권역심장재활 현황/지표/레지스트리

분당서울대학교병원 재활의학과
김원석

권역 심근경색증 레지스트리

2022 통계보고서

1. 재활치료

심근경색증의 재활의학과 협진 의뢰 비율 평균은 89.1%였다. 센터간 재활의학과 협진 의뢰율 차이는 2020년 6월부터 심장재활치료를시작한 '바' 센터의 46.7%를 제외하고, 그 격차는 대체로 유사하였다(Table 15, Figure 17).

Table 15. 권역센터별 재활의학과 협진의뢰 건수 및 비율

권역센터	대상환자수	재활의학과 협진 의뢰 환자수
가	622	550(88.4)
나	3526	3155(89.5)
다	2774	2540(91.6)
라	2209	2049(92.8)
마	2797	2529(90.4)
바	856	400(46.7)
사	517	459(88.8)
아	1894	1760(92.9)
자	1391	1279(92.0)
차	5204	4696(90.2)
카	817	757(92.7)
타	1877	1742(92.8)
파	1181	949(80.4)
전체	**25665**	**22865(89.1)**

- 2016 년 7 월 1 일부터 2022 년 6 월 30 일까지 등록된 심근경색증 환자중 재활의학과 협진의뢰 여부가 확인된 환자 대상

*missing 26

** "바" 센터: 2020 년 6 월 1 일 이후 대상환자 수: 546 명 재활의학과 협진 의뢰 환자 수: 400 (73.3%)

Table 51. 권역센터별 심장재활 프로그램의 의뢰, 참여, 완료 현황

권역센터	대상자	심장재활의뢰 의뢰환자(의뢰율)	1 기 심장재활 참여율	2 기 심장재활 참여환자(참여율)	2 기 심장재활 완료환자(완료율)
	N	N(%)	N(%)	N(%)	N(%)
가	107	99(92.5)	81(81.8)	47(63.5)	12(26.1)
나	529	483(91.3)	152(31.5)	86(56.6)	0(0.0)
다	447	393(87.9)	325(82.7)	194(59.9)	41(22.9)
라	376	340(90.4)	339(99.7)	83(24.5)	31(37.4)
마	413	371(89.8)	291(78.4)	106(36.4)	59(55.7)
바	244	196(80.3)	154(78.6)	82(53.3)	31(37.8)
사	167	143(85.6)	140(97.9)	87(62.1)	1(1.2)
아	304	292(96.1)	260(89.0)	174(67.4)	42(24.1)
자	230	212(92.2)	150(70.8)	56(37.6)	21(37.5)
차	882	780(88.4)	491(63.0)	78(18.3)	6(7.7)
카	145	134(92.4)	129(96.3)	81(62.8)	2(2.5)
타	299	287(96)	205(71.4)	79(39.5)	14(17.7)
파	237	176(74.3)	108(61.4)	48(44.4)	26(54.2)
전체	**4380**	**3906(89.2)**	**2825(72.3)**	**1201(43.8)**	**286(24.1)**

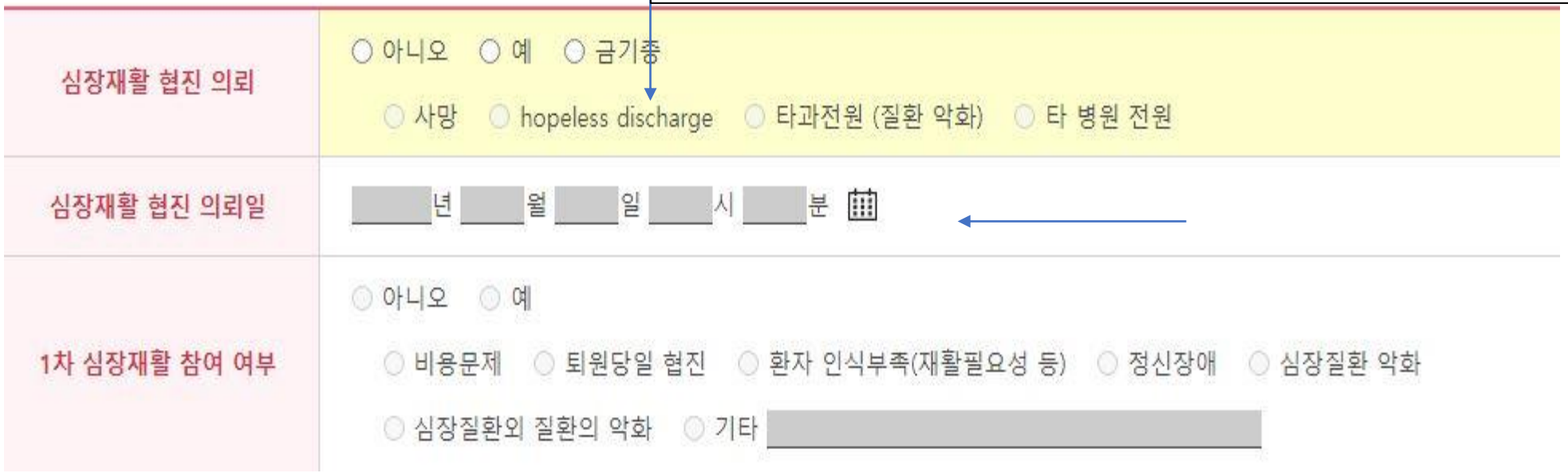
- 2021 년 7 월 1 일부터 2022 년 6 월 30 일까지 등록된 심근경색증 환자(재등록 환자 제외)
- 심장재활 의뢰율: 심장재활 협진의뢰된 환자/21 년 7 월~22 년 6 월 내 등록된 심근경색증 환자(재등록 환자 제외)*100
- 1 기 심장재활 참여율: (1 기 심장재활 참여 환자/심장재활 협진의뢰된 환자)*100
- 2 기 심장재활 참여율: (2 기 심장재활 참여 환자/심장재활 협진의뢰되었으며, 1 기 심장재활 참여한 환자)*100
- 2 기 심장재활 완료율: (2 기 심장재활 완료 환자/심장재활 협진의뢰 및 1 기 심장재활에 참여하였으며, 2 기 심장재활 참여한 환자)*100

레지스트리 금기증: 사망. Hopeless discharge, 타과전원, 타병원 전원

.

-결국 금기증 환자는 재활 참여를 못하는 환자인데 심장재활 참여 항목 불활성화 여부도 확인해주셨으면 합니다.

-> 현재는 금기로 입력시 비활성화됨.



