

Assessing Cardiac Rehabilitation Participation

Developed by: Million Hearts® Cardiac Rehabilitation Collaborative Surveillance Workgroup members

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Purpose: Provide an administrative claims-based outpatient cardiac rehabilitation (CR) surveillance methodology that can be applied to health system databases to monitor and inform CR-related quality improvement efforts.

Summary of Updates from Prior Version

- Shortened follow-up period for tracking the number of CR sessions. This allows for the use of more timely data, due to marginal changes in the number of CR sessions identified between the prior (longer) follow-up period and the new (shortened) follow-up period. For example, in 2018, CR completion with the prior follow-up period was 28.93% versus 28.51% with the shortened follow-up period. The average number of CR sessions was the same (mean = 26, standard deviation = 13).
 - Prior (longer) follow-up period required ≈20 months beyond the CR qualifying event (QE) measurement period, to allow 365 days (12 months) for enrollment plus 36 weeks (≈8 months) for participation. For example, for QEs in 2022, follow-up data through mid-2024 would be required, so that patients with a QE at the very end of 2022 could be followed 365 days for enrollment (through the end of 2023). And if patients enrolled at the end of 2023, participation metrics (i.e., number sessions completed) would be tracked forward 36 weeks (≈8 months) after enrollment, into mid-2024.
 - New (shortened) 12-month follow-up period: from the CR QE index date, looks forward 365 days to assess CR participation metrics.
- Added guidance for identifying virtual CR claims in Section 4 (Identifying CR claims).
- Reformatted figures to clarify methodology

1. Measurement Period for CR Surveillance

- More than 2 years of data (≈27 months) are required to adequately report on most CR measures (Table 1).
 - This includes a ≥90-day lookback period prior to the QE index date to accommodate the exclusion criteria (details below).
 - A 90-day lookback period is sufficient. However, a further lookback period may be used to ensure a cleaner population (e.g., with no history of QEs within a specified time frame)—but at the tradeoff of reducing sample size or excluding certain populations (i.e., those without continuous enrollment).
- Identify CR-eligible persons in year 1 and assess CR measures from year 1 to year 2.

2. Eligible Population for CR

- Based on two Medicare decision memos, [CAG-00089R](#) and [CAG-00437N](#), persons are eligible for the CR benefit if they experienced ≥1 QE.^{1,2}
- CR QEs using administrative claims-based data are identified using: International Classification of Diseases, 9th/10th edition, Clinical Modification (ICD-9-CM/ICD-10-CM) diagnosis/procedural

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codes in an inpatient claim or Current Procedural Terminology (CPT) code in an outpatient or provider claim (Table 2).

2.1. Primary QEs (Main CR Surveillance)

1. Acute myocardial infarction (AMI).
2. Coronary artery bypass graft (CABG) surgery.
3. Percutaneous coronary intervention (PCI; includes percutaneous transluminal coronary angioplasty [PTCA] or coronary stenting and same-day discharge after an outpatient PCI).
4. Heart valve repair or replacement procedure.
5. Heart or heart-lung transplant.
6. Single event: a primary QE in year 1 and no other primary QE within 21 days of the initial primary QE.
7. Combination event: a primary QE in year 1 and another primary QE within 21 days of the initial primary QE, including events that occurred on the same day (e.g., AMI with PCI). Combination events should be treated separately from single events.³

2.2. Secondary QEs (Secondary CR Surveillance)

1. Current, stable angina pectoris.
 2. Stable chronic heart failure (HF).
- A stable condition is defined as no recent (≤ 6 weeks) or planned (≤ 6 months) major cardiovascular hospitalizations or procedures (ICD-9-CM DX 390-434, 436-448; ICD-10-CM DX I00-I78) according to the Centers for Medicare & Medicaid Services (CMS).² A stable condition was operationalized by excluding individuals from the CR-eligible cohort with a major cardiovascular hospitalization or procedure within 6 weeks prior through 6 months after an angina or HF QE (see steps 6 and 7 below).

