

Multidisciplinary Heart Failure Care

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ORIGINAL ARTICLE

Impact of Rapid Up-Titration of Guideline-Directed Medical Therapies on Quality of Life: Insights From the STRONG-HF Trial

See Editorial by Reza

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Background: This analysis provides details on baseline and changes in quality of life (QoL) and its components as measured by EQ-5D-5L questionnaire, as well as association with objective outcomes, applying high-intensity heart failure (HF) care in patients with acute HF.

Results: In 1072 patients with acute HF with available assessment of QoL (539/533 patients assigned high-intensity care/usual care) the mean baseline EQ-visual analog scale score was 59.2 (SD, 15.1) with no difference between the treatment groups. Patients with lower baseline EQ-visual analog scale (meaning worse QoL) were more likely to be women, self-reported Black and non-European ($P<0.001$). The strongest independent predictors of a greater improvement in QoL were younger age ($P<0.001$), no HF hospitalization in the previous year ($P<0.001$), lower NYHA class before hospital admission ($P<0.001$) and high-intensity care treatment (mean difference, 4.2 [95% CI, 2.5–5.8]; $P<0.001$). No statistically significant heterogeneity in the benefits of high-intensity care was seen across patient subgroups of different ages, with left ventricular ejection fraction above or below 40%, NT-proBNP (N-terminal pro-B-type natriuretic peptide) and systolic blood pressure above or below the median value. The treatment effect on the primary end point did not vary significantly across baseline EQ-visual analog scale ($P_{\text{interaction}}=0.87$).

Conclusions: Early up-titration of guideline-directed medical therapy significantly improves all dimensions of QoL in patients with HF and improves prognosis regardless of baseline self-assessed health status. The likelihood of achieving optimal doses of HF medications does not depend on baseline QoL.

