#HeartSuccess

What can CANADIANS do to FIGHT HEART FAILURE?

Friday, May 7, 2021 / 5:00 – 5:50 p.m. EDT

CHFS SCIC
Canadian Heart Failure Society
Société canadienne d'insuffisance cardiaque

Planning Committee & Faculty

Chair: SHELLEY ZIEROTH, MD, FCCS, FHFSA (hon), FESC, FACC, FHFA, FRCPC
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Physician Program Director, The HEART Centre, St. Paul's Hospital
Provincial Medical Director, Cardiac Services BC
Associate Professor, Department of Medicine, University of British Columbia
Past President, Canadian Heart Failure Society
Medical Director, HeartLife Foundation
Vancouver, BC

Disclosure of Commercial Support

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Learning Objectives

- Describe the state of heart failure management in Canada through the review of performance indicators from the CCS Quality Project and the CAN-HF Registry
- Identify gaps in care and opportunities to improve outcomes for patients with heart failure
- Summarize the 2021 CCS/CHFS heart failure guidelines and the foundational evidence that supports the application of GDMT
- Examine how the implementation of order sets helps support the application of GDMT in clinical practice

#Heart of the Matter: The state of heart failure care in Canada

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Medical Co-Director, Heart Function and Rapid Cardiology Assessment Clinic
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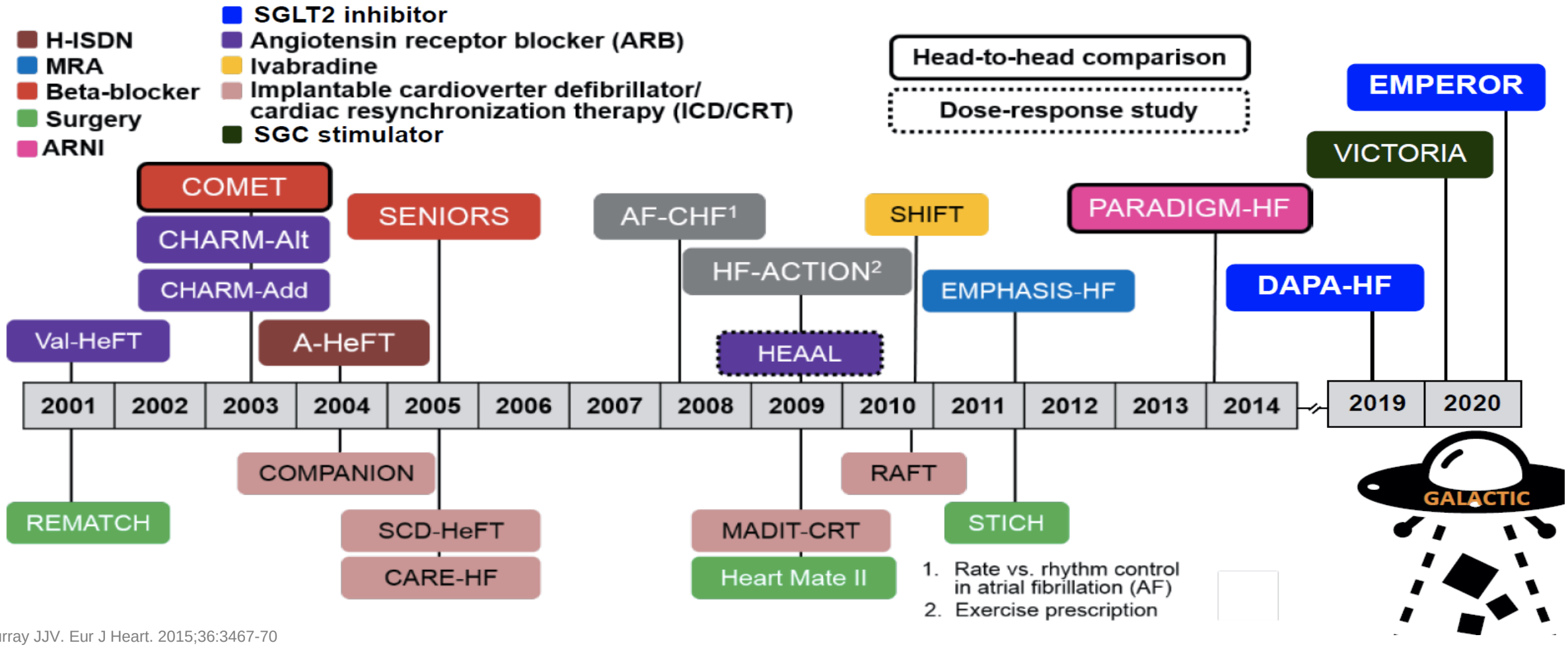
Canadian Cardiovascular Society Heart Failure National Quality Report