2.3. CR Surveillance Considerations

- For any CR QE that includes an AMI (e.g., AMI with CABG, AMI with HF, AMI with PCI, AMI alone), people have 365 days to start CR to have it covered by insurance.
- For all other CR QEs, there is no time frame for starting CR and having it covered by insurance. However, in this algorithm, the 365 days to start CR was used because it is clinically relevant and consistent with other reporting.
- According to CMS, standard outpatient CR sessions are limited to a maximum of two 1-hour sessions per day, up to 36 sessions, over a period of up to 36 weeks; the weeks do not need to be consecutive.²
- There is an option for an additional 36 sessions over an extended time period if approved by Medicare (under section 1862(a)(1)(A) of the Social Security Act).² These additional 36 sessions may be tracked if relevant to the patient population.

2.4. Inclusion Criteria

1. Alive for >21 days after the QE, and
2. Continuous enrollment in a health plan or coverage in a health system for ≥ 90 days before and ≥ 365 days after the initial QE, or continuous enrollment until date of death if the individual died between 21 days and 365 days after the initial QE.

2.5. Exclusion Criteria

1. Persons with ≥ 90 consecutive days in an inpatient acute care hospital (inpatient prospective payment system reimbursed hospital, critical access hospital), other inpatient hospital (inpatient psychiatric facility, other hospital type [e.g., cancer center]), or post-acute care setting (long-term care hospital, inpatient rehabilitation facility, skilled nursing facility, home health):
 - a. In the ≥ 90 -day lookback period prior to the QE, or

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- b. Within 21 days after the initial QE (i.e., if the ≥ 90 consecutive days occurs within 21 days of the QE, then the patient is excluded).
2. Received hospice care:
 - a. In the ≥ 90 -day lookback period prior to the QE, or
 - b. Within 21 days after the initial QE.
3. Identified as having end-stage renal disease (ESRD) in the measurement period (see Table 4 for example value set).
 - a. CR participation among persons with ESRD could be tracked separately, as having the condition does not disqualify people from participating in CR.

3. QE Index Date

- The QE index date is the date when CR surveillance begins and depends on the event type (see steps 6 and 7 below).

4. Identifying CR Claims

4.1. Codes to Identify CR Claims

- Standard and intensive CR participation can be tracked separately or together.
- A CR session is defined as having one of the following Healthcare Common Procedure Coding System (HCPCS) codes when billed with line place of service code 11 (services provided in a physician's office), 19 (off campus-outpatient hospital), or 22 (on campus-outpatient hospital).
- Standard CR:
 - 93797: Physician services for outpatient CR; without continuous electrocardiographic (ECG) monitoring.
 - 93798: Physician services for outpatient CR; with continuous ECG monitoring.
- Intensive CR:
 - G0422: Intensive CR; With or Without continuous ECG monitoring, With Exercise.
 - G0423: Intensive CR; With or Without continuous ECG monitoring, Without Exercise.
- Revenue center code 0943 may also be used to identify additional CR claims:
 - For example, in the CMS data, the revenue codes are not in the Part B non-institutional/carrier claims, but they are in the Part B institutional/hospital outpatient claims and could be used along with HCPCS codes to identify CR (i.e., if HCPCS in [93797, 93798, G0422, G0423] or revenue center code in [0943]). However, most CR encounters are identified in the Part B non-institutional/carrier claims using the 4 HCPCS codes.
- As part of the COVID-19 Public Health Emergency, virtual delivery of CR services, defined as services provided via real-time audio-visual technology, from a hospital outpatient facility, became payable by CMS under the Hospital Outpatient Prospective Payment System (HOPPS) via the Hospitals Without Walls initiative in 2020 and ended with the Public Health Emergency (PHE) on May 11, 2023.^{4,5} Virtual delivery of CR services from a physician office became payable under the Medicare Physician Fee Schedule on October 14, 2020, and has been extended through the CMS rule making process through the 2025 calendar year.^{6,7} Virtual delivery of CR services can be identified from (1) institutional Part B claims using modifier codes (CR, 95, GT, FR) along with the CR HCPCS codes and (2) non-institutional Part B claims using modifier codes (CR, 95, GT, FR) and place of service (POS) codes (02, 10) along with the CR HCPCS codes.

4.2. Counting CR Claims

- If the dataset contains units of services provided, account for the number of CR units when counting the number of CR sessions. For instance, one CR claim could have 2 units, which is due to 2 CR sessions being billed jointly (i.e., bundled claims). Bundled claims may have corresponding line-item files, and those line-item files should be examined to see whether they

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contain additional CR sessions with different dates of service. Simply counting the number of individual CR claims could result in an undercount of the number of sessions completed.

