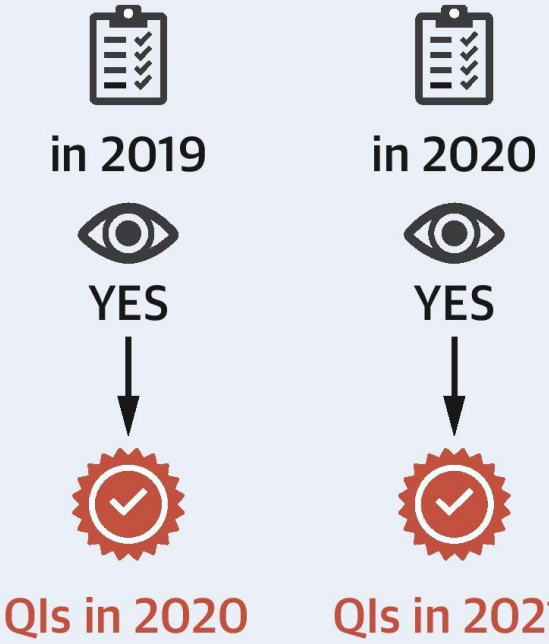
Seven QIs by the CVIT

1. Proportion of ACS
2. Proportion of non-elective PCI
3. Door-to-balloon time in STEMI
4. Pre-PCI antiplatelet use
5. Proportion of TRI
6. Proportion of pre-PCI stress test *
7. Proportion of side-branch PCI *

(* Applicable only to elective cases)



The institutions that reviewed their records had higher PCI volumes.



The benchmarking system review was possibly associated with improved QIs during the first year, but the improvement was attenuated in the subsequent year

- Saito Y, et al. ***JACC Asia.*** 2024;4:323-31.