	- 평가기간 1년간의 월별 자료(12건) N수 및 합계, % 기재	
72시간 이내 ~~조기재활~~ 심장재활 의뢰율	◦ (정의) 72시간 이내 급성심근경색증 환자 조기재활 의뢰율(제외기준미적용, 사망자 제외) ◦ (산출식) (72시간 이내 심장재활 협진이 의뢰된 급성심근경색증 환자수/생존 퇴원 급성심근경색증 환자수)*100 - 평가기간 1년간의 월별 자료(12건) N수 및 합계, % 기재	90% 이상

~~STEMI~~ 급성심근경색 환자 심장재활 교육 실시율	◦ 심장재활 consult 의뢰 환자 중, 입원 중 심장재활 관련 교육 실시율 - 심장재활 관련 교육: 의무기록에서 심장재활 코디네이터나 치료사, 의사가 환자에게 심장재활 관련 교육(퇴원 후 심장재활 진행에 대한 상담 포함)을 확인할 수 있어야 함 - 평가기간 1년간의 월별 자료(12건) N 수 및 합계, % 기재 - 제외기준 적용: 사망, 심장재활 회신일 기준 working day 24시간 이내 퇴원, CCU 또는 ICU에서 일반병실 전동없이 바로 퇴원한 환자
~~STEMI~~ 급성심근경색 환자 심장 조기재활 실시율	◦ 심장재활 consult 의뢰 환자 중 입원 중 심장재활치료를 1회 이상 시행한 실시율 - 심장재활치료 시행: 심장재활을 병실이나 심장재활 치료실에서 시행한 기록 또는 수가청구를 확인할 수 있어야 함 - 평가기간 1년간의 월별 자료(12건) N 수 및 합계, % 기재 - 제외기준 적용: 사망, 심장재활 회신일 기준 working day 24시간 이내 퇴원, CCU 또는 ICU에서 일반병실 전동없이 바로 퇴원한 환자

심장기능평가가 입원 후 1개월 4개월 12개월로 적혀있는데 기간으로 수정해주면 좋겠습니다. 예를 들면 1~3개월 4~8개월 9~12개월로 표시를 해주셨으면 합니다. 개월로 명시되어있어서 3개월 이나 8개월에 시행한 환자 기입할때 어느 항목으로 넣어야하나 고민이 되는 경우가 많습니다.

1차 심장기능평가 (입원 후 1개월)	◯ 아니오 ◯ 예 ☐ GXT ☐ 6MWT ____년 ____월 ____일 Mean 6 MWD ____ meter => maxMET : ____ 기능평가 결과_maxMETs :
2차 심장기능평가 (입원 후 4개월)	◯ 아니오 ◯ 예 ☐ GXT ☐ 6MWT ____년 ____월 ____일 Mean 6 MWD ____ meter => maxMET : ____ 기능평가 결과_maxMETs :
3차 심장기능평가 (입원 후 12개월)	◯ 아니오 ◯ 예 ☐ GXT ☐ 6MWT ____년 ____월 ____일 Mean 6 MWD ____ meter => maxMET : ____ 기능평가 결과_maxMETs :

3~6개월 기능평가 실시율	◦ 심장재활 협진을 받고 퇴원한 환자의 3~6개월 내 기능평가 실시율 ◦ (산출식) (퇴원 3~6개월 내 1회 이상의 추적* 운동부하검사를 실시한 급성심근경색환자수/심장재활 협진을 받고 퇴원한 급성심근경색환자수)*100 - 평가기간 1년간의 월별 자료(12건) N 수 및 합계, % 기재 - 병원 검사 통계 또는 검사기록지 등을 통해 확인 - 평가일 기준 가장 최근 상황을 볼 수 있게 분모 설정 **추적 운동부하검사는 퇴원후 처음 실시한 baseline 운동부하검사를 실시하고 이후로 시행된 추적검사를 의미함* ※ 기능평가: 운동부하검사(ETT) 시행 또는 운동능력 저하 등의 사유로 운동부하 검사 시행이 어려운 경우 예외적으로 6분 보행검사 수행도 인정	30% 이상
~~6개월~~ 6~12개월 기능평가 실시율	◦ 심장재활 협진을 받고 퇴원한 환자의 6~12개월 기간 중 기능평가 실시율 ◦ (산출식) (퇴원 6~12개월 기간 중 1회 이상의 추적* 운동부하검사를 실시한 급성심근경색환자수/심장재활 협진을 받고 퇴원한 급성심근경색환자수)*100	20% 이상

KASI	1차 _____ 점 (Korean activity scale/ index) KASI ☐ 응답거부 ☐ 측정불가 2차 _____ 점 (Korean activity scale/ index) KASI ☐ 응답거부 ☐ 측정불가 3차 _____ 점 (Korean activity scale/ index) KASI ☐ 응답거부 ☐ 측정불가
2기 심장재활 참여여부	○ 아니오 ○ 예 ____년 ____월 ____일 - 참여 거부 사유 : ○ 거리문제(타지역 거주) ○ 시간문제(직장복귀 등) ○ 환자 인식부족(재활필요성등) ○ 경제적 이유(비용 문제등) ○ 심각한 신체장애 ○ 심장질환의 악화로 재 입원 ○ 사망 ○ 연락불가 ○ 기타
2기 심장재활 시행 횟수	병원(실제횟수/계획횟수) : -선택- / ____ 회 ☐ 실제 시행일 입력 유무 ☐ 없음 가정(실제횟수/계획횟수) : -선택- / ____ 회 ☐ 실제 시행일 입력 유무 ☐ 없음
2기 심장재활 완료여부	○ 아니오 ○ 예 ____년 ____월 ____일 - 미완료 사유 : ○ 거리문제(타지역 거주) ○ 시간문제(직장복귀 등) ○ 환자 인식부족(재활필요성등) ○ 경제적 이유(비용 문제등) ○ 심각한 신체장애 ○ 심장질환의 악화로 재 입원 ○ 연락불가 ○ 기타

가정의 경우 운동일지를 첨부를 해야한다고 하는데 일지를 받아서 첨부하기가 쉽지 않아서 가정을 입력한 경우가 한번도 없습니다.

-2기 심장재활 참여중에 사망하는 경우도 있어서 미완료 사유에 사망 항목도 있었으면 좋겠습니다.