- If the dataset does not contain units of service provided (or the units are unrelated to the CR encounter), individual CR sessions on different dates should be used to count the number of CR sessions. If >1 CR session occurred on the same day, count as a single session.

5. CR Surveillance Measures

- Definitions for CR measures have been updated from CR surveillance use methodology v2.1 to include options for aligning analyses with CR clinical quality measure specifications from the American College of Cardiology (ACC), American Heart Association (AHA), and National Committee for Quality Assurance (NCQA) and/or for standardizing the reporting of outcomes (Table 1).

6. Main CR Use Surveillance Methodology

- Use the ICD-9-CM/ICD-10-CM diagnosis and procedure codes and CPT/HCPCS codes to identify the primary QEs (Table 2).
- Follow the main CR use surveillance methodology in 6.1 to report on the CR measures for primary QEs.
- An example table shell for main CR surveillance is provided (Table 3).

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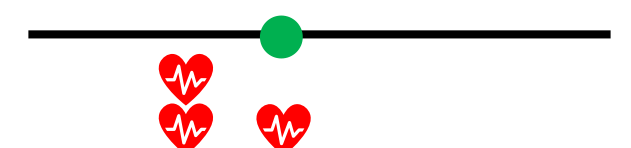
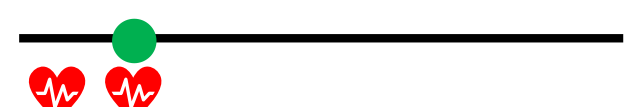
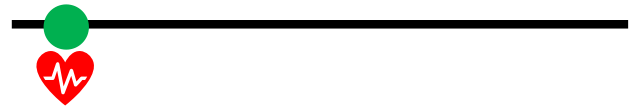
6.1. Primary CR QEs

Step 1: During 1 calendar year, determine the number of persons who had a CR QE.

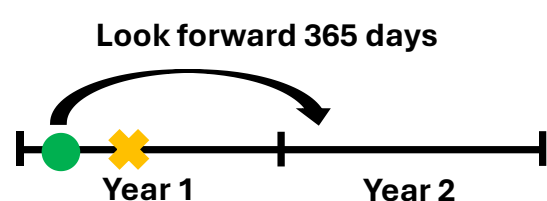


Step 2: Identify the CR QE index date.

- **Step 2a:** If the person had a single event, then the CR QE index date is the inpatient hospital discharge date associated with the QE or the outpatient procedure date.
- **Step 2b:** If the person had a combination event, then the CR QE index date is the inpatient hospital discharge date associated with the subsequent QE or the subsequent outpatient procedure date.
- **Step 2c:** If a direct inpatient transfer occurred (i.e., a patient transferred from one inpatient facility to another with discharge and admission dates occurring on the same day or 1 day apart), then the CR QE index date is the discharge date from the second inpatient facility.



Step 3: From the CR QE index date, look forward 365 days and identify the first CR service claim and subsequent CR sessions attended. This assessment period can extend beyond the calendar year.



CR QE CR QE Index Date First CR claim

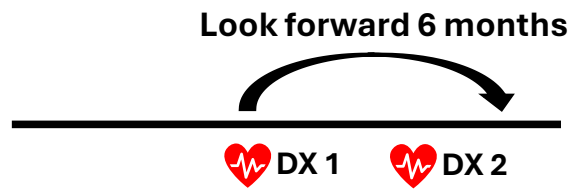
7. Secondary CR Use Surveillance Methodology

