

Claims-based Algorithm Options to Identify Reduced Left Ventricular Ejection Fraction Patients with Mitral or Tricuspid Valve Regurgitation and Heart Failure

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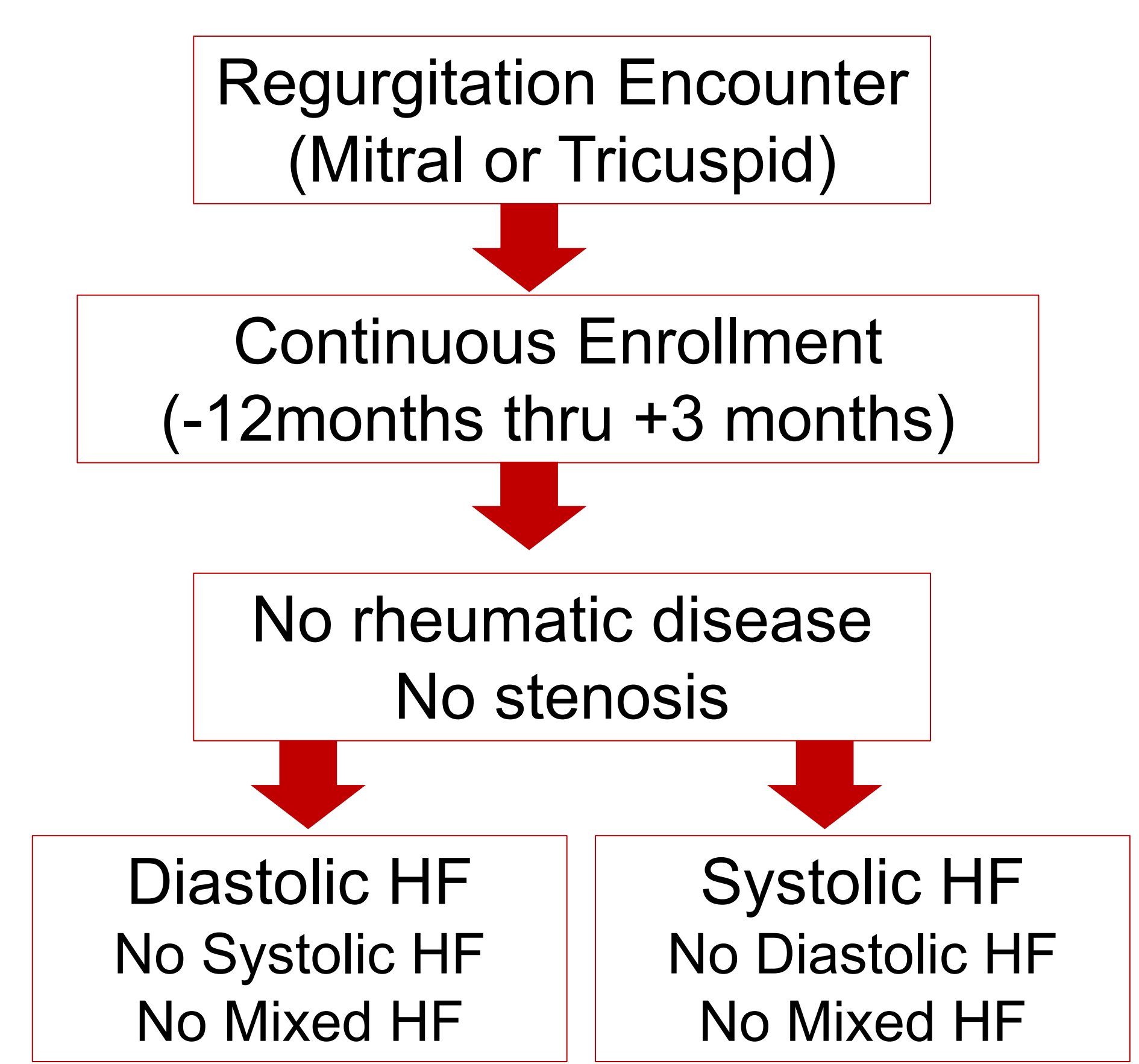