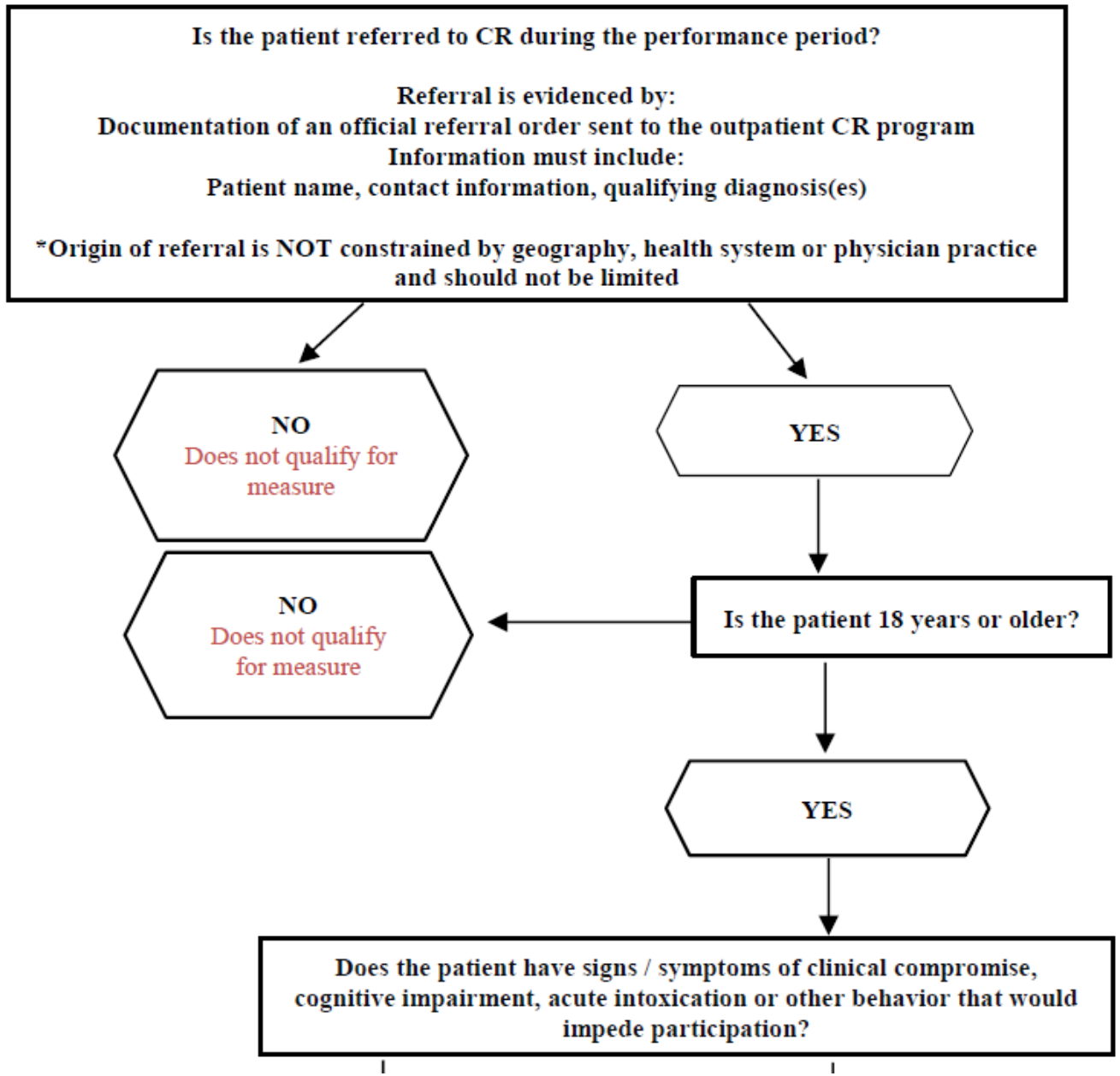
-그리고 2기 완료 정의가 22회인데 임상에서 22회를 만족하는경우가 거의 없습니다.

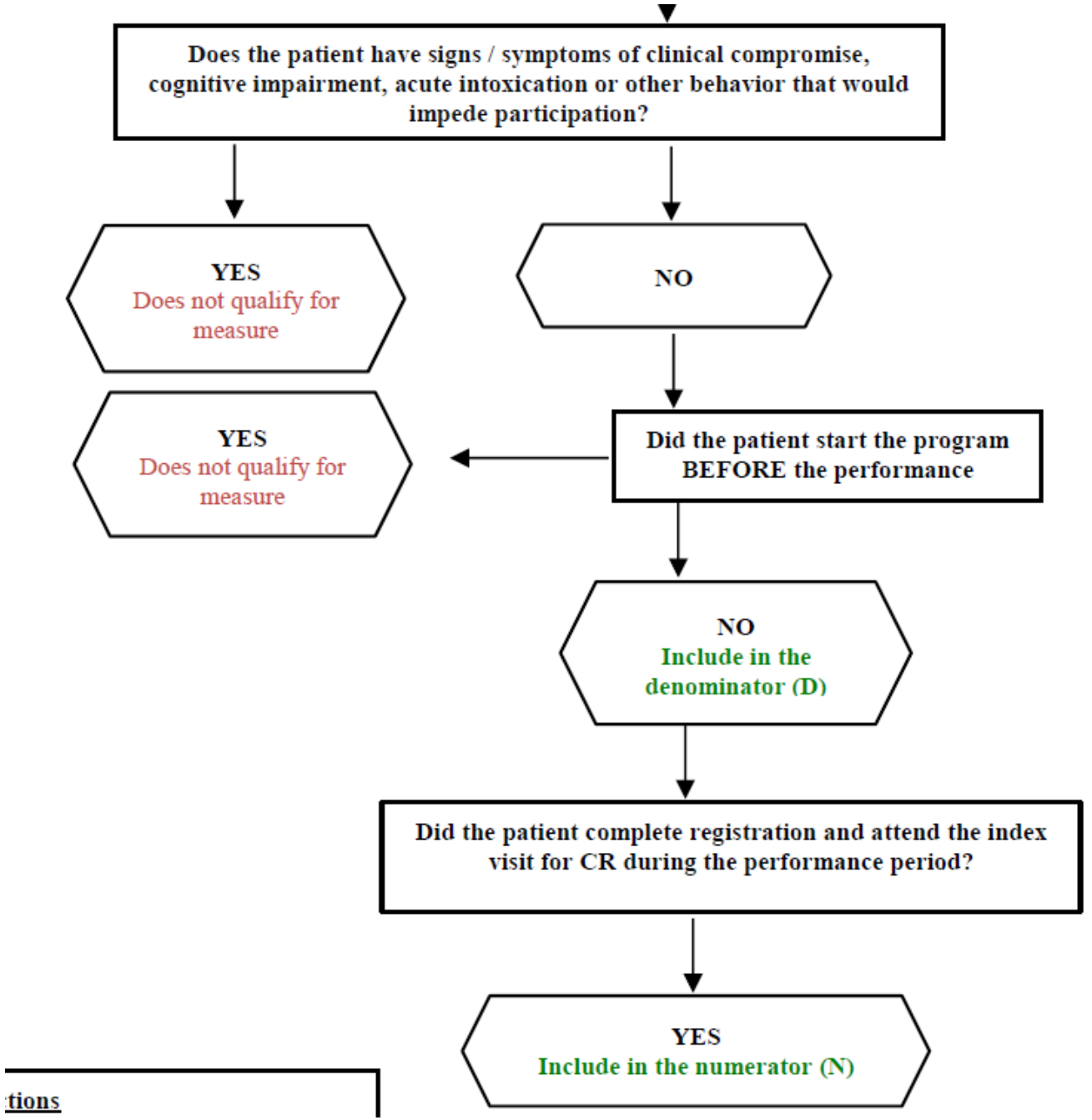
AACVPR
American Association of Cardiovascular and Pulmonary Rehabilitation

Value Based Care/Program Level Performance Measures Specifications and Resources

- Enrollment in Cardiac Rehabilitation
  - **Measure Specifications and Data Definitions**
  - **Algorithm**
- Enrollment in Pulmonary Rehabilitation
  - **Measure Specifications and Data Definitions**
  - **Algorithm**
- Adherence to Cardiac Rehabilitation
  - **Measure Specifications and Data Definitions**
  - **Algorithm**
- Adherence to Pulmonary Rehabilitation
  - **Measure Specifications and Data Definitions**
  - **Algorithm**
- **Frequently Asked Questions about the Enrollment and Adherence Performance Measures for AACVPR Program Certification**