- People eligible for CR based on the conditions included in the main surveillance should be excluded from the secondary CR surveillance.
- Use ICD-9-CM/ICD-10-CM diagnosis codes to identify stable angina pectoris and ICD-9-CM/ICD-10-CM diagnosis and procedure codes and CPT codes to identify stable chronic HF (Table 2).
- Follow the steps in 7.1 to report on stable angina and in 7.2 to report on stable chronic HF.
- Secondary QEs can be analyzed as:
 - Mutually exclusive categories: if a person has current, stable angina pectoris and stable chronic HF, assign them to the event with the earliest CR QE index date and track for use of CR services; or
 - Non-mutually exclusive categories: if a person has current, stable angina pectoris and stable chronic HF, assign them to both QEs and track for use of CR services.
- For stable chronic HF, in year 1 of the measurement period:
 - If the person first had ≥ 2 outpatient diagnosis-based HF claims in the outpatient setting, follow the stable chronic HF CR use surveillance outpatient visit methodology.
 - If the person had (1) ≥ 1 HF claim first in the inpatient setting, (2) a HF-related hospitalization after the first but before the second outpatient HF claim, or (3) a HF-related procedure, follow the stable chronic HF CR use surveillance inpatient and procedure-based methodology.
- An example table shell for secondary CR surveillance is provided (Table 3).
- Limitations of methodology
 - Administrative data cannot capture New York Heart Association (NYHA) class and formally determine preserved versus reduced left ventricular ejection fraction (LVEF) using administrative data. If the researcher has access to clinical data and NYHA classification information, these criteria can be applied to the definition for stable chronic HF.
 - Unable to determine what hospitalizations or procedures were planned at the time each person became eligible for CR, so this approach does not perfectly align with the CMS definition of “stable” angina and HF. This methodology can only define “stable” by excluding observed hospitalizations and procedures (regardless of whether they were planned or unplanned).

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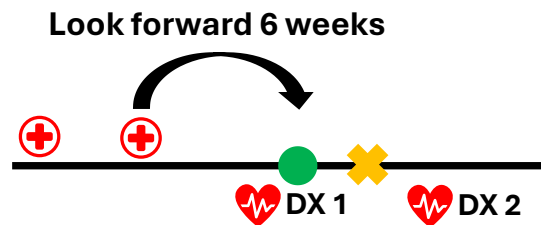
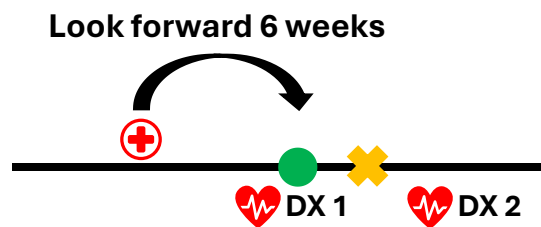
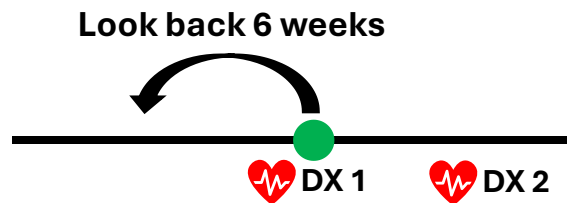
7.1. Current, Stable Angina Pectoris

Step 1: During year 1 of the measurement period, identify the first two outpatient diagnosis-based angina claims occurring on separate dates without a CVD hospitalization during the 6 months after the first claim (Table 4).

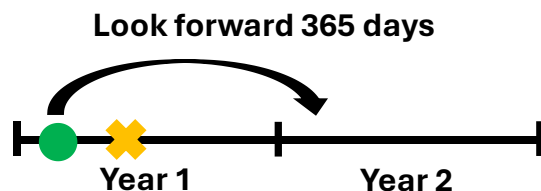


Step 2: Identify the CR QE index date^a

- **Step 2a:** Look back 6 weeks from the date of the first outpatient angina claim for a CVD hospitalization. If no CVD hospitalization is identified, then assign the CR QE index date as the date of the first angina outpatient claim.
- **Step 2b:** If a CVD hospitalization occurred in the lookback period of Step 2a, then the angina QE index date is the date of the first CR service claim or 6 weeks after discharge from the CVD hospitalization, whichever occurred first.
- **Step 2c:** If there were multiple CVD hospitalizations in the lookback period of Step 2a, choose the hospitalization most proximal prior to the angina DX on which to anchor assignment of the index date (the date of the first CR service claim or 6 weeks after discharge from the proximal CVD hospitalization, whichever occurred first).



Step 3: From the angina QE index date, look forward 365 days and identify the first CR service claim and subsequent CR sessions attended. This assessment period can extend beyond the calendar year.



CR QE CR QE Index Date First CR claim CVD Hospitalization

^a The CR QE index date may be unreliable for the days to enrollment metric, because exact start dates for chronic conditions are difficult to ascertain in administrative data.