Heart Failure with Reduced Ejection Fraction (HFrEF) Positive Trials: 2001-2020

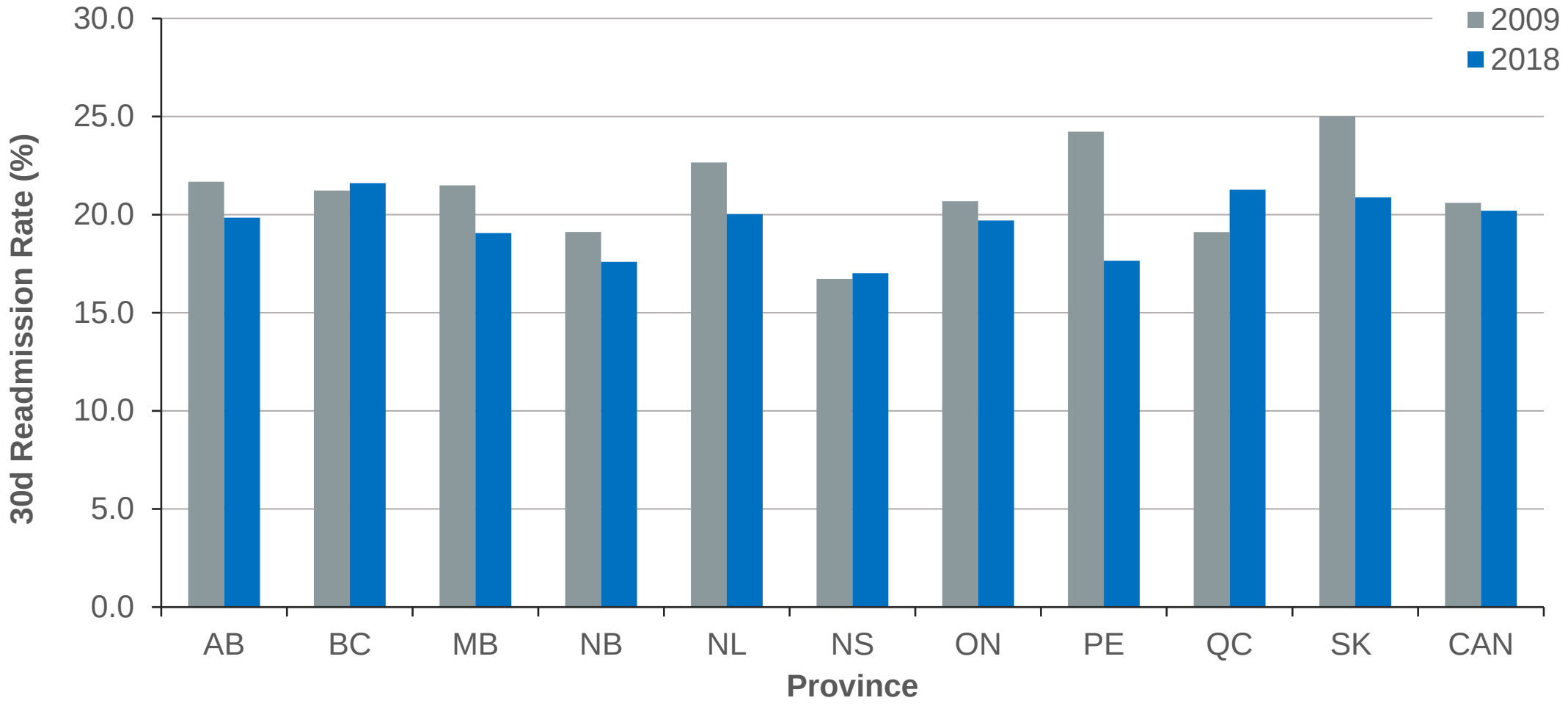


McMurray JJV. Eur J Heart. 2015;36:3467-70
