



The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

901.HEALTH SERVICES AND QUALITY IMPROVEMENT - NON-MALIGNANT CONDITIONS

Lack of Standardized Coding Limits Accuracy of Electronic Clinical Quality Measure for Pulmonary Embolism Diagnosis

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Introduction: ASH Guidelines for diagnosis of pulmonary embolism (PE) start with risk assessment using a pretest probability tool (PTP) followed by D-dimer testing or CT pulmonary angiography (CTPA) depending on risk. We aimed to develop an electronic clinical quality measure (eCQM) to encourage broader use of a validated PTP scoring tool in emergency departments (EDs). The Centers for Medicare & Medicaid Services require reporting of eCQMs which consist of value sets or lists of standardized codes linked to patient data within the electronic health record. We sought to identify a standardized way to identify CTPA and abnormal D-dimer tests using administrative codes (i.e. CPT, LOINC, SNOMEDCT codes) across three institutions.

Methods: Value sets identifying CTPA and D-dimers were reviewed from existing eCQMs. Three institutions representing 38 EDs from across the country submitted data from all ED encounters between September 12, 2022 and January 11, 2023. Imaging types were reviewed from each of the CPT codes and LOINC (Logical Observation Identifiers Names and Codes). We determined the number of ED encounters, pre-test probability tool use, and diagnosis of PE using different codes. We calculated sensitivity, specificity, positive and negative predictive value (PPV and NPV, respectively).

Results: Over the 4-month study period, 270,214 encounters were identified across 38 EDs. Each institution identified CTPA with site-specific codes (Table 1). The Full CTPA Value Set identified 55% more encounters than the site-specific codes (Full set 15,054/9679 site-specific codes). LOINC code 88322-3 was only used at one site. CPT code 71275 had the best sensitivity and specificity, but still had false positives (PPV 82%) (Table 2).

D-dimer values were identified as LOINC code 48065-7 and 91556-1 at Site 1 and 48067-3 at Site 2. SNOMEDCT codes were not used at any site despite being the way other eCQMs identify elevated D-dimer results. Different D-dimer tests with different normal ranges were used at each site. All sites did not have an electronically extractable positive indicator for D-dimer.

Conclusion: Due to persistent false positives using CPT Code 71275 for identification of CTPA, using this code would lead to inclusion of patients for whom PTP was not required or recommended. Additionally, coding for an abnormal D-dimer test result are not standardized across institutions. Therefore, administrative codes cannot be used to develop eCQMs whose aim is to evaluate whether CTPA is ordered appropriately based on the PTP risk level and laboratory testing.

Disclosures Rosovsky: *Pulmonary Embolism Response Team:* Membership on an entity's Board of Directors or advisory committees, Other: President-Elect; *BMS:* Consultancy; *Dova:* Consultancy; *Janssen:* Consultancy, Other: Research funding is to my institution, Research Funding; *Abbott:* Consultancy; *Penumbra:* Consultancy, Other: National Lead Investigator for STORM PE; *Inari:* Consultancy.

Table 1: Coding linked to CT Pulmonary Angiograms (CTPA) from Emergency Department Encounters at 3 Institutions

	Definition Group	Site 1			Site 2			Site 3		
		# Cases	# PTP (%)	# PE+ (%)	# Cases	# PTP (%)	# PE+ (%)	# Cases	# PTP (%)	# PE+ (%)
A	Initial population for analysis	37,949	122 (0.3%)	86 (0.2%)	106,158	646 (0.6%)	937 (0.9%)	126,107	2,507 (2.0%)	482 (0.4%)
B	Full CTPA Value Set	1,890	27 (1.4%)	67 (3.5%)	9,848	159 (1.6%)	686 (7.0%)	3,316	31 (0.9%)	126 (3.8%)
C	Only LOINC 88322-3	1,169	24 (2.1%)	60 (5.1%)	0	N/A	N/A	N/A	N/A	N/A
D	Only CPT 71275	1,356	27 (2.0%)	61 (4.5%)	7,415	156 (2.1%)	638 (8.6%)	5,701	2,280 (40%)	356 (6.3%)
E	LOINC 88322-3 or CPT 71275	1,357	27 (2.0%)	61 (4.5%)	7,415	156 (2.1%)	638 (8.6%)	5,701	2,280 (40%)	356 (6.3%)
F	Only site-specific codes: Site 1 – 111552, 86706, 111593, or 96922 Site 2 – 5587 or 206 Site 3 – order code 142167	1,357	27 (2.0%)	61 (4.5%)	6,270	139 (2.2%)	587 (9.4%)	4,255	2,248 (51.6%)	332 (7.6%)

PTP: Pre-test probability; PE=pulmonary embolism; CTPA= CT Pulmonary Angiogram; CPT=Current Procedural Terminology Codes; LOINC=Logical Observation Identifiers Names and Codes

Table 2: Sensitivity and Specificity of CT Pulmonary Angiogram Code (CPT 71275)

		Site-Specific Codes (Site 1: 111552, 86706, 111593, or 96922; Site 2: 5587 or 206; Site 3: 142167)		
		With Test	Without Test	Total
CPT 71275	With CPT 71275	11,927 (True Positive)	2,545 (False Positive)	14,472 (82% PPV)
	Without CPT 71275	1 (False Negative)	255,741 (True Negative)	255,742 (100% NPV)
	Total	11,928 (100% Sensitivity)	258,286 (99% Specificity)	270,214

Figure 1

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