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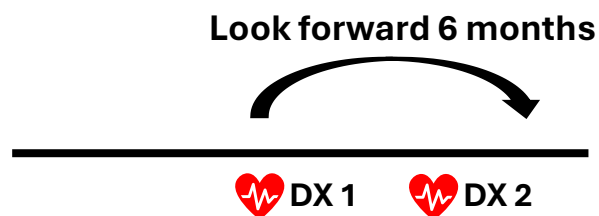
7.2. Stable Chronic HF^a

Outpatient Visit Methodology

Step 1: During year 1 of the measurement period, identify the first two outpatient diagnosis-based HF claims occurring on separate dates without a:

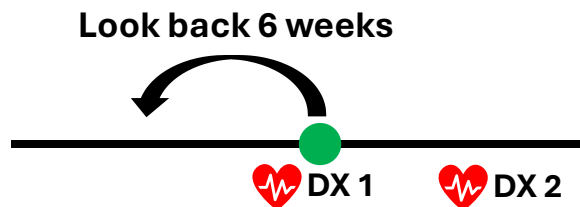
- HF hospitalization between the two claims or
- CVD hospitalization during the 6 months after the first claim (Table 4).

If a HF hospitalization occurred between the two claims, follow the inpatient- or procedure-based HF methodology.



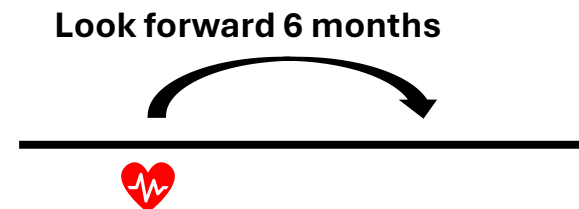
Step 2: Identify the CR QE index date^a

- **Step 2a:** Look back 6 weeks from the date of the first outpatient HF claim for a CVD hospitalization. If no CVD hospitalization is identified, then assign the CR QE index date as the date of the first HF outpatient claim.

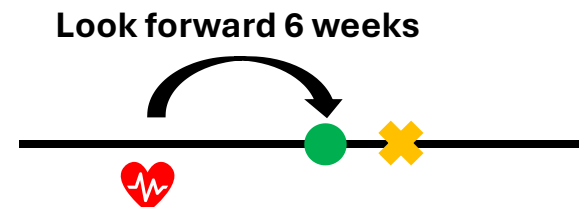


Inpatient- or Procedure-Based Methodology

Step 1: During year 1 of the measurement period, identify the first HF inpatient hospitalization or procedure without a CVD hospitalization (Table 4) during the 6 months afterwards.

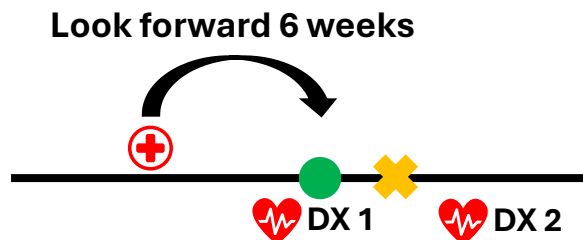


- **Step 2a:** Look forward 6 weeks from the date of the first HF inpatient hospitalization or procedure and assign the HF QE index date as the date of the first CR service claim or 6 weeks after discharge from the HF hospitalization or procedure, whichever occurred first.

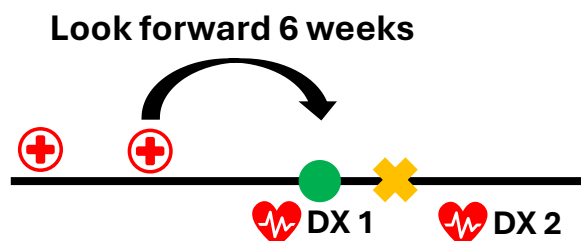


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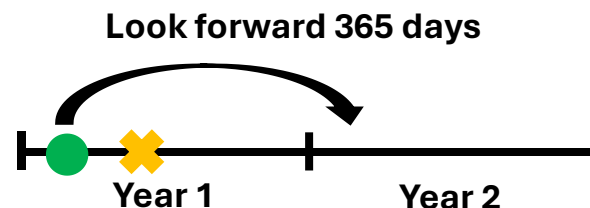
- **Step 2b:** If a CVD hospitalization occurred in the lookback period of Step 2a, then the HF QE index date is the date of the first CR service claim or 6 weeks after discharge from the CVD hospitalization, whichever occurred first.