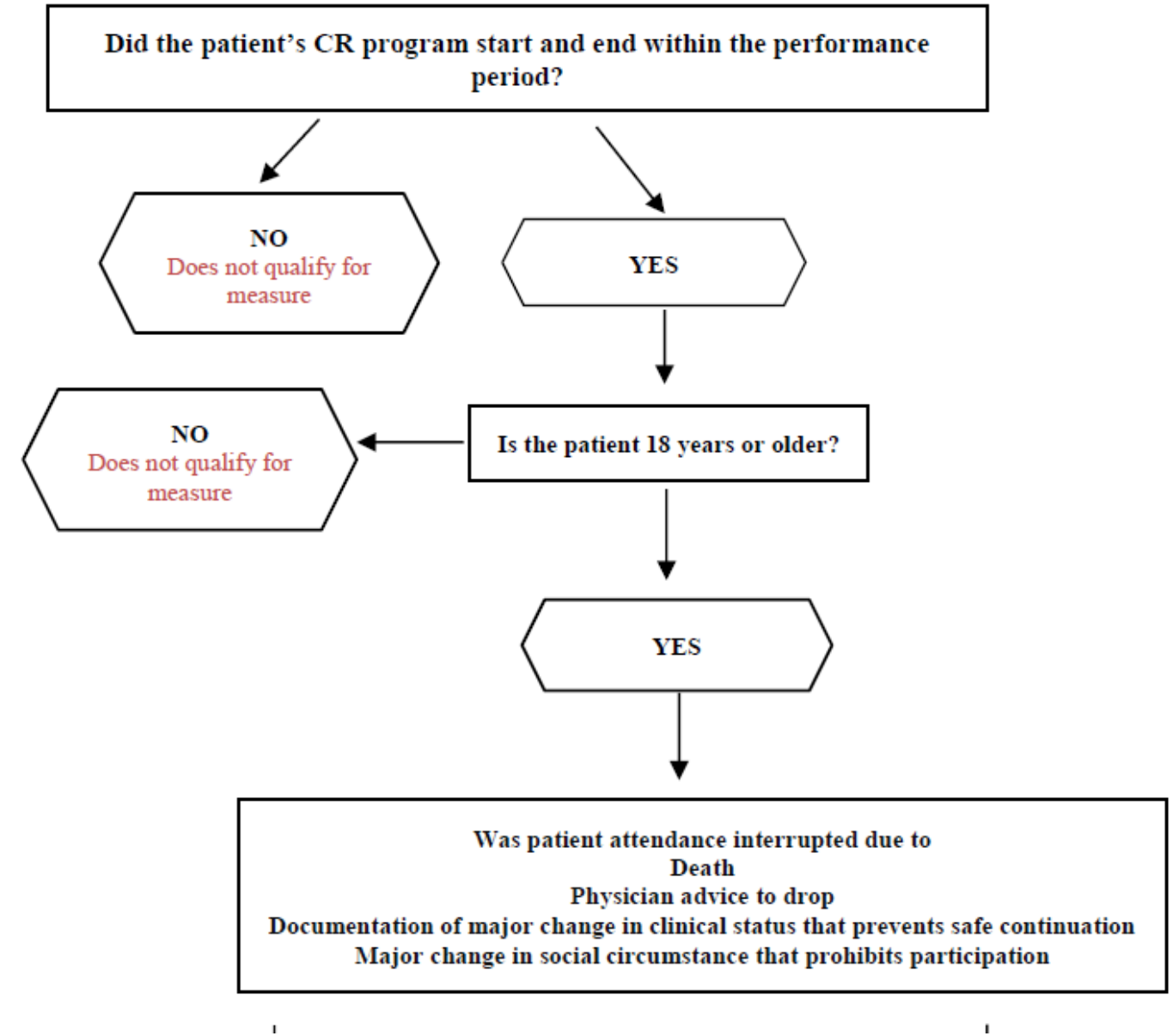
Performance Measure for Enrollment in Cardiac Rehabilitation (CR) Algorithm

