#### AACVPR

# 38TH ANNUAL MEETING

September 13-15, 2023 MILWAUKEE, WI



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Strategies that Increase the Use of Cardiac Rehabilitation for Patients with Heart Failure – Hearing from the Experts

Nile

Tara Lagu Carol Haywood

#### Conflicts

- •No relevant financial relationships to disclose.
- No other conflicts of interest
- This work was supported by:
  - The National Heart, Lung, Blood Institute under award
    1R01HL146884-01



# Evidence for CR for HF

#### • HF-ACTION trial:

- •2,331 outpatients with reduced EF; min 6 weeks after hospitalization<sup>1</sup>
- After adjustment for prognostic factors, modest significant reductions for combined all-cause mortality and all-cause hospitalization
- 2019 Cochran review of 33 RCTs (including both HFrEF and HFpEF) found no mortality benefit but probable reduction in the risk of hospital admissions<sup>2</sup>

<sup>1</sup>O'Connor et al, JAMA 2009 Apr 8;301(14):1439-50

<sup>2</sup>Long, et al. Cochrane Database Syst Rev. 2019 Jan 29;1(1):CD003331.



# However...(Don't Replicate! Don't Share!)

Our recent work using Medicare data suggests a strong survival benefit associated with CR attendance among patients with HF



Lagu, Lee, et al. "Association Between CR for HF and 1 year Survival." AHA's annual Scientific

Sessions. 2022.



# NIH-Funded Study to Increase CR for

- Medicare analysis CR rates for hospitals using national Medicare data
  - (Is 70% achievable?)
- 2. Interviews with innovative CR programs and high performers to identify strategies and innovations to get HF patients to complete CR
  - Complete
- 3. Delphi Panel with experts to review and recommend strategies identified through interviews
  - Complete
- 4. Pilot test implementation of strategies in real-world practice using a learning collaborative
  - Finish December 12<sup>th</sup>



### AIM 1 (Unpublished! Don't share)



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#### **Chart Review**

Adults admitted to a tertiary academic medical center in a single calendar year with a principal diagnosis of heart failure (defined using ICD-10 codes)







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#### Table 1

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Age	Median (IQR)	78	66-86
		254	50.8
Sex	Female	246	40.0
	Male	246	49.2
Comorbidity			
	TT	1.67	
	Hypertension	465	93
	Cardiac arrhythmias	319	63.8
	Renal failure	298	59.6
	Diabetes, complicated	226	45.2
	Chronic pulmonary disease	203	40.6
	Fluid and electrolyte disorders	193	38.6
	Valve Disease	182	36.4
	Obesity	133	26.6
	Pulmonary circulation disorders	120	24









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#### **Garnering Patient Perspectives**

Objective: To better understand barriers to participation in CR for patients with HF from the perspective of patients with HF

#### Methods

Purposeful Sampling Strategy

- Currently enrolled in CR
- Referred to CR during HF hospitalization
- Referred to CR in outpatient setting
- Semi-structured interviews completed via Webex
- Initial codebook developed from literature; inductive codes added
- 2 rounds of co-coding until consensus achieved



#### Participants N=20

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		20
Gender	Male	10
	Female	10
Ethnicity	White (Non-Hispanic)	10
	White (Hispanic)	1
	Black (Non-Hispanic)	3
	Multiple/Other (Non-Hispanic)	5
	Multiple/Other (Hispanic)	1
Cohort	Actively Enrolled	6
	HF Admission	9
	Outpatient	5





## Poor/No Memory of the Referral

"I don't think anybody recommended it to me yet...I'm a little fuzzy about what went on in the hospital, truthfully...I don't know if it was a priority or not. I mean, I don't remember anybody saying, 'you have to go to cardiac rehab,' or anything like that. I think they kind of said, 'you might want to think about it.'"





#### Poor/No Memory of the Referral

"Nobody ever got in touch with me or even said anything to me about any kind of rehab...Nobody gave me any information about any cardiac rehab."