- **Step 2c:** If there were multiple CVD hospitalizations in the lookback period of Step 2a, choose the hospitalization most proximal prior to the HF DX on which to anchor assignment of the HF QE index date (i.e., the date of the first CR service claim or 6 weeks after discharge from the proximal CVD hospitalization, whichever occurred first).



Step 3: From the HF QE index date, look forward 365 days and identify the first CR service claim and subsequent CR sessions attended. This assessment period can extend beyond the calendar year.



♥ CR QE
 ● CR QE Index Date
 ✕ First CR claim
 ⊕ CVD Hospitalization

^a The CR QE index date may be unreliable for the days to enrollment metric, because exact start dates for chronic conditions are difficult to ascertain in administrative data.

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Table 1. Cardiac Rehabilitation Use Surveillance Measures

Measure		Definition	Report
Eligibility	CDC	<u># persons who had ≥ 1 CR QE within the measurement period</u> All persons identified in the measurement period	Percentage
Enrollment	CDC	<u># persons who attended ≥ 1 CR session within 365 days of the QE index date</u> <u># persons who had ≥ 1 CR QE within the measurement period</u>	Percentage
	Option	Persons who enrolled in CR within the first 21 days after the QE aligns with the 2018 ACC/AHA clinical performance and quality measures for CR quality measure one (QM-1, CR Time to Enrollment). ⁸	--
Time to enrollment	CDC	Time (in days) from the QE index date to the <i>first</i> CR session date.	Average
Initiation	CDC	<u># persons who attended ≥ 2 CR sessions within 365 days of the QE index date</u> <u># persons who had ≥ 1 CR QE within the measurement period</u>	Percentage
	Option	Persons who attended ≥2 sessions of CR within 30 days after a QE aligns with the 2021 NCQA new HEDIS CR measure. ⁹	--
Adherence / Degree of Participation	CDC 1	Number of CR sessions attended within 36 weeks of enrolling in CR	Average
≥ 12 sessions	CDC 2	Categorical with cut points at 1 to 11, 12 to 23, 24 to 35, ≥36 sessions (CR completion)	Percentage
	CDC	<u># persons who attended ≥ 12 CR sessions within 365 days of the CR QE index date</u> <u># persons who enrolled in CR</u>	Percentage
≥ 24 CR sessions	Option	Persons who attended ≥12 sessions of CR within 90 days after a QE aligns with the 2021 NCQA new HEDIS CR measure. ⁹	--
	CDC	<u># persons who attended ≥ 24 CR sessions within 365 days of the CR QE index date</u> <u># persons who enrolled in CR</u>	Percentage
≥ 36 CR sessions / Completion	Option	Persons who attended ≥24 sessions of CR within 180 days after a QE aligns with the 2021 NCQA new HEDIS CR measure. ⁹	--
	CDC	<u># persons who attended ≥ 36 CR sessions within 365 days of the CR QE index date</u> <u># persons who enrolled in CR</u>	Percentage
	Option	Persons who attended ≥36 sessions of CR within 180 days after a QE aligns with the 2021 NCQA new HEDIS CR measure. ⁹	--

ACC, American College of Cardiology; AHA, American Heart Association; CR, cardiac rehabilitation; HEDIS, Healthcare Effectiveness Data and Information Set; NCQA, National Committee for Quality Assurance; QE, qualifying event; QM, quality measure.

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Table 2. Diagnosis and Procedural Codes Used to Identify Cardiac Rehabilitation QEs^a