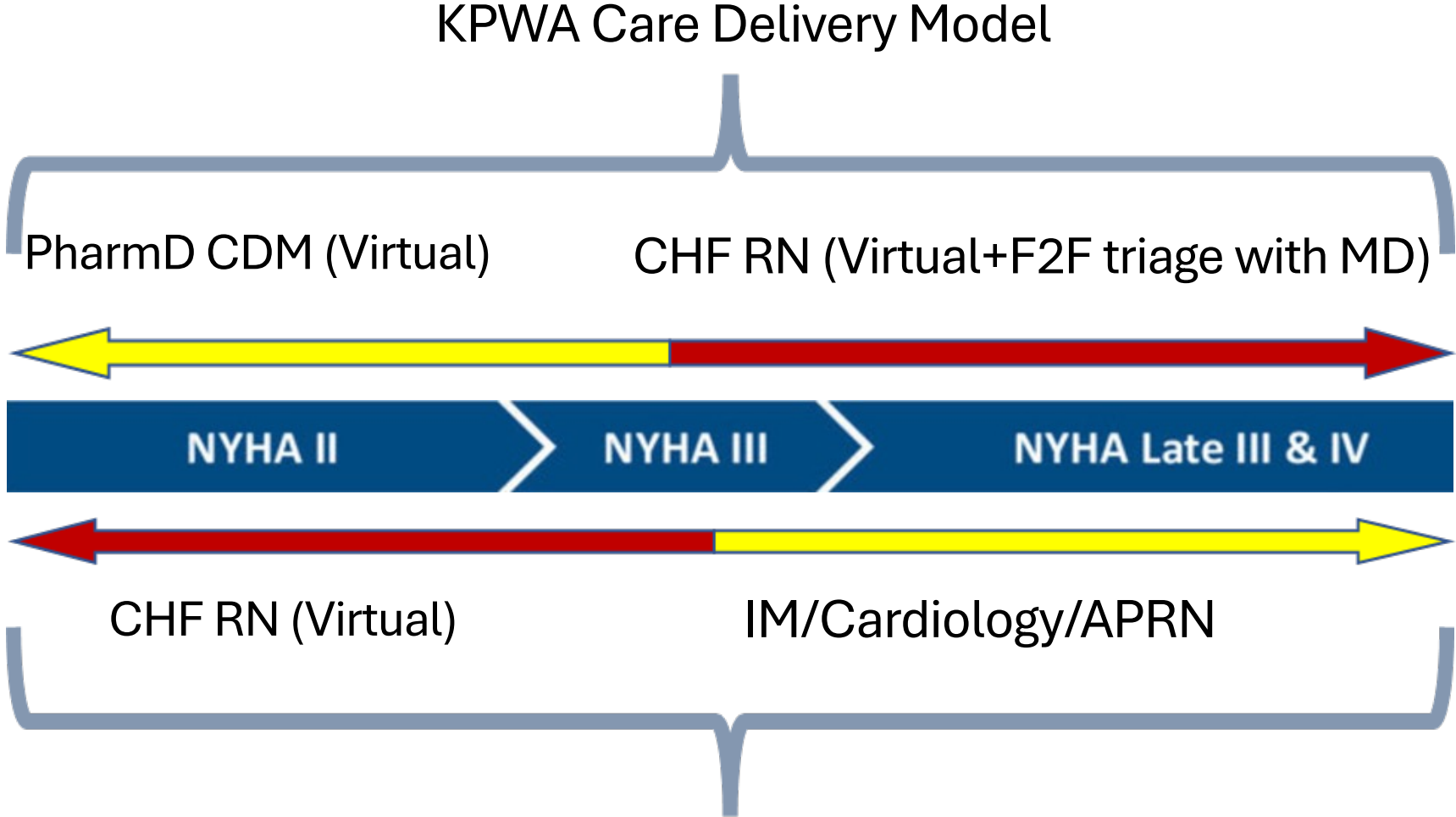
Mission Statement

- At Kaiser Permanente of Washington (KPWA), our mission is to provide high-quality, affordable health care and improve the health of our members and the communities we serve. Our definition of health includes physical, mental and emotional, or — more simply put — total health. We stand for total health for all.
- We believe that our care should mirror complexity of Heart Failure, ensuring that patients receive advanced and evidence-based care from talented individuals who understand the medical and psychosocial complexity of the spectrum of disease.



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Heart Failure Care as a Spectrum of Disease



Other Care Delivery Models

Describing our population

- We developed a Heart Failure registry to better help us understand not only the patients that we serve, but where there exists opportunities for improvement. An additional goal is to address any discrepancies in equity, inclusion or diversity.
- In general, KPWA actively has roughly 8000 members with documented Heart Failure.
- The primary focus of our HF program is to deliver the most evidence-based care possible, specifically prioritizing patients who have Heart Failure with Reduced Ejection Fraction (HFrEF), which is currently about 10-20% of our total HF population.



Programmatic Goals

1. Optimize Guideline Directed Medication Therapies (GDMT) that have proven morbidity/mortality benefits in HFrEF patients.
2. Reduce admissions and readmissions through optimal pharmacotherapy and latest evidence-based device therapy.
3. Recover Ejection Fraction through pharmacotherapy to reduce devices or surgeries.
4. Improve quality of life and understanding of disease in a holistic fashion.
5. Facilitate escalation pathways for either advanced therapies (transplant or LVAD) or Palliative/Hospice care.
6. Overall goal is to provide optimal care in a population-based approach that exceeds the community standard of care (CHAMP-HF).

CHF Pharmacist Program

- PharmDs practice under prescriptive authority/CDTA, focus on efficient titration to GDMT for stable patients (typically NYHA I-IIIa).
- Patients need to have been seen by WPMG (Washington Permanente Medical Group) provider in the last 12 months to meet program criteria.
- Inclusion Criteria: 18-85 years old, serum creatinine <2.0, Furosemide < 80mg (or equivalent diuretic)
- 0.2 – 0.4 dedicated clinical pharmacist FTE

CHF Nursing Program

- Heart Failure Nursing Program started in 1998 under Group Health Cooperative cardiologists.
- Program has increased RN staffing and now serves increasingly ill and complex heart failure patients throughout the Puget Sound with 6.8 RN FTEs.
- RNs are practicing at top of scope mirroring advanced practitioners, managing high acuity complex patients.
- RN receives standing orders from WPMG cardiologist or cardiology advanced practice provider to titrate cardiac medications, manage volume status, order labs, enter referrals, and coordinate care.
- Core population is HFrEF patients with LVEF $\leq 40\%$ who need GDMT titrations and volume management (typically NYHA class II-IV).
- Some HFpEF and HFmrEF patients can also be admitted to the program depending on clinical circumstances (i.e. frequent hospital admissions or infiltrative disease requiring therapies).

