

LESSONS FROM ACCREDITATION ACTION PLANS: Common Areas for Quality Improvement in the Cardiac Cath Lab

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What are common areas for process and quality improvement in cardiac cath labs, and what strategies are most commonly used by healthcare institutions seeking accreditation to achieve quality improvement goals?

Background

- Accreditation for Cardiovascular Excellence (ACE, founded in 2010) has accredited over 60 organizations, reviewing 4186 cardiac catheterization cases. Many quantitative studies have been undertaken confirming the value of accreditation.¹
- Accreditation reviews frequently highlight areas where organizations fail to meet accreditation standards necessary for accreditation.
- When an organization fails to meet accreditation standards, they must submit a "Corrective Action Plan" for review and followup, which becomes the basis for ongoing processes for improvement with ACE assistance.
- Of the ~60 organizations ACE has accredited, 14 failed to initially meet standards for ACE's Cath/PCI Accreditation.²

Methods

- Cath/PCI accreditation standards that were not met or only partially met were assessed for the 14 institutions that initially did not achieve accreditation.

- ◇ Anonymized accreditation reports were evaluated to determine the most common areas in need of improvement.
- ◇ Relevant accreditation standards were quantified and separated into 9 distinct categories.
- ◇ Areas where institutions "did not meet" standards were then isolated from areas where they either "partially met or did not meet" standards.
- ◇ Qualitative review was conducted across corrective action plans submitted by all 14 institutions not initially achieving accreditation.
- ◇ Common strategies for improvement were highlighted.

RESULTS

- There were 557 instances where standards were not met. (Figure 1 shows these broken into categories as seen in publically available ACE Cath/PCI Standards).

- ◇ 1 instance of shortcoming in equipment standards.
- ◇ Reporting was the most common area where standards were not met (22.6%).
- * Structured reporting and documentation were the most common areas for improvement.

◇ Other areas where standards were partially met (PM) or did not meet (DNM) were fairly evenly distributed across a categorial review.

• Figure 2 shows where facilities failed to meet standards

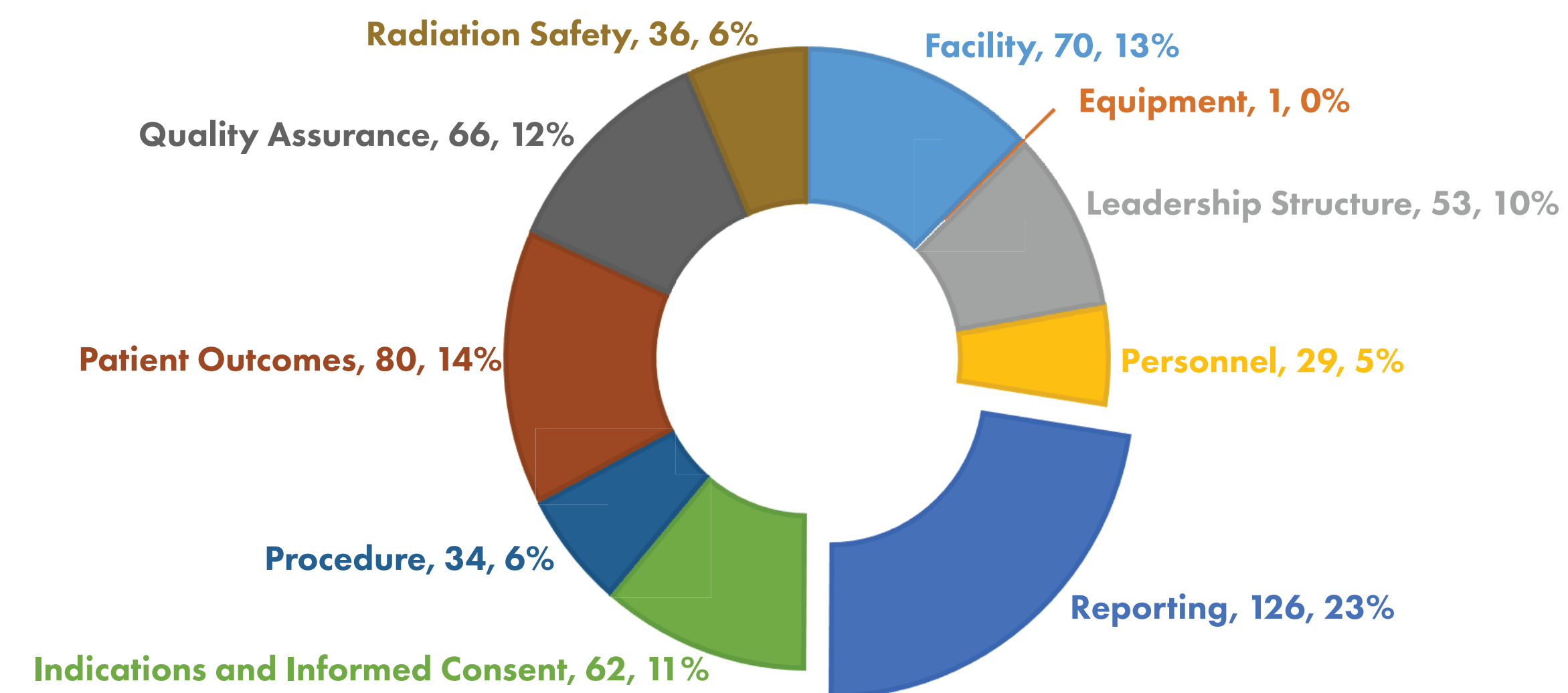
- ◇ Comparisons between Figure 1 and 2 highlight that Reporting standards are typically partially met (n=111)
- ◇ The most prevalent areas where standards were not met were Patient Outcomes (32.5%) and Facility (26.2%).