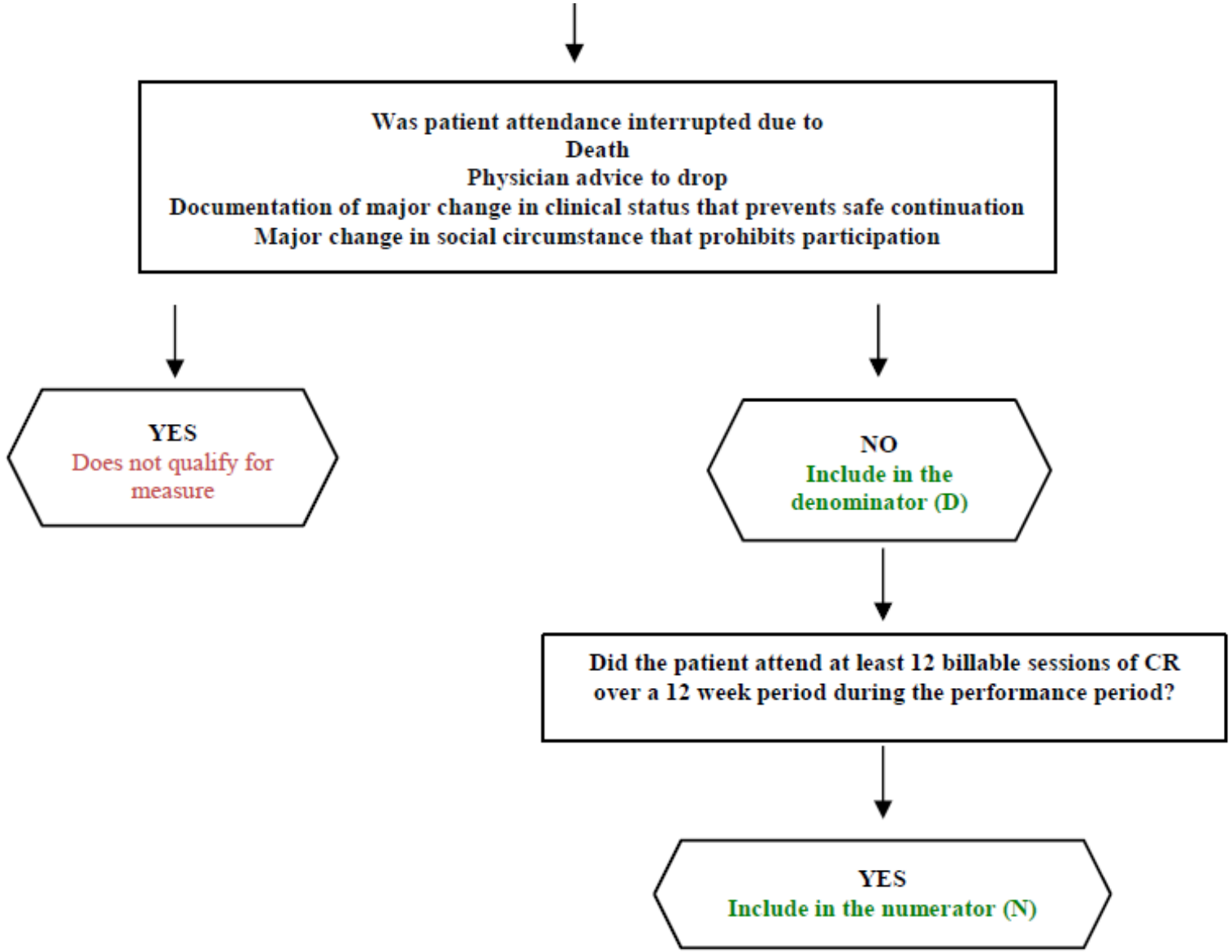



Does the patient have signs / symptoms of clinical compromise, cognitive impairment, acute intoxication or other behavior that would impede participation?
YES
Does not qualify for measure
NO
YES
Does not qualify for measure
Did the patient start the program BEFORE the performance
NO
Include in the denominator (D)
Did the patient complete registration and attend the index visit for CR during the performance period?
YES
Include in the numerator (N)

tions

Performance Measure for Adherence in Cardiac Rehabilitation (CR) Algorithm




Was patient attendance interrupted due to
Death
Physician advice to drop
Documentation of major change in clinical status that prevents safe continuation
Major change in social circumstance that prohibits participation
YES
Does not qualify for measure
NO
Include in the denominator (D)
Did the patient attend at least 12 billable sessions of CR over a 12 week period during the performance period?
YES
Include in the numerator (N)

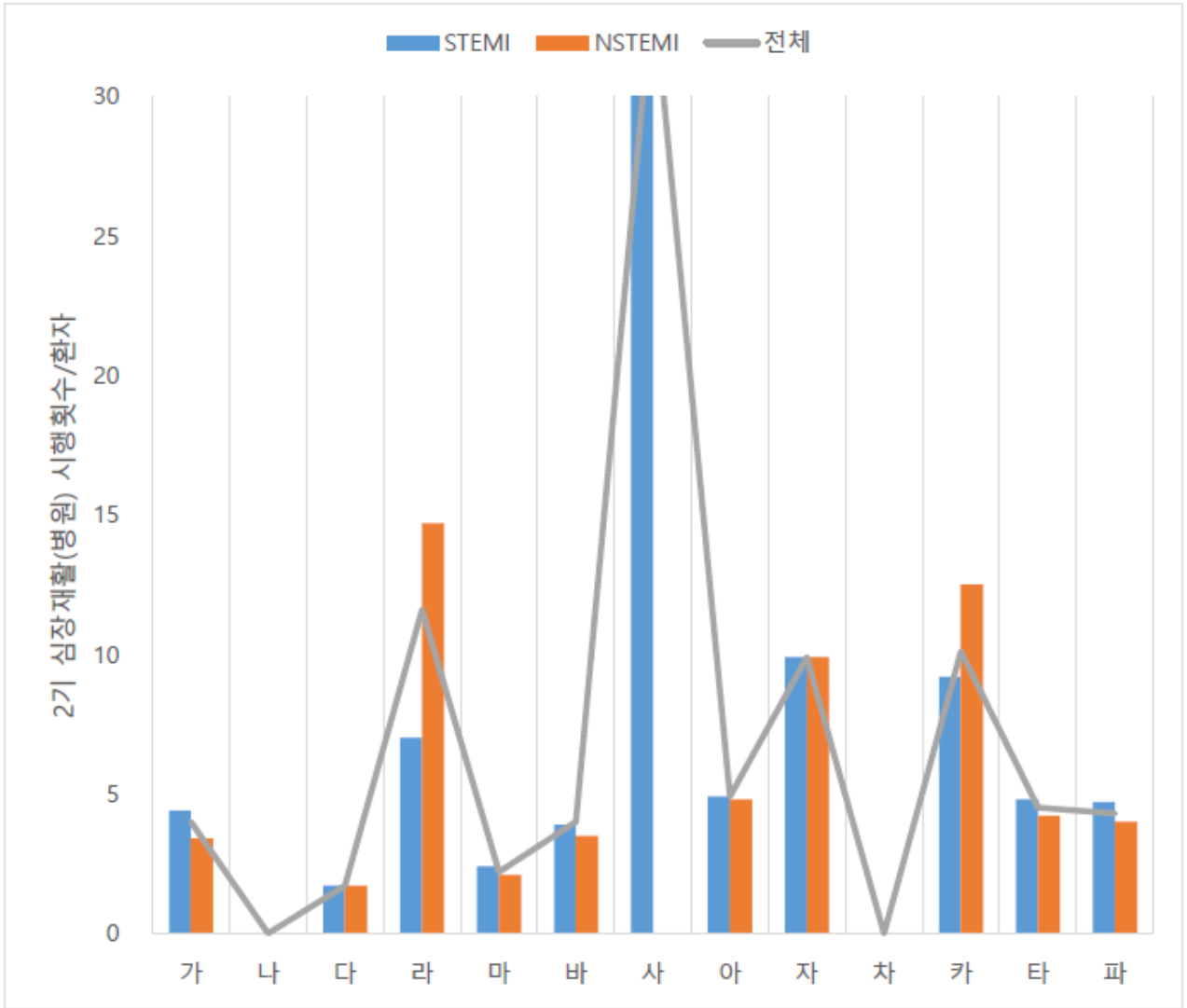


Figure 69. 권역센터별 및 최종진단명별(CP제외 STEMI) 2기 심장재활 평균 시행횟수

International Council of Cardiovascular Prevention and Rehabilitation (ICCPR)

International CR Registry (ICRR)

VARIABLES & DEFINITIONS 8.0

Including data entry instructions

March 9, 2021
(post-registry build; pre-usability testing and pilot)

7. Premature Program Termination / Program Completion

Premature termination refers to the instance where patients do not complete their prescribed exercise sessions or other core components of the program. To complete the CR program a patient must have attended at least some of the CR intervention components AND also have completed a formal re-assessment by the CR team at the conclusion of the CR intervention.

Indicate the reason for premature termination of the patient's cardiac rehab program, if applicable. For example, a cardiac clinical event or procedure could be having bypass surgery or experiencing heart failure decompensation or exacerbation so having to stop coming. A non-cardiac clinical event or procedure could be contracting an infectious condition or cancer for example.