#### What is HF?

"I don't have heart failure...the only time I had it is just once...I just had a very slow whatever it was...breathing problem at that time"







# "They mentioned [CR], but I thought they were talking about maybe me joining the gym later"





#### Is it safe for me to exercise?

"If there was one thing that I could improve...if I had known about it right after the hospitalization, I would have definitely jumped on it...I maybe wouldn't have gained so much weight because I wasn't scared"



#### Could CR help me?

"I've already gone 4 months without any cardiac rehab. How are they going to start rehabilitating me now? ...No one seems to care whether I've done it or not"





## **Implications of Patient Experience**

- Patients with HF do not consistently:
  - Understand CR
  - Understand their diagnosis
  - Remember their referral
  - Perceive CR as a priority
- Patients are unlikely to prioritize participation in CR and ultimately overcome barriers to participation unless they understand the function and value of CR in their own lives
- Possible role of impaired memory unique to HF population



#### CR "in the Real World"

- Qualitative description of CR
- Recruited sites across the U.S.
- Single interviews OR expanded "site visits"
  - Primarily, via Zoom, with some in-person site visits
  - Interviews with multiple stakeholders: EPs, managers, medical directors, etc.

#### **Semi-Structured Interviews**

- Description of CR programs, including size, structure, patient population, and processes for referral, enrollment, and retention
- Barriers and facilitators of participation in CR (general and HF-specific)
- Efforts to improve patient participation in CR



# **Coding and Analysis**

- De-identified transcripts
- Multiple coders
- Coding scheme with deductive and inductive concepts, focusing on:
  - Patient Population (e.g., geographic region, general demographics, SDOH)
  - Site Characteristics (e.g., # of locations, program size, history, staffing)
  - Processes for referral, enrollment, and retention of HF patients in CR
  - Barriers to patient participation in CR
  - Quality improvement initiatives (strategies, supports, barriers)



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#### Participating CR Programs *N=*16

	1	2	3	4	5	6	7*	8	9	10	11	12	13	14	15*	16*
Patient Volume	30/w k	40/d ay/si te	250/ yr	300/ yr	20-5 0/da y	50-6 0/da y	50-7 0/da y	900/ yr	80-1 00/d ay	20-2 5/wk	60/d ay/si te	45/d ay	180- 190/ day	500/ yr	UN K	60/w k
# of CR locations	1	8	1	1	1	1	1	1	1	1	7	3	4	1	1	1
Phase I	$\bigcirc$	Ø	$\bigcirc$	$\bigcirc$	$\bigcirc$		$\bigcirc$	Ø	Ø	Ø	$\bigcirc$	Ø		$\bigcirc$	$\bigcirc$	$\bigcirc$
Phase II	Ø	Ø		Ø						Ø			Ø		Ø	
Phase III	$\bigcirc$		Ø	$\bigcirc$	$\bigcirc$				$\bigcirc$	Ø	Ø		Ø		$\bigcirc$	$\bigcirc$
LCCR	Ø	Ø	Ø	Ø	Ø		Ø		Ø	Ø	Ø	Ø			$\bigcirc$	$\bigcirc$

\*Extended Site Visits

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Red Tape

It wasn't just, like, "hey I want to do this program, I've had all these things set up, this is what I think." It's, like, you have to get legal involved and then you have to get compliance involved and then you have to make sure that the doctor's on board and your director's on board... it's, like, multifaceted. There's so many levels that things have to go through to get completed and to get done, and sometimes something that if you did yourself could take, you know, a couple days could take, like- this probably took the whole year to get everyone involved, everyone rolling.



 Inadequate Resources

> I'll be honest, [administrators] like to see the results, but there is no monetary support... and it's really just the residents and us putting in our labor and trying to get things done, and so that's pretty much basically it.





 Learned Helplessness

Like, we ... I just think in cardiac rehab, for whatever reason, we're all brainwashed to think that we're not worth \$500. Like, oh, my hospital would never pay for me to go to a conference. And it's like, why? Why? Everyone else is going to conferences. Like, but we're just like, we're like these stepchildren that just don't think that we're good enough, and we never ask for anything.



 Resistance to Change

> ...just getting people on board with the changes when they've been doing things the same way for so long can be difficult.




### **Barriers to Quality Improvement**

Staff Turnover

All the staff that were here a year ago are gone... [PARTICIPANT 2] has been very busy, training up. But that's part of it, too, as well, unfortunately. This is a field that's very poorly paid. McDonalds was offering a dollar less an hour than we pay an exercise physiologist starting out. So, it's just a constant ... I've been here 15 years, and I've turned over 19 full-time staff... we can't grow the field... you can't keep a full staff.