• Table 1 details 19 standards wherein shortcomings were observed in the majority of institutions (8 of 14), providing valuable insight into common areas for improvement.

WHERE COULD YOU IMPROVE?

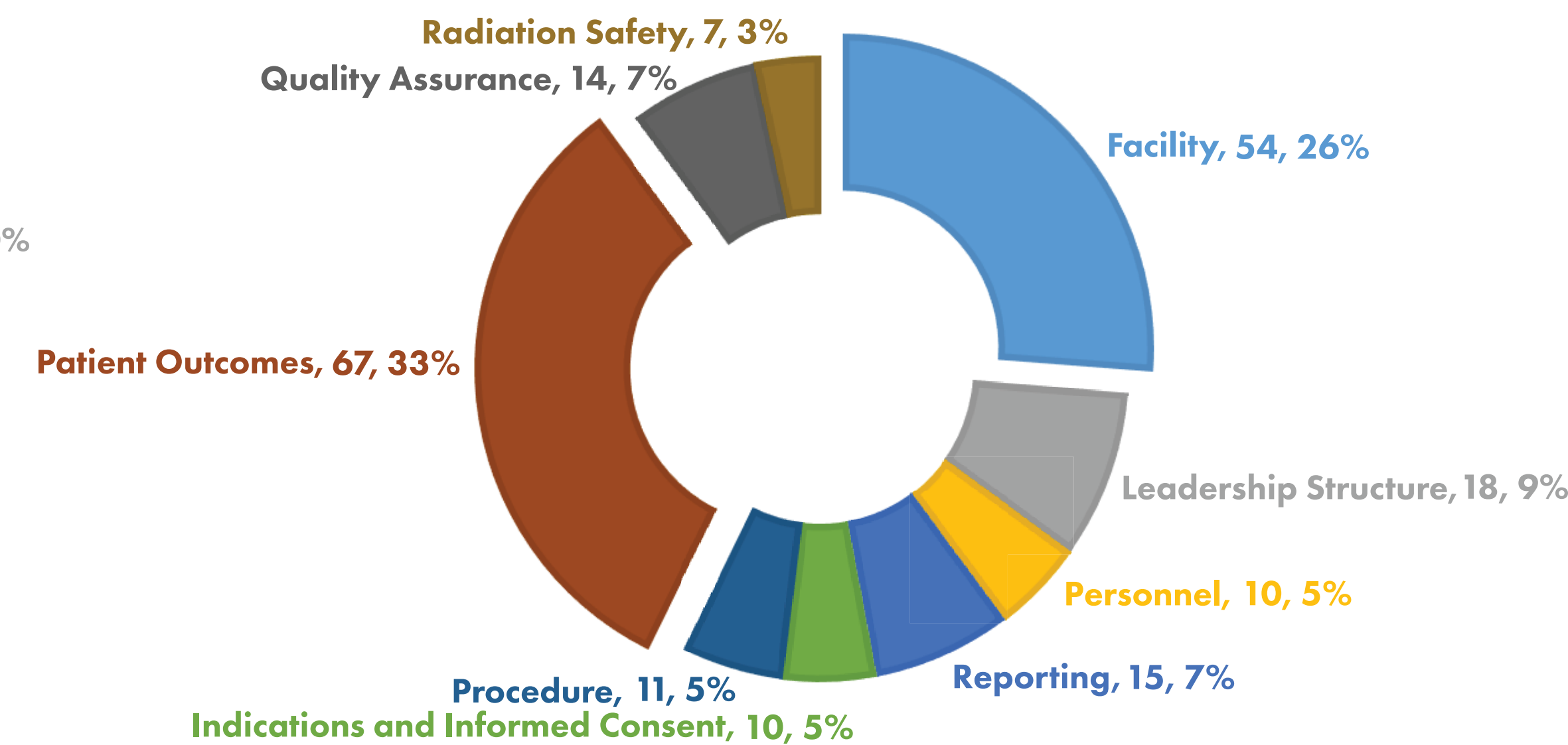
- Management of patients at high risk of contrast-induced nephropathy.
- Follow-up of patients at risk from the potential adverse effects of radiation.
- On-going randomized case reviews for quality assurance.
- Implementation of sophisticated internal, randomized and peer-review quality assurance review processes.
- Use of published Appropriate Use Criteria for indications for procedures.
- Comprehensive structured reporting and documentation.
- Operator requirements such as the maintenance of ACLS certification, continuing education credits, and procedure volume requirements.