Data Entry: click one of the 2 buttons; more options appear if you click the first:

- ☐ Premature program termination (i.e., patient did not complete post-program assessment), for the following reason (select 1):
    - ☐ Lost to follow-up or unknown / Patient dropout for non-clinical reasons
    - ☐ Return to work
    - ☐ Clinical issue – Cardiovascular (non-fatal)
    - ☐ Clinical issue – Non cardiovascular (non-fatal)
    - ☐ Death (*note: once this is selected, this record will be denoted as complete*)
    - ☐ other
- ☐ Program completion (i.e., patient engaged in interventions and had post-program re-assessment)

AACVPR Performance Measure

- Optimal Blood Pressure Control at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
    - **PLEASE NOTE:** Since the release of this webinar, the Performance Measure has been adjusted to set the threshold for blood pressure to **130/80** to align with the 2017 AHA/ACC Guidelines. **To qualify as having met this performance measures, patients must have a blood pressure below 130/80 to count towards the numerator**.
- Improvement in Depression at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
- Improvement in Functional Capacity of at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
- Tobacco Use Intervention for CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**

https://www.aacvpr.org/Certify/Program-Certification/Performance-Measures

Other measures we can, may or must consider.


INTERNATIONAL COUNCIL OF CARDIOVASCULAR PREVENTION AND RE
PROGRAM CERTIFICATION
GLOBALCARDIACREHAB.COM/PROGRAM-CERTIFICATION

CR Quality Standards

To be recognized by ICCPR, programs must meet the 3 mandatory standards (*), and 70% of all standards.

Program-level / Structure & Process Indicators (assessed based on responses to ICRR on-boarding survey available *here*, as well as during site visit, or based on patient-level data entered into ICRR, as specified for each below)

1. *Comprehensive program, including (a) initial assessment, (b) structured exercise training (supervised or unsupervised) and (c) ≥1 other strategy to control CVD risk factors; evidenced based on program survey and during site visit (demonstration of at least one other component)

2. Multidisciplinary team (i.e., ≥2 different regulated professions available to support patients at least on a part-time or referral basis): evidenced based on program survey, provision of current job descriptions with regulatory body membership (or equivalent), and confirmed during site visit

3. *Cardiac emergency policies in place: evidenced based on program survey and site visit

4. Assessment of the following CVD risk factor: tobacco use; evidenced based on program survey, responses in ICRR, and patient chart)

5. Assessment of the following CVD risk factors: blood pressure; evidenced based on program survey, responses in ICRR, and patient chart)

Patient-level / Process & Outcome Indicators
(assessed based on ICRR data, and some confirmed during site visit)

6. Program completion rate: <50% of patients lost to follow-up / dropped out for non-clinical reasons other than return-to-work

7. *Mean peak METs increase of ≥.5 from pre to post-program, in 75% of program completers

8. Mean post-program quality of life score > pre-program score, in program completers

9. Mean minutes of moderate to vigorous-intensity activity per week post-program /progress ≥150, in program completers

10. ≥70% of patients reporting yes they know what heart pills they should be taking post-program, in program completers that have coverage for medication

11. ≥70% of patients reporting yes they know their cholesterol level and how to control it post-program, in program completers

12. ≥70% of patients reporting yes they know how to follow a heart-healthy diet post-program, in program completers

13. ≥70% of patients reporting yes they have been supported to get back to their important life roles post-program, in program completers

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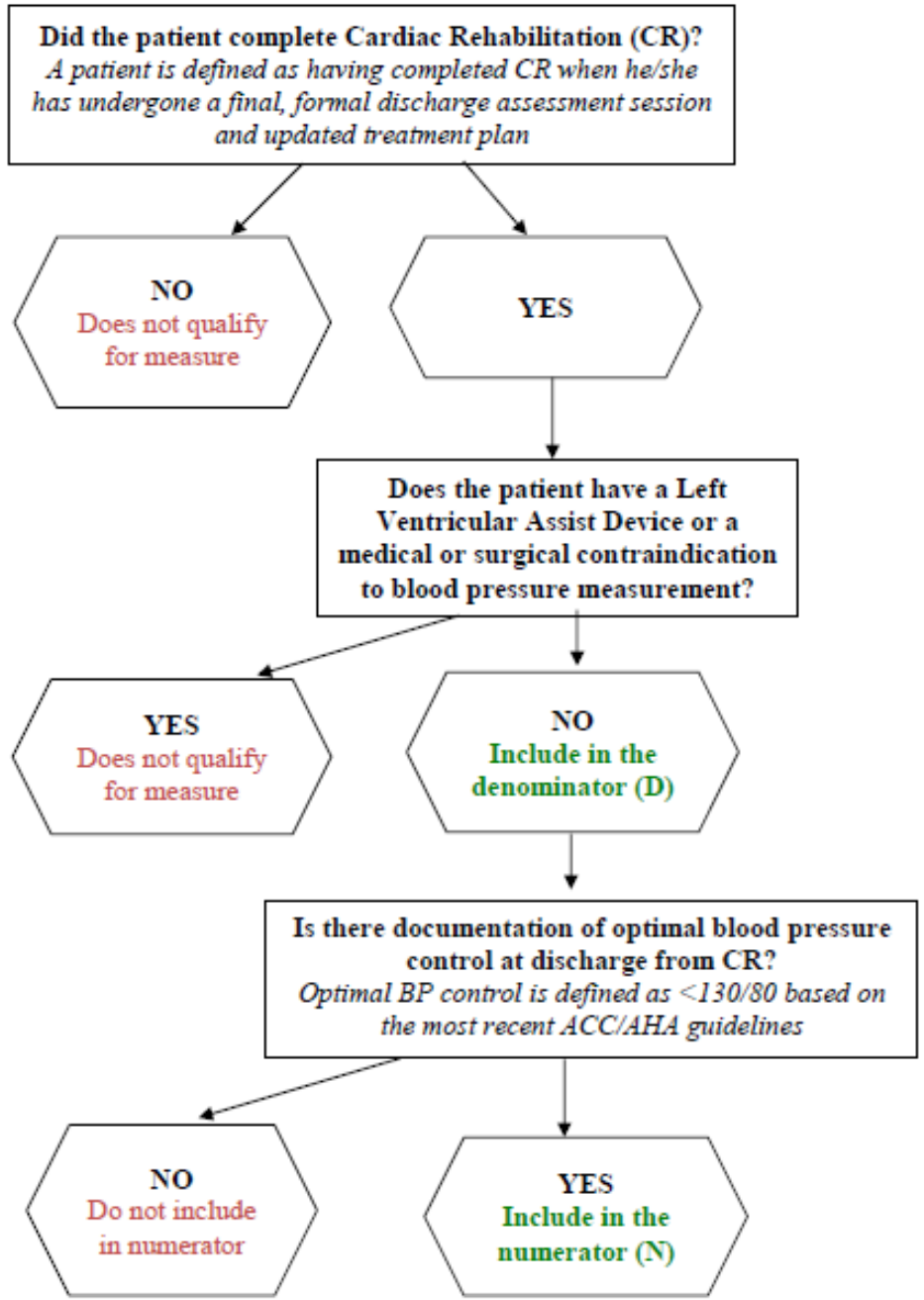
- Optimal Blood Pressure Control at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
    - **PLEASE NOTE:** Since the release of this webinar, the Performance Measure has been adjusted to set the threshold for blood pressure to **130/80** to align with the 2017 AHA/ACC Guidelines. **To qualify as having met this performance measures, patients must have a blood pressure below 130/80 to count towards the numerator**.
- Improvement in Depression at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
- Improvement in Functional Capacity of at Completion of CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**
- Tobacco Use Intervention for CR
  - **Performance measure specifications**
  - **Algorithm**
  - **FAQs and Data Definitions**
  - **Overview Video**