Program Discharge vs. Escalation of Care

- Best scenario: patient “graduates” from program on maximum tolerated GDMT and LVEF has improved or recovered.
- Patients can meet discharge criteria if LVEF is persistently low, but patient has been stable and all indicated interventions including ICD have been implemented. These patients still have access to pharmacist or CHF RN as needed.
- Patients are discharged from program if they become eligible for hospice and accept hospice care.
- If care needs escalate, we cannot manage patients who are living in a facility (SNF / adult living facility) where licensed staff are managing medications.
- Patients may become eligible for advanced therapies such as LVAD or heart transplant. Cardiac care is mostly transferred to a new center of care, but these patients are still monitored under RN program.

Documentation – RN protocol

Device and Interventional Therapies: If EF ≤ 35% after optimization of HF guideline medications		
	Candidate?	
ICD	primary prevention CRT-D implantation with Dr. Okabe 05.08.24	For patients with EF ≤ 35% who have been on chronic GDMT at least 3 months.
CRT, His bundle pacing	primary prevention CRT-D implantation with Dr. Okabe 05.08.24	For patients with EF ≤ 35%, NSR, LBBB with QRS ≥ 150ms
Atrial fibrillation ablation	N/A	For patients with EF < 35% and paroxysmal or persistent AF (CASTLE, CABANA)
Mitral valve clip	Moderate MR on echo 06.29.23	For patients with mild, or "high grade moderate" mitral regurgitation, will discuss with referring MD to discuss with structural team (COAPT)
Revascularization for CAD	No evidence of ischemia on CT coronary angiogram and cardiac MRI	For patients with EF ≤ 35%, and suitable coronary anatomy, surgical revascularization may be beneficial (STICH)
Advanced Therapies?	See consult note from Dr. Durrani: Office Visit with Durrani, Amir Khan, MD (05/03/2024)	

GDMT for HFrEF	Current Dose	Last titration	Dose: (Titrating, Target, Max, N/A)	Plan
Medications/Interventions				
Entresto 97/103 mg tablets	Half tablet BID	Increased 05.19.24	Max	Continue
Metoprolol succinate	37.5 mg at bedtime	Increased 10.03.23	Max	Continue
Spironolactone	25 mg daily	Started September 2023	Target	Continue
Jardiance	12.5 mg daily	Started August 2023	Target	Continue
hydralazine-nitrates	NONE		N/A	For patients self-identified as African American with NYHA class III-IV HFrEF who are receiving optimal medical therapy
Furosemide	PRN only	Stopped daily use on 07.07.24	N/A	OK to use 20 mg PRN for weight gain or symptoms of volume retention
Potassium	Using OTC potassium gluconate daily, contains 90 mg potassium		N/A	Can switch to Rx potassium tablets if needed, potassium level has been OK so far
Magnesium	Using OTC "neuromag" supplement with 200 mg magnesium		N/A	Continue
Cardiac Rehab				For stable HF patients with EF ≤ 35% (~6 weeks after acute exacerbation) "Graduated" cardiac rehab October 2023