## Implications of CR in the Real World

- Patients face a myriad of barriers to participate in CR
- CR programs are limited in their ability to directly respond to patient barriers to participation (e.g., transportation, financial, scheduling)
- Improving CR programs/processes for referral and enrollment requires persistent advocacy and collaboration for support at every system level
- CR programs are not immune from crises in U.S. healthcare systems



## **Convening Experts in CR**



**Purpose**: To use a Delphi panel of CR experts and clinicians to identify the most common and influential barriers to CR attendance among patients with HF



#### Design: Two-part Delphi

Part 1: Barriers to CR participation among patients with HF

Part 2: Strategies to increase CR participation among patients with HF





## **Design: Selection of Experts**

We convened a Delphi panel of 12 academic researchers and clinical experts focused on HF and CR

Participants identified based on their track record of publishing science related to CR, their leadership in AACVPR, or national recognition in the field



## **Design: Process**

Using literature review and qualitative interviews with CR clinicians, we generated a comprehensive list of barriers to CR participation among patients with HF, and a comprehensive list of strategies to improve CR participation among patients with HF

For each part, we developed a survey listing the barriers/strategies, grouping them as **referral, enrollment**, or **retention-related** 

We conducted three asynchronous rounds of online questionnaires for each part with a goal of achieving consensus

 Consensus was defined as 75% (9/12) of participants responding with the same ranking for both measures of the barrier.

For each survey round, participants received an email link to each questionnaire and two weeks to complete it





#### Northwestern QUALTRICS

We are interested in learning about the barriers that keep people with heart failure (HF) from participating in Cardiac Rehabilitation (CR).

Thinking about the population of people with HF, we have made a list of barriers that affect referral to CR, enrollment in CR, or participation and retention in CR.

#### We will ask you to consider:

For patients with heart failure, <u>to what extent</u> does each barrier influence referral/enrollment/retention in CR?

For patients with heart failure, how <u>common</u> is each barrier to referral/enrollment/retention in CR?

Through a series of survey rounds, we will consolidate your responses and provide feedback about how barriers compare to each other, and which rank as the most influential and the most common.

#### Barrier 1: Clinicians are not aware of the benefits of CR

#### for patients with HF.

How influential is this barrier?

Not at all influential	Somewhat influential O	Influential	Very influential		
How common is th	nis barrier?				
Not at all common	Somewhat common	Common	Very common		
0	0	0	0		

Are there any other referral-level barriers you feel are important to include that were not mentioned above?

Please continue to the next portion of the survey which will look at enrollment barriers.



0%

100%

 $\rightarrow$ 



#### Delphi Part 1: Barriers to CR participation among patients with HF

• Ranked barriers on a 4-point scale for:

- Influence: For patients with heart failure, to what extent does each barrier influence referral/enrollment/retention in CR?
- **Commonality:** For patients with heart failure, how common is each barrier to referral/enrollment/retention in CR?



#### Part 1 Barriers: Results

4 barriers emerged as "very influential" and "very common"

- There is no automatic method for referring patients with HF to CR.
- Patients with HF do not know what CR is and thus do not attend.
- Patients with HF do not know the potential benefits of CR.
- CR programs do not enroll patients with HF who are not covered by the CMS coverage rule (e.g., patients with HF with preserved ejection fraction).
- 15 barriers emerged as "very influential" and either "common" or "somewhat common"



# Delphi Part 2: Strategies to increase CR participation among patients with HF

Ranked strategies on a 4-point scale for:

- Feasibility: the extent to which most settings (high, low, and middle resource settings) will be able to implement the strategy successfully
- Effectiveness: the extent to which the strategy is likely to increase the use of CR for patients with HF



## Part 2 Strategies: Results

- 3 barriers emerged as "Effective" and "Very Feasible"
  - Educate clinicians on evidence of the benefits of CR for patients with HF.
  - Educate clinicians on the eligibility requirements for patients with HF.
  - Educate non-MD clinicians (NP, PA, Medical Students, etc.) about CR.
- 2 barriers emerged as "Very Effective" and "Feasible"
  - Establish EHR automatic referral to CR for patients with HF upon discharge from the hospital.
  - Include CR referral in EHR order sets for patients with heart failure.