FIGURE 1: All Instances of Shortcomings* on ACE Accreditation Standards (by category)



*Shortcomings are instances where facilities either did not meet (DNM) or partially met (PM) an ACE standard. By comparison, Figure 2 shows only instances where facilities did not meet a standard.

FIGURE 2: Instances Where Facilities Did Not Meet ACE Accreditation Standards (by category)



Common Areas for Improvement

PATIENT RISK FOLLOW-UP:

- ◇ 100% of reviews found shortcomings in ACE Standards 10.1.2 and 9.3,
- ◇ 78.6% of reviews found shortcomings in 12.2.2,

OUTCOMES REVIEW AND QUALITY ASSURANCE:

- ◇ 71.4% of deferred facilities did not meet standards 10.2.2 and its substandards 10.2.2.1 and 10.2.2.1.1
- * 85.7% had shortcomings.
- ◇ Standards 11.1.1.2, 11.1.2 and 11.1.3 had shortcomings in 92.9%, 78.6% and 71.4% of facilities

PROCEDURE INDICATIONS AND PREP:

- ◇ 78.6% of facilities only partially met 8.1.1
- ◇ 71.4% had shortcomings in standard 9.2

STRUCTURED REPORTING AND DOCUMENTATION (PM or DNM):

- ◇ Standard 7.1.2 (57.1%),
- ◇ Standard 7.1.4 (78.6%),
- ◇ Standard 7.2.12 (57.1%),
- ◇ Standard 7.2.14 (57.1%),
- ◇ Standard 7.2.15.1 (71.4%),
- ◇ OPERATOR REQUIREMENTS (PM or DNM):
- ◇ Standard 3.4.3 (57.1%)
- ◇ Standard 3.4.4 (57.1%)
- ◇ Standard 3.4.6.2 (64.3%)

DISCUSSION:

- Widespread shortcomings indicate randomized and peer-driven quality assurance review could improve processes.
- Facilities could improve quality through greater adherence to evidence-based guidelines.
- Reduced variability correlates quality improvement, suggesting shortcomings in structured reporting may lead to poor patient outcomes and failure to meet ACE standards (Figure 2).

- Operator improvements may simply require stronger communication including rationales for maintenance of standards.

TABLE 1: ACE Accreditation Standards with the Most Observed Shortcomings Across Reviews