Main Surveillance	Diagnosis/Procedure Codes
AMI^b	
ICD-9-CM DX	410.00, 410.01, 410.02, 410.10, 410.11, 410.12, 410.20, 410.21, 410.22, 410.30, 410.31, 410.32, 410.40, 410.41, 410.42, 410.50, 410.51, 410.52, 410.60, 410.61, 410.62, 410.70, 410.71, 410.72, 410.80, 410.81, 410.82, 410.90, 410.91, 410.92
ICD-10-CM DX	I21.0, I21.01, I21.02, I21.09, I21.1, I21.11, I21.19, I21.2, I21.21, I21.29, I21.3, I21.4, I21.9, I21.A1, I21.A9, I22.0, I22.1, I22.2, I22.8, I22.9
CABG surgery (inpatient procedure)	
ICD-9-CM PR	36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.17, 36.19, 36.2
ICD-10-PCS	0210 ^c , 0211 ^c , 0212 ^c , 0213 ^c , 02700 ^d , 02710 ^d , 02720 ^d , 02730 ^d , 02C00 ^d , 02C10 ^d , 02C20 ^d , 02C30 ^d
CPT/HCPCS	33510, 33511, 33512, 33513, 33514, 33516, 33533, 33534, 33535, 33536, S2205, S2206, S2207, S2208, S2209
Heart valve repair/replacement procedures (inpatient procedure)	
ICD-9-CM PR	35.00, 35.01, 35.02, 35.04, 35.05, 35.06, 35.07, 35.08, 35.09, 35.10, 35.11, 35.12, 35.13, 35.14, 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28, 35.33, 35.96, 35.97, 35.99
ICD-10-PCS ^c	027F, 027G, 027H, 027J, 02CF, 02CG, 02CH, 02CJ, 02NF, 02NG, 02NH, 02NJ, 02QF, 02QG, 02QH, 02QJ, 02RF, 02RG, 02RH, 02RJ, 02TH, 02UF, 02UG, 02UH, 02UJ, 02VG
CPT	33361-33366; 33390-33391; 33400-33401; 33403-33406; 33410-33418; 33420; 33422; 33425-33427; 33430; 33460; 33463-33465; 33468; 33470-33472; 33474-33478; 33863; 0345T; 0483T; 0544T; 0545T; 0569T

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Table 2 (continued). Diagnosis and Procedural Codes Used to Identify Cardiac Rehabilitation QEs^a

Main Surveillance (continued)	Diagnosis/Procedure codes
PCI (inpatient/outpatient procedure)^e	
ICD-9-CM PR	00.66, 36.03, 36.04, 36.06, 36.07, 36.09
ICD-10-PCS	02703 ^d , 02704 ^d , 02713 ^d , 02714 ^d , 02723 ^d , 02724 ^d , 02733 ^d , 02734 ^d , 02C03 ^d , 02C04 ^d , 02C13 ^d , 02C14 ^d , 02C23 ^d , 02C24 ^d , 02C33 ^d , 02C34 ^d , 3E07017, 3E070PZ, 3E07317, 3E073PZ
CPT	92920, 92924, 92928, 92933, 92937, 92941, 92943, 92975
Heart or heart-lung transplant or VAD (inpatient procedure)	
ICD-9-CM PR	33.6, 37.51, 37.52, 37.53, 37.54
ICD-10-PCS	02YA0Z0, 02YA0Z1, 02YA0Z2, 02RK0JZ, 02RL0JZ, 02WA0JZ
CPT	33927, 33928, 33945, 0051T, 0052T, 0053T
Secondary Surveillance	Diagnosis/Procedure codes
Current stable^f angina pectoris^g	
ICD-9-CM DX	413.0, 413.1, 413.9
ICD-10-CM DX	I20.1, I20.8, I20.9
Stable^f chronic heart failure^h (diagnosis basedⁱ)	
ICD-9-CM DX	428.22, 428.42
ICD-10-CM DX	I50.22, I50.42, I50.82

Table 2 (continued). Diagnosis and Procedural Codes Used to Identify Cardiac Rehabilitation QEs^a

Secondary Surveillance (continued)	Diagnosis/Procedure codes
Stable^f chronic heart failure^h (procedure basedⁱ)	
Implantable (intracorporeal) VAD insertion/replacement	
ICD-9-CM PR	37.66
ICD-10-PCS	02HA0QZ
CPT	33979
Bi-ventricular pacemaker insertion	
ICD-9-CM PR	00.50, 00.51, 00.53, 00.54
ICD-10-PCS	0JH609Z, 0JH639Z, 0JH809Z, 0JH839Z, 0JH607Z, 0JH637Z, 0JH807Z, 0JH837Z
CPT	33224, 33225

AMI, acute myocardial infarction; CABG, coronary artery bypass graft; CPT, Current Procedural Terminology; DX, diagnosis; HCPCS, Healthcare Common Procedure Coding System; ICD-9-CM/ICD-10-CM, International Classification of Diseases, 9th/10th edition, Clinical Modification; PCI, percutaneous coronary intervention; PCS, procedure coding system; PR, procedural; QE, qualifying event; VAD, ventricular assist device.