Courtesy of Dr. Shelley Zieroth

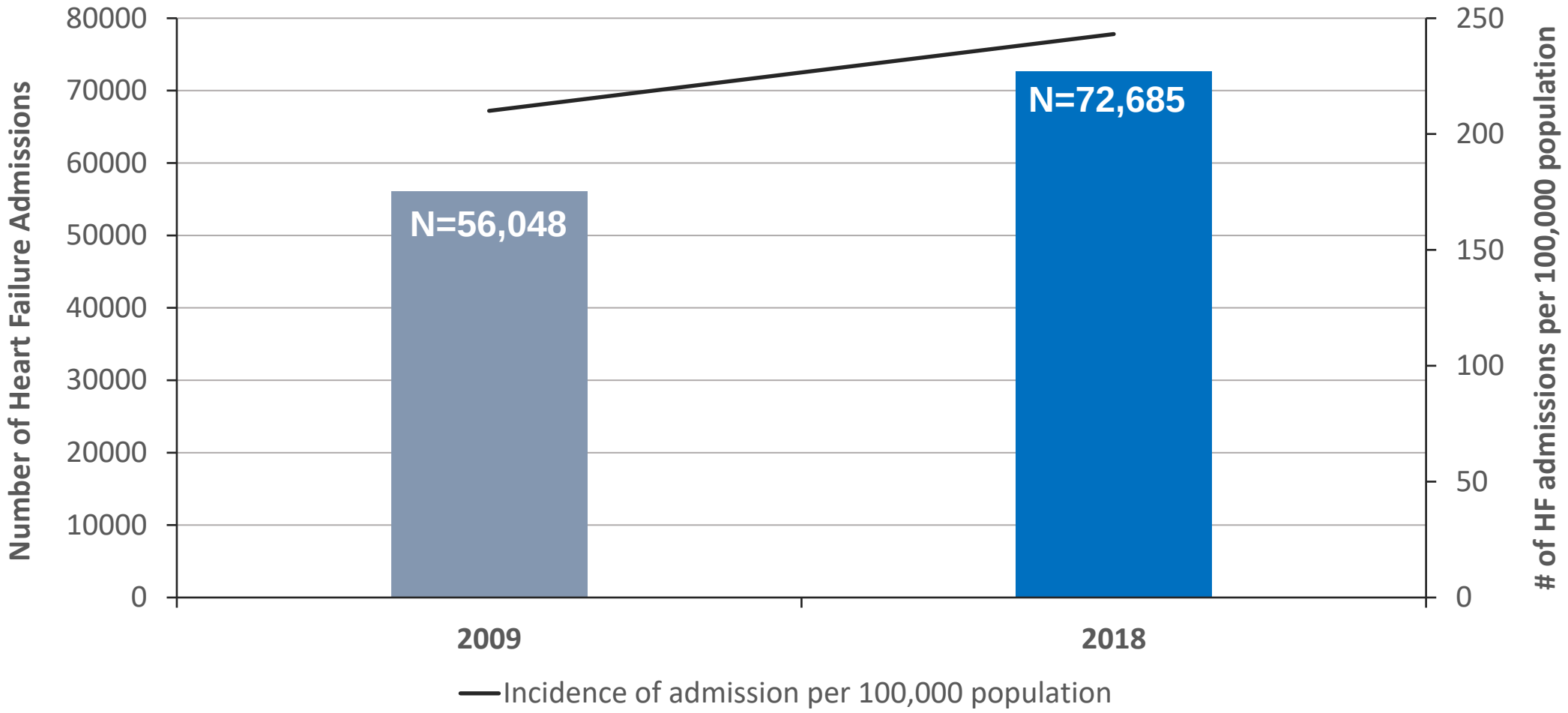
Canadian Cardiovascular Society National Quality Report: Heart Failure