OBJECTIVES

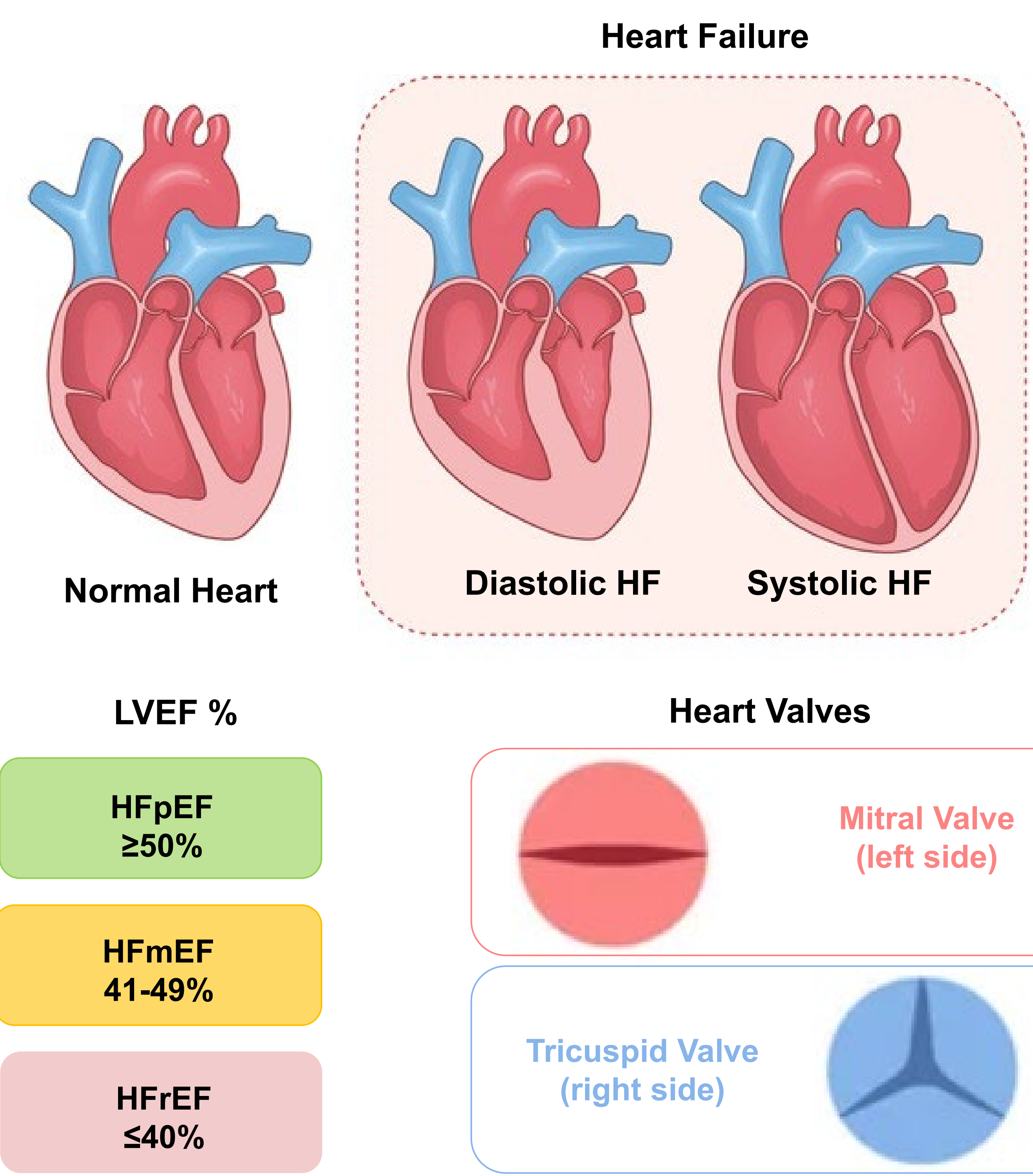
- Heart Failure (HF) is common in patients with valvular heart diseases such as Mitral and Tricuspid Regurgitation (MR and TR).
- HF can be classified by ICD-9 or ICD-10 code categories (diastolic, systolic, or mixed) but it is also important to understand left ventricular ejection fraction (LVEF) categories (preserved, mildly reduced, or reduced).
- Code categories are readily available in claims-based data, but LVEF is not, so algorithms are necessary to attempt classification. Published algorithms generally identify HF with preserved ejection fraction (HFpEF) well, but not HF with reduced ejection fraction (HFrEF).
- This work explores three simple, claims-based identification algorithms for HFrEF in patients with MR or TR.