Standard	Description	PM	DNM
10.1.2	Facilities should have an established system for the follow-up of renal function in patients at high-risk (i.e. GFR <60) for contrast nephropathy.	2	12
9.3	Facilities should have a written protocol or standardized order sets for the management of patients at high risk of contrast-induced nephropathy. This should include pre- and post-procedure hydration and follow-up. (4, 16)	8	6
11.1.1.2	Process indicators should include: a) quality of angiographic studies, b) completion of accurate and informative reports, c) emergency response times, d) total procedure and fluoroscopy times, e) contrast usage, f) radiation dose, and g) other criteria.	12	1
10.2.2, 10.2.2.1, 10.2.2.1.1	The diagnostic accuracy and adequacy of angiograms must be assessed as part of ongoing random case reviews representing 10% of cases by all operators. The completeness and accuracy of diagnostic procedures should be assessed as part of the QA process. Inadequate or incomplete diagnostic procedures should not be > 5% for any operator. Variables assessed may include... abridged, refer to ACE Standards.	2	10
8.1.1	The indication for the procedure should be consistent with published guidelines or appropriate use criteria.	11	1
12.2.2	A surveillance program should be in place for patients whose recorded total air kerma at the interventional reference point (Ka,r) is 5 Gy or greater, Pka of 500 Gycm2, and/or fluoroscopy doses that exceed 60 minutes. This program should include the dose and a reason for this dose, patient notification, medical physicist/health physics involvement for Ka,r >10Gy, and a mechanism for patient follow up of potential adverse effects of radiation.	4	7
11.1.2	The quality assurance program must include a peer-review process with randomly selected diagnostic and interventional procedures representing all operators performing cases in the CCL reviewed for indications and complications and a periodic review of all major (MACCE) laboratory complication rates (11).	6	5
7.1.4	The procedure progress note should contain at a minimum information including: a) name of the operator, b) procedures performed and description of each procedure, c) findings, d) estimated blood loss, e) specimens removed if appropriate f) complications, g) post-operative diagnosis and h) recommendations.	11	0
9.2	Facilities should have a written protocol or standardized order set for the anticoagulated patient undergoing cardiac catheterization procedures and for various access site management including anticipated complications.	5	5
11.1.3	The QA program must include an assessment of: a) the rate of non-obstructive coronary artery disease based on the NCDR CathPCI registry definition b) an assessment of MACCE and vascular complication rates for all types of procedures performed, and c) an assessment of the diagnostic accuracy and adequacy of angiograms as defined in detail in section 10.2.2.	5	5
7.2.15.1	The minimum content of an IVUS report includes: a) appropriate patient demographic information and date with reference to the accompanying angiographic and/or interventional reports; b) indication for the procedure; c) brief description of the IVUS procedure, including the equipment used, the level of anticoagulation achieved, and the coronary arteries imaged; d) basic findings of the IVUS pullback... abridged, refer to ACE Standards.	7	3
3.4.6.2	PCI procedure volume requirements for individual operators must be established by each facility. These requirements should be concordant with the most current ACCF/AHA/SCAI competency document. (14) All facilities must establish their minimum recommended annual volume requirements for PCI operators to maintain proficiency and a minimum number of procedures... abridged, refer to ACE Standards.	5	4
3.4.4	To maintain privileges, physicians must obtain 30 hours of Category 1 continuing medical education credits over a 2-year period in invasive or interventional cardiology.	5	3
3.4.3	For adult laboratories, physicians must maintain ACLS certification and follow facility standards for radiation safety.	6	2
7.2.12	If performed, the left ventriculogram description should include the regional wall motion abnormalities (hypokinesia, akinesia, dyskinesia) seen in the anterior, inferior, apical, posterior and lateral segments. Reporting quantitative methods of wall motion assessment are useful when available. A measured or estimated left ventricular ejection fraction should also be reported... abridged, refer to ACE Standards.	7	1
7.2.14	For interventional procedures a complete description of the procedure, equipment used, in lab results such as ACT measurements, complications occurring and outcome of the intervention. Technical comments are especially helpful should future interventions be necessary.	7	1
7.1.2	There must be enough information in the record immediately after the procedure to manage the patient throughout the post-procedure period. This information could be entered as the procedure report or as a hand-written operative progress note.	8	0

PM = Partially Met Standard; DNM = Did Not Meet Standard



ACETM
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Corrective Actions

- Corrective action plans focused on increased quality conferences to discuss hospital results against outcome/registry benchmarks were noted as one strategy for meeting Outcomes and Quality Assurance Standards
- Case meetings providing physicians with a score card regarding specific topic areas (e.g., Appropriate Use Criteria; ACC-NCDR CathPCI Registry® data; radiation use, etc) were used to give physicians a more accurate understanding their performance.
- Meetings of multidisciplinary care teams outlined quality improvement initiatives aimed at shortcomings in ACE standards.
- Quality improvement relies heavily on comprehensive and standardized documentation, resulting in improved communication.
- Improvements in structured reporting are crucial to facilitate quality conferences.
- Methods to improve documentation included the implementation of hard-stops in EHR systems.
- Education of team members regarding policies and procedures improved form revisions and reinforced rationales for processes.
- ◇ This was especially important for radiation safety matters and contrast induced nephropathy protocols.

Conclusion

- ◇ Organizations seeking to improve care should look to common areas for improvement, including documentation and structured reporting.

◇ Structured reporting regarding standards for appropriate use and radiation/CIN safety protocols, and patient followup are instrumental in improving quality

◇ Standardized documentation and regular, formalized improvement reviews promote intentional, quality-focused communication among a multidisciplinary team of professionals, resulting in improved outcomes and quality assurance.

◇ By actively and intentionally improving QI programs, healthcare organizations can adopt proactive solutions to ensure reaching the highest quality standards.

References

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2. Accreditation for Cardiovascular Excellence. ACE Standards for Catheterization Laboratory Accreditation. 2015;3-20. Available at: <http://www.cvexcel.org/CathPCI/Standards.aspx>. Accessed February 20, 2019.

Affiliations & Disclosures

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