# Pilot: Learning Collaborative for Cardiac Rehabilitation (LCCR)

- •15 month learning collaborative
  - 7 week short course in leading change in healthcare
- Identify site specific barriers among patients with HF
- Monthly small group collaboration
- Quarterly full group learning
- Receive resources and training on how to lead organizational change





## **Organizational Change Short Course**

- Analyze current approach to enrollment and retention
- Examine approaches to QI and organizational change
- Assess organizational readiness
- Evaluate data to identify practice improvement prioritization
- Formulate an action plan to implement a new model
- Measure quality indicators to evaluate effectiveness
- Develop skills to effectively lead an organizational change project



## **Pilot Progress**

- 10 CR programs across the US
- Sites are addressing referral, enrollment, and/or retention barriers
- Sites are collecting data on the success of their implementation project
- Final meeting is December 12<sup>th</sup>





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# Strategies to improve CR participation

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#### **Sherrie Khadanga MD**

Assistant Professor of Medicine Direction of Cardiac Rehabilitation University of Vermont Medical Center



No relevant disclosures

Funding: supported by National Institutes of Health Center of Biomedical Research Excellence award from the National Institute of General Medical Sciences: P20GM103644



#### In-patient education

- Patient admitted with CHF exacerbation, regardless by service, is seen by a Heart Failure Nurse Educator
- Resident workroom: List of Indications for CR referral, including chronic stable heart failure (EF<35%)</li>
- Patient volunteers (prior participants) will meet with those in-patient to discuss CR
- At discharge, patient's nurse will re-emphasize the role of CR



#### **Role of Automatic Referral:**





#### **Provider recommendation**

#### Educating Providers:

- CV fellowship: in July/August as part of Fellowship Bootcamp, we bring the fellows to CR to see the stress lab and gym
- Review indications and discuss equipment that can be valuable for our more frail patients, often the CHF patients
- For CHF patients unable to participate in Phase 2, we mention Phase 3

 Physician recommendation was found to be a key predictor of CR attendance \*

> \*Khadanga S, Savage PD, Gaalema DE, Ades PA. Predictors of Cardiac Rehabilitation Participation: OPPORTUNITIES TO INCREASE ENROLLMENT. J Cardiopulm Rehabil Prev.

2021;41(5):322-327.



## **CHF** clinic

- 18-month experience recruiting hospitalized inpatients and stable outpatients into Phase 2 CR
- Cohort included 83 patients hospitalized with CHF and 36 outpatients.
- Only 17% (14/83) of eligible HFrEF inpatients enrolled in CR following CHF hospitalization compared to 35/36 (97%) outpatient referrals
- For most of these patients, the cardiologist walked the patient over to the CR area and registered the patient as a part of their comprehensive care.



Rengo JL, Savage PD, Barrett T, Ades PA. Cardiac Rehabilitation Participation Rates and Outcomes for Patients With Heart Failure. *J Cardiopulm Rehabil Prev.* 2018;38(1):38-42



## **Case Managment**

- Case management (CM) is a collaborative process that involves a health care professional, often a nurse, who is assigned to a patient with the goal of improving health outcomes through coordinated care.
- The framework for case management includes five components:
  - 1. individual-based assessment,
  - 2. planning,
  - 3. monitoring,
  - 4. interaction and
  - 5. coordination of care for other services.



## What does a case manager offer?

- The role of a case manager could look very different depending on the goal
- Narrow
  - Only assist with transition from hospital to attending CR
- Broader
  - s/p hospital discharge to assist with medical needs (scheduling, transportation, reminders, communication within health system)
  - Assist and reinforce education and secondary prevention



#### Methods

- Case-Management to Support Secondary Prevention among Medicaid Patients
  - 209 patients randomized to different interventions. About half given case management
  - Case managers meet patients in hospital briefly, complete an in-depth needs assessment over the phone, have weekly calls with the patients, available as needed to respond to emergent questions/issues
- Case-Management to Support CR attendance and Physical Activity among Women
  - 114 of women, half randomized to case management
  - Case managers meet patients in hospital briefly, complete and in-depth assessment over the phone to discuss patient home and environment safety, strengths, needs, behavioral goals and fitness goals (measured via step count), have weekly calls with patients to discuss behavioral and fitness goal progress, available as needed to respond to emergent questions/issues





### **Presentation Take Away's**

- Automatic referral
- Educating nurses and providers, at the hospital and in clinic
- Case managers can help identify and overcome barriers which can translate to improving CR participation and adherence





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## Heart Failure Success Story

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How implementing a heart failure program at Baystate Health led to growth and expanded patient care.