METHODS

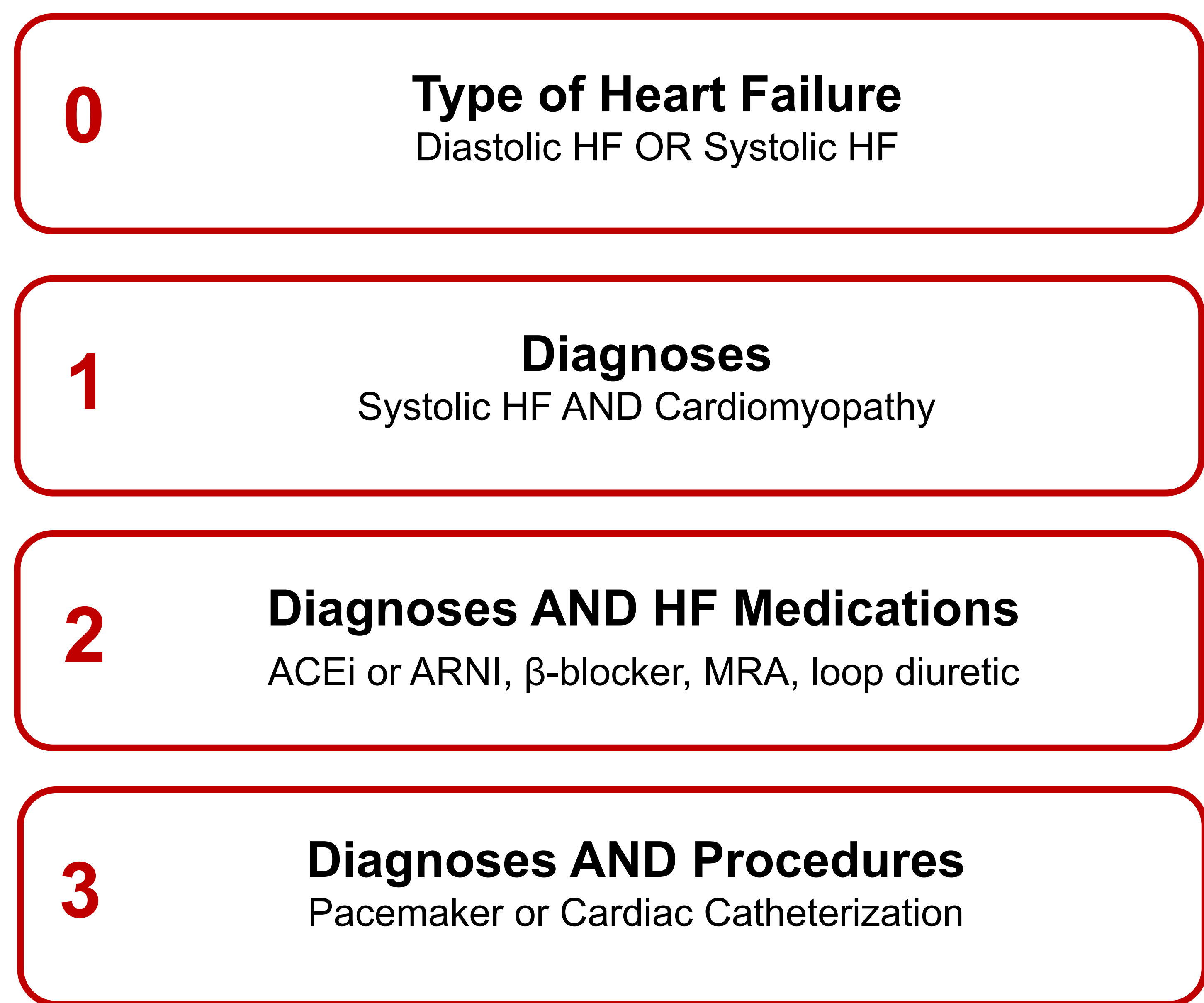
- Data source: Optum® Market Clarity Cardiac Extract
 - 2007 thru 2025Q2
 - Electronic Health Record (EHR) and Claims data
- MR and TR HF Patient Selection:



- Statistics:
 - Demographic, Comorbidity, Medication, and Procedure frequencies and proportions
 - LVEF % Categories frequencies and proportions



Cohort Identification Algorithms



RESULTS

	Cohort Identification Results			
	Mitral Regurgitation		Tricuspid Regurgitation	
	Systolic HF	Diastolic HF	Systolic HF	Diastolic HF
0				
Total N	179,324	224,198	97,295	156,349
LVEF, n (%)	27,239 (15%)	25,297 (11%)	15,107 (16%)	18,727 (12%)
HFpEF, n (%)	4,472 (16%)	22,990 (91%)	3,085 (20%)	17,175 (92%)
HFmEF, n (%)	4,494 (16%)	1,121 (4%)	2,504 (16%)	709 (3%)
HFrEF, n (%)	18,273 (67%)	1,186 (5%)	9,518 (63%)	843 (5%)
1				
Total N	75,274	-	43,006	-
LVEF, n (%)	12,956 (17%)	-	7,474 (17%)	-
HFpEF, n (%)	1,329 (10%)	-	970 (13%)	-
HFmEF, n (%)	1,754 (14%)	-	1,093 (15%)	-
HFrEF, n (%)	9,873 (76%)	-	5,411 (72%)	-
2				
Total N	65,585	-	37,689	-
LVEF, n (%)	12,608 (19%)	-	7,255 (19%)	-
HFpEF, n (%)	1,273 (10%)	-	930 (13%)	-
HFmEF, n (%)	1,677 (13%)	-	1,036 (14%)	-
HFrEF, n (%)	9,658 (77%)	-	5,289 (73%)	-
3				
Total N	32,757	-	20,239	-
LVEF, n (%)	5,865 (18%)	-	3,630 (18%)	-
HFpEF, n (%)	530 (9%)	-	398 (11%)	-
HFmEF, n (%)	632 (11%)	-	458 (13%)	-
HFrEF, n (%)	4,703 (80%)	-	2,774 (76%)	-

- The majority of patients with diastolic HF also had preserved LVEF.
- Patients with systolic HF had a more mixed LVEF profile.
- Adding a related diagnosis, HF medications, and procedures that are more common in HFrEF patients all increased the number of patients with reduced LVEF identified.

LIMITATIONS

- Findings may differ in other samples, as Optum® Market Clarity may under-represent patients covered by Medicare Fee-For-Service (FFS).
- Algorithm options were not statistically modeled nor validated on other samples. Results are fully exploratory and descriptive.

CONCLUSIONS

- The algorithm option that included diagnoses and procedures captured the highest proportion of patients with reduced LVEF. The utility of this simplified algorithm when LVEF is unavailable should be explored further.