^a ICD-9-CM codes were in effect until September 30, 2015, and ICD-10-CM codes were in effect as of October 1, 2015. Effective dates for ICD-9-CM, ICD-10-CM, and CPT codes may vary by year.

^b Code first or second listed ICD-9-CM/ICD-10-CM diagnosis code.

^c Includes all codes with these as the first 4 identifiers.

^d Includes all codes with these as the first 5 identifiers.

^e PCI includes percutaneous transluminal coronary angioplasty (PTCA) or coronary stenting and same-day discharge after an outpatient PCI.

^f A stable condition is defined as no recent (≤6 weeks) or planned (≤6 months) major cardiovascular hospitalizations or procedures (ICD-9-CM DX 390-434, 436-448; ICD-10-CM DX I00-I78) according to the Centers for Medicare & Medicaid Services.²

^g ICD-9-CM/ICD-10-CM in any location on ≥2 outpatient claims in year 1 of the measurement period.³

^h Chronic heart failure is defined as having a left ventricular ejection fraction (LVEF) ≤35% and New York Heart Association (NYHA) class II to IV, effective for claims on or after February 18, 2014, for Medicare fee-for-service beneficiaries.² The effective date will need to be determined for people on other health plans.

ⁱ ICD-9-CM/ICD-10-CM in any location.

Million Hearts® Outpatient Cardiac Rehabilitation Use Surveillance Methodology

Table 3. Cardiac Rehabilitation Surveillance Table Shell^a

	Total		Eligible		Enrollment ^b		≥12 CR Sessions ^c		≥24 CR Sessions ^c		≥36 CR Sessions ^c	
	N	%	N	%	N	%	N	%	N	%	N	%
Overall												
Age groups (years)												
Sex												
Male												
Female												
Race and ethnicity^d												
American Indian or Alaska Native												
Asian												
Black or African American												
Hispanic or Latino												
Middle Eastern or North African												
Native Hawaiian or Pacific Islander												
White												
Primary QE type												
AMI												
With no procedure												
With any procedure												
CABG												
With AMI												
No AMI												
Percutaneous coronary intervention												
With AMI												
No AMI												
Heart valve procedure												
With AMI												
No AMI												
Heart or heart-lung transplant												
Combination procedure												
With AMI												
No AMI												
CABG + heart valve ^e												
Secondary QE type^f												
Stable angina												

Million Hearts® Outpatient Cardiac Rehabilitation Use Surveillance Methodology

Stable chronic heart failure, overall

Diagnosis based

Procedure based

Ventricular assist device insertion

Bi-ventricular pacemaker insertion

AMI, acute myocardial infarction; CABG, coronary artery bypass graft; CR, cardiac rehabilitation; QE, qualifying event.

^a Consider assessing CR measures by patient/demographic characteristics (age group, sex, race/ethnicity, initial QE type); combinations of demographic characteristics (e.g., race/ethnicity by age and/or sex); geographic classifications (e.g., hospital referral region, county, census block); and/or groups at increased risk for poor CR participation (e.g., patients with chronic kidney disease, certain demographic groups).

^b ≥ 1 CR session within 365 days of the CR QE index date.

^c ≥ 12 , ≥ 24 , or ≥ 36 CR sessions within 365 days of the CR QE index date, among those enrolled in CR.

^d Aligns with U.S. Office of Management and Budget's Statistical Policy Directive No. 15: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity

^e Both procedures performed within 21 days of the initial QE with or without an AMI occurring.

^f Excludes individuals who were eligible for CR based on conditions and events captured in the main CR surveillance.

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Table 4. Example Value Sets¹⁰

ESRD^a	
ICD-9-CM DX	585.5, 585.6, V42.0, V45.1, V56
ICD-10-CM DX	N18.5, N18.6, Z49, Z91.15, Z94.0, Z99.2
CVD-related claims^b	
ICD-9-CM DX	390-434, 436-448
ICD-10-CM DX	I00-I78

CVD, cardiovascular disease; DX, diagnosis; ESRD, end stage renal disease; ICD-9-CM/ICD-10-CM, International Classification of Diseases, 9th/10th edition, Clinical Modification.

^a Excludes people with Stage 5 chronic kidney disease or end stage renal disease.

^b Use the first- or second-listed ICD-9-CM/ICD-10-CM diagnosis codes.

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