Patrick Schilling, CEP, CCRP

**Program Manager** 

#### Disclosures

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"No relevant disclosures."



## **Baystate Cardiac Rehabilitation**

- Started in 1978
- Services Phase I, Phase II, Phase III
- Scope of Programs
  - Million Hearts Collaborative
  - SET PAD Program
  - Research Initiatives Dr. Quinn Pack
  - Heart Failure Program
- Multi-disciplinary specialties within Cardiac Rehabilitation
  - Registered Dietician
  - Tobacco Treatment Specialist







## Heart Failure Team at Baystate

Inpatient

- M7 floor 40 rooms dedicated to heart failure
- Medical Director Christopher LaChance MD
- Heart Failure Coordinator Christine Kaleta
- Outpatient Heart Failure Clinic
  - Advanced heart failure team
  - 3 Physicians, 1 Advanced practice provider, 1 nurse case manager
  - LVAD and CardioMEMS program



## Why did we start? – 5% is not enough!

- Heart Failure Registry
- ACC/AHA 2018 Performance Measures Thomas et al.
- 2019 Pilot study Cardiac Rehabilitation among hospitalized patients with Heart Failure (Published 9/13/22: Circulation)
  - Tracked Eligible, Enrollment and Participation
- 2020 Covid closure Time to solve some problems!



#### How did we track?

- Identified all scheduled patients in cardiac rehabilitation with heart failure as a primary diagnosis
- Excel Database
- Developed four pools of referred patients which were tracked monthly for participation
  - Referred but no show or cancel
  - Attended orientation
  - Drop out of CR before 12 sessions
  - Complete 12 or more sessions of CR



#### Heart Failure Program Results

	2020	2021	2022
Total Referred	93	122	112
Total Attend	78	75	78
Finished program (>12 sessions)	53	47	46
Discharges/DNF	25	28	32
Referred but NS or cancel	15	47	34
% Referred did not attend intake	16	39	30
% HF of all CR patients	12	16	15
% completion (12 sessions)	67	62	59

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#### Cardiac Rehabilitation Phase II Volumes Expanding Heart Failure led to growth





#### Global Forecast, Heart Failure will be

#### growing





#### Next Steps – Communicate & influence! Provider and staff meetings, Model of care

- Anxiety and self-efficacy
  - Warm handoff
  - Provider endorsement
- Improve visibility and transparency - posters
- Hospital Begin Heart failure rounding Huddle to identify patients for CR staff consultation



Step 3 - Book Orientation with Lori 4-7024 or Access Services.

Palents may requality for cardiac enablishing near that 1 result time per litetime with documentation of medical researchy. This lackades following hexplaitation for exacerbation, change in NOV data or reduction of EF, or change in activities of duby living. General guidelines is to always 3 year between subsequent counds with physician ratio supporting change in yappen status. Does your CHF patient qualify for Cardiac Rehabilitation? If so, refer today!

Authorization, if needed should be obtained prior to scheduling.

Heart Failure / Preserved EF –	Heart Failure / Reduced EF
HFpEF –	HFrEF (<35%)
Always Health Partners	Aetna
BCBS of Massachusetts	Aetna Medicare – needs auth
Commonwealth Care Alliance – <mark>auth</mark>	Medicare
required	Most Medicare advantage plans
CCA One Care – <mark>auth required</mark>	
Cigna	
Evercare / Serenity Health / Pace – <mark>auth</mark>	
required	
Fallon – auth required	
Harvard Pilgrim	
Health New England	
Mass Health – needs referral	
Tufts	
United Health Senior Care – needs auth	
Wellsense	
VA / Optum / Tricare – <mark>auth needed</mark>	



#### **Presentation Take Away's**

- ACC/AHA Performance Measure get started today but be patient – it is a marathon and not a sprint.
- Whether you are a big, medium or small program, you can build volume and reach more people, especially people who need us! Added 231 patients over 3 years!
- In our program, high success rate (60%) to 12 sessions without additional acuity. We did see a higher norm for No show/cancel rate (30-35%) than our non HF patients (12-15%).



#### **Presentation Take Away's**

On this slide, please list three (3) take away's from your presentation that attendees can apply upon their return to work on Monday.



## Thank You!