CR Optimal Blood Pressure Control Performance Measure Algorithm



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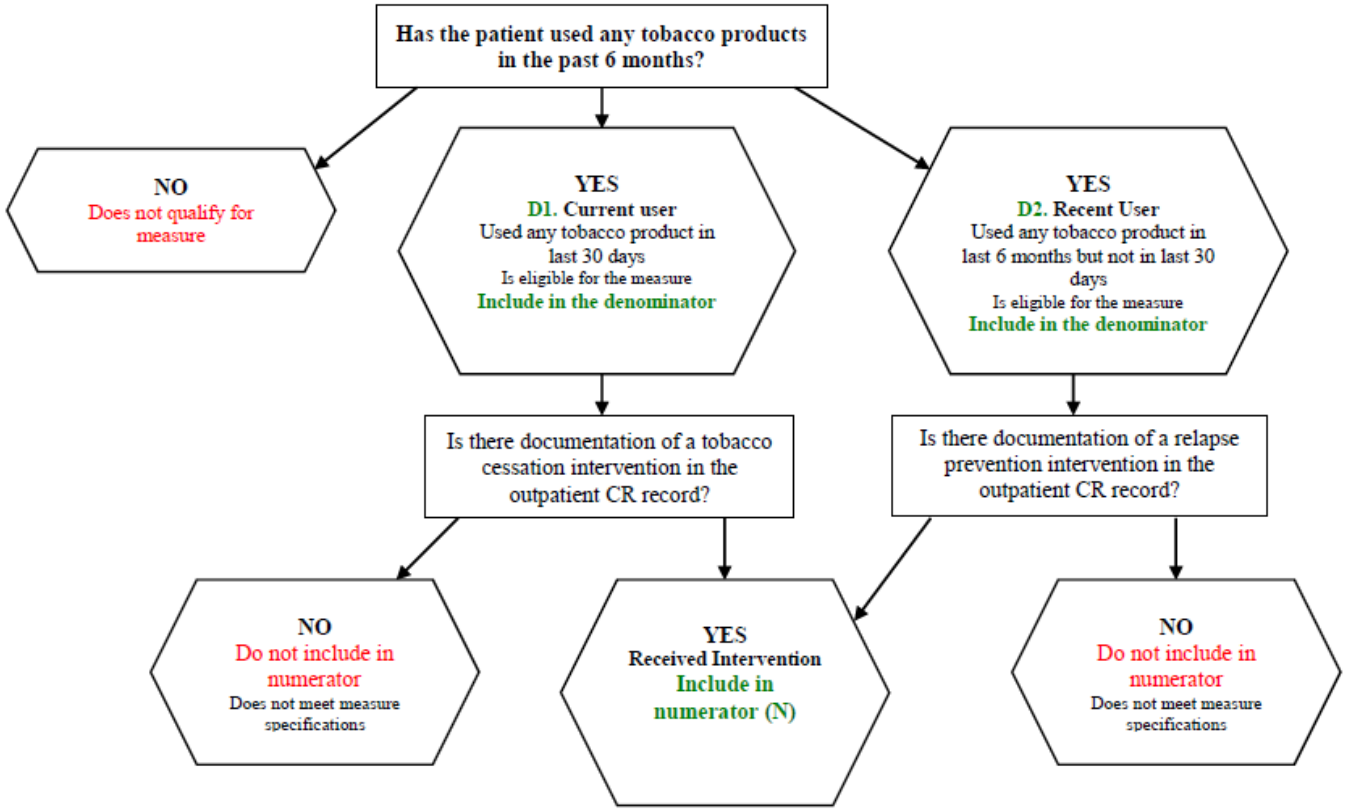
CR Tobacco Intervention Performance Measure Algorithm

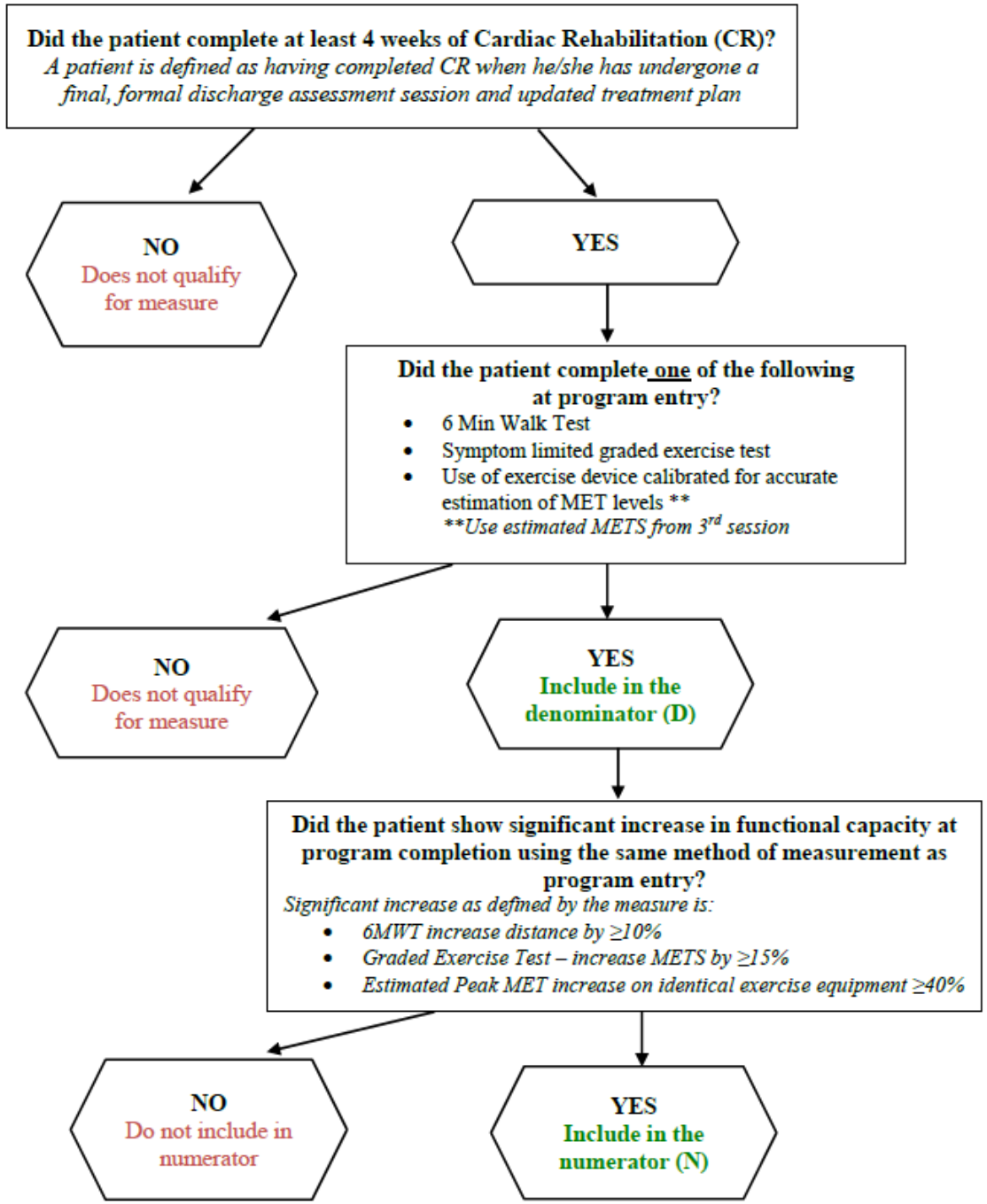


DEFINITIONS:

* Tobacco cessation intervention includes any one of the following:

1) Tobacco cessation counseling. If the patient is not willing to make a quit attempt, intervention should be aimed at helping the patient improve their readiness for an eventual quit attempt.
2) Tobacco cessation pharmacotherapy. Medication may be provided to patients who are not yet ready to quit, but who are ready to reduce to quit.[1, 2]
3) Referral to a tobacco treatment program or specialist.

CR Functional Capacity Performance Measure Algorithm



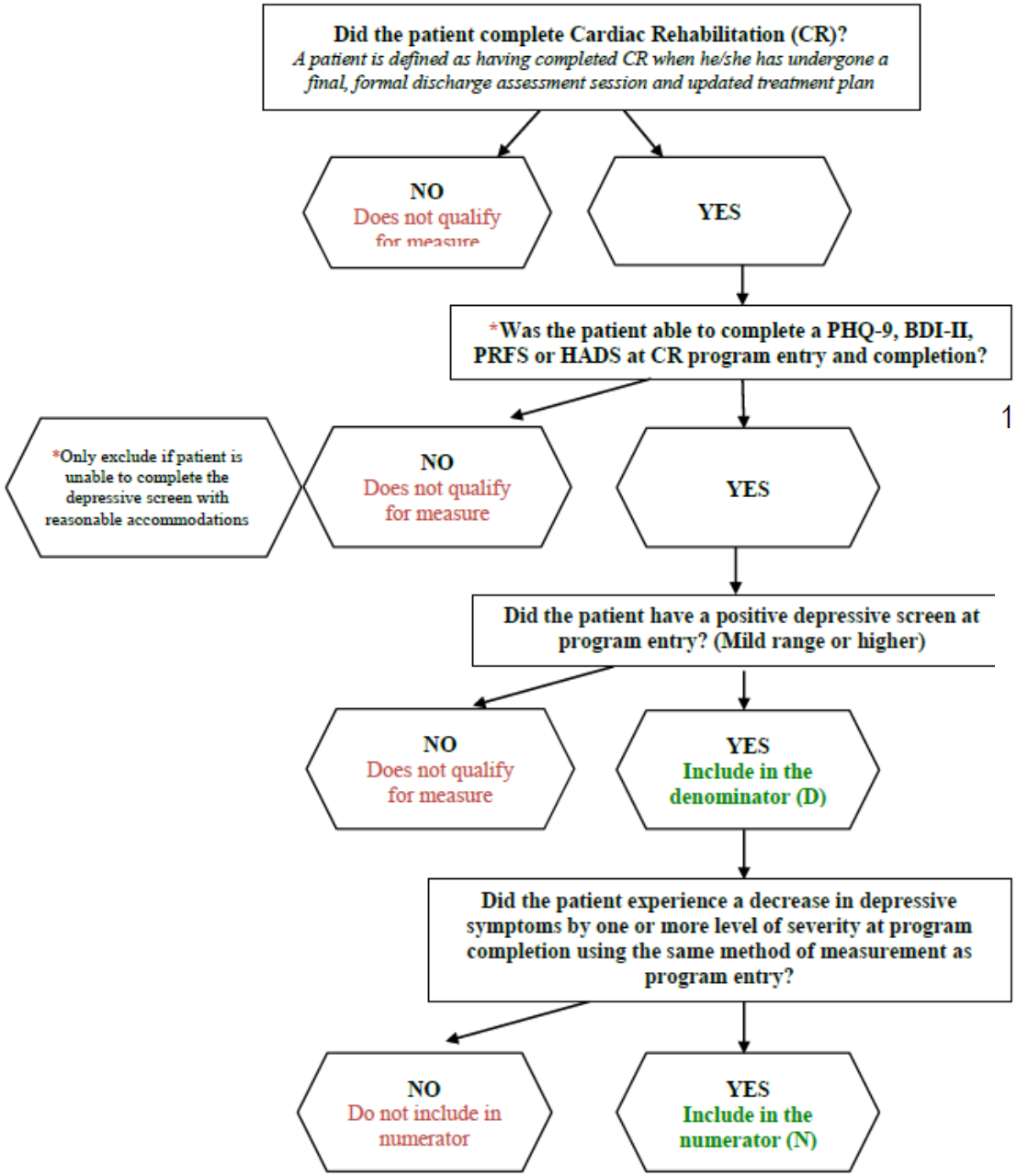
DEFINITIONS:

Assessment of functional capacity during CR may be performed in three ways:

1. Symptom-limited graded exercise testing with or without analysis of expired air is the gold standard measurement, performed at program entry and exit
   - Use procedures contained in the current guidelines published by the American College of Sports Medicine[1]
2. Estimation of peak exercise intensity in METs during the beginning of the CR program (defined as the third session to account for learning effect) and during the final exercise training session
   - Use equations published by the American College of Sports Medicine[1]
   - Estimate METs only using exercise devices which can be calibrated. Factory calibrated equipment may be used as long as the identical piece of equipment is used for pre and post measurement.
3. Six-minute walk test (6MWT) distance performed at program entry and exit
   - Follow the procedures of the American Thoracic Society[2]

7. *Mean peak METs increase of ≥.5 from pre to post-program, in 75% of program completers

Improvement in Depression Performance Measure Algorithm



1. Reduction of one or more levels of severity in the Patient Health Questionnaire (PHQ-9) score from baseline to completion of CR. Scores for levels of severity are: mild (5-9), moderate (10-14), moderately severe (15-19) or severe (20-27).
    - *The PHQ-9 is a 9 item tool based on a 4-point Likert type scale which screens for depressive symptoms and evaluates change in depressive symptoms. Patient time to complete is <5 minutes.* This scale contains an item which assesses *suicidal ideation. This tool is available in the public domain.* http://www.integration.samhsa.gov/images/res/PHQ%20-%20Questions.pdf

8. Mean post-program quality of life score > pre-program score, in program completers

9. Mean minutes of moderate to vigorous-intensity activity per week post-program /progress ≥150, in program completers

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평가일자	담당			회차			
2023-02-02				1회차			
OPD CR	Rest BP			height	Body weight	BMI	
	101/74			168	69	24.45	
IPAQ Category	Depression DASS score			Functional capactiy (CPET)		Smoking	
	D	A	S			Yes/No	자료제공
HEPA	2	3	3	10.2		N	
Commnet							