Program Metrics & Outcomes – 2023 to 2024

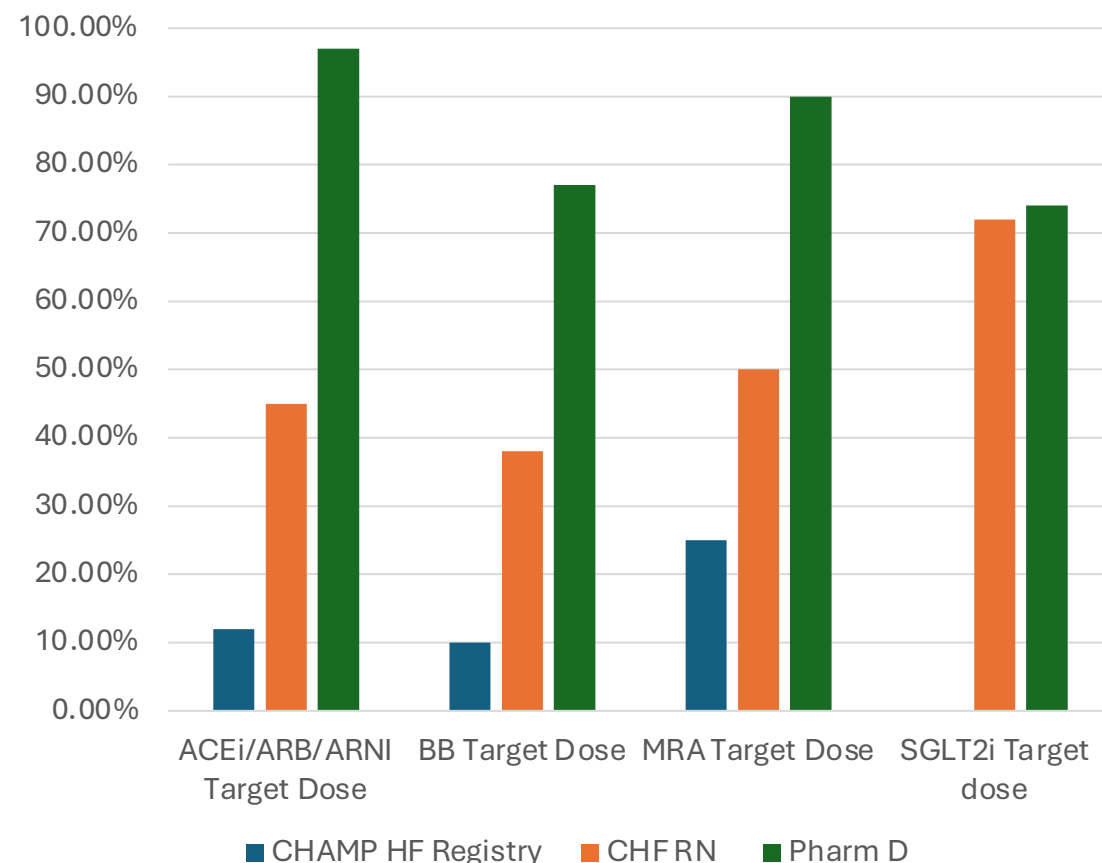
- 601 patients were enrolled / onboarded into CHF RN program during 2023-2024
 - Full capacity for program at any given time is about 340 patients (6.8 RN FTE x 50 patients per nurse); program discharge depends on progress towards goals or escalation of care
 - ~70% of completed / "graduated" patients achieved EF >40%
 - Potentially avoided >150 ICD implantations based on LVEF recovery metrics
 - Estimated savings of >\$4.5 million based on ICD costs
- 91 patients were managed by pharmacist in 2023-2024 with 0.2 FTE
 - 61% of completed / "graduated" patients achieved EF >40%
 - Potentially avoided 56 ICD implantations
 - Estimated savings of \$1.6 million based on ICD costs

Program Metrics & Outcomes - 2023

- Improved Access

- Every patient in program would likely have had minimum of 4-6 provider visits over 6-12 months for GDMT titration
 - ~350 pts completed program in 2023
 - Saves ~2100 cardiology provider visits pushing specialty services closer to health system patient access goals
- Pharmacy managed patients demonstrated that patients were able to be titrated to target GDMT in 7.8 visits over 86 days, resulting in 3.6 hours increased provider access time per patient

GDMT Target Dosing



Building A Successful Program

- Highly skilled and trained staff
 - RNs have cardiology background and are required to be certified (CHFN) within two years of starting position.
 - Patients are assigned a dedicated pharmacist or RN to help provide consistent care throughout their tenure in the program.
 - Pharmacist or RN has a manageable caseload size to ensure complex patients can easily access trained staff. Patients in RN program have direct phone number for their assigned RN.
- Robust protocols that are frequently reviewed and updated with newest clinical research and guideline recommendations
- Regular team meetings to review cases and engage in continuing education activities
- CHF Team has rapid access to managing cardiologist to escalate concerns where virtual management may be insufficient for patient care
- Dedicated on-site clinical days when patients see multidisciplinary team that includes advanced heart failure cardiologist, pharmacist, and registered nurse

Take Home Point

- In a resource-scarce environment, use of non-physician clinicians to provide GDMT is not only safe and effective, it is instrumental in providing the best and most rapid care to the most patients, in a cost-effective model.

Knowledge check

- Which of these process has NOT been shown to be successful in improving HFrEF GDMT?
 - A. Use of a registry to identify actionable patients
 - B. Creation of a standard process (standing orders or CDTA) to ensure consistent care
 - C. Use of general or flow support staff (usual care) for communication of orders
 - D. Dedicated, specialized team-members to implement GDMT

Questions?