- **Primary panel:**
  - Laurie Lambert
  - Benjamin Leis
  - Kendra MacFarlane
  - Robert McKelvie
  - Stephanie Poon
- **Secondary panel:**
  - Kim Anderson
  - Claudia Blais
  - Catherine Demers
  - Justin Ezekowitz
  - Nathaniel Hawkins
  - Douglas Lee
  - Gordon Moe
  - Roopinder Sandhu
  - Sean Virani
  - Steve Wilton
  - Shelley Zieroth
- **Objective:**
  - Describe trends in 30-day readmission rates and length of stay (LOS) of patients admitted with heart failure (HF) across Canada from 2009 compared to 2018
- **Data sources:**
  - CIHI Discharge Abstract Database (DAD)
  - MED-ECHO (Quebec)

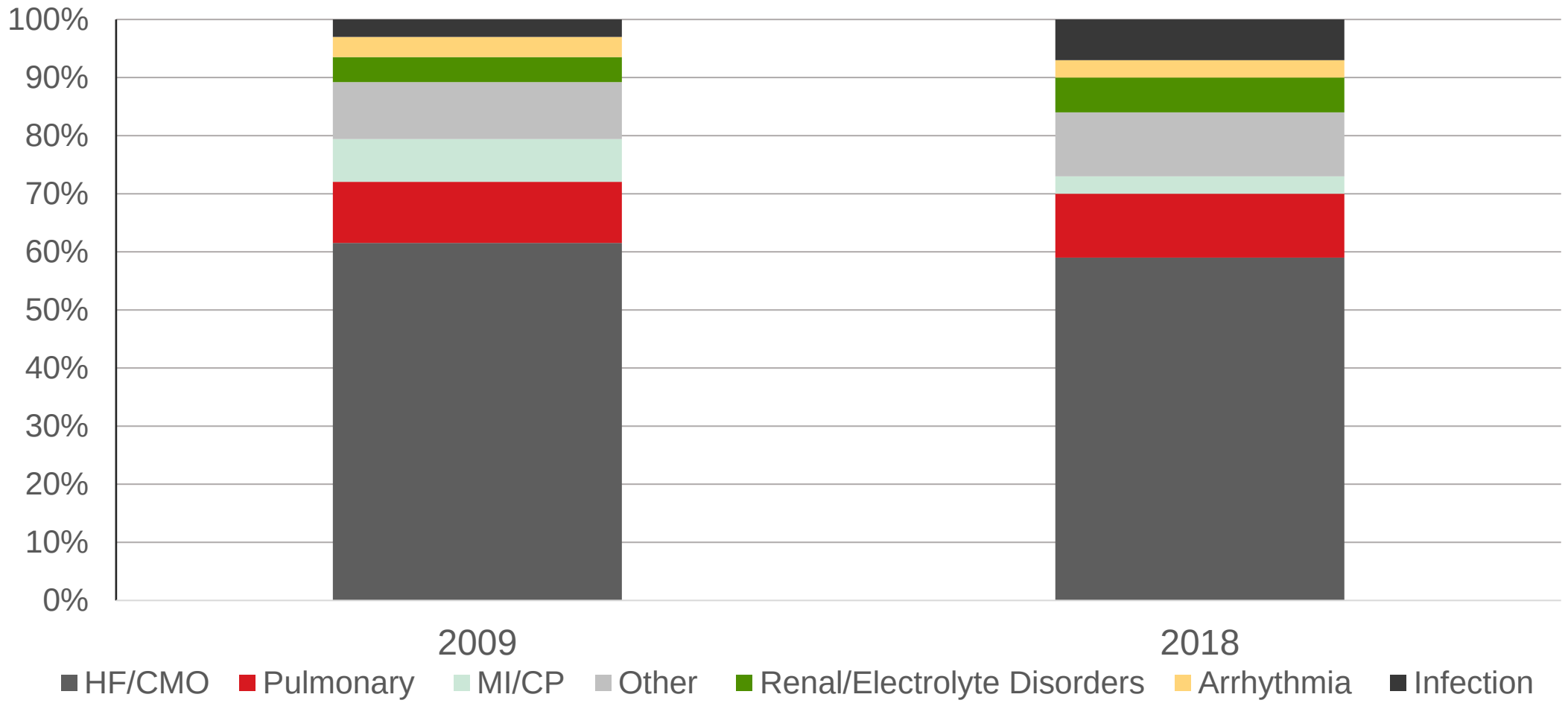
30-day Readmission Rate of Patients with HF in 2009 and 2018



Total number of HF Admissions and Annual Rate of HF Admissions per 100,000 Population in 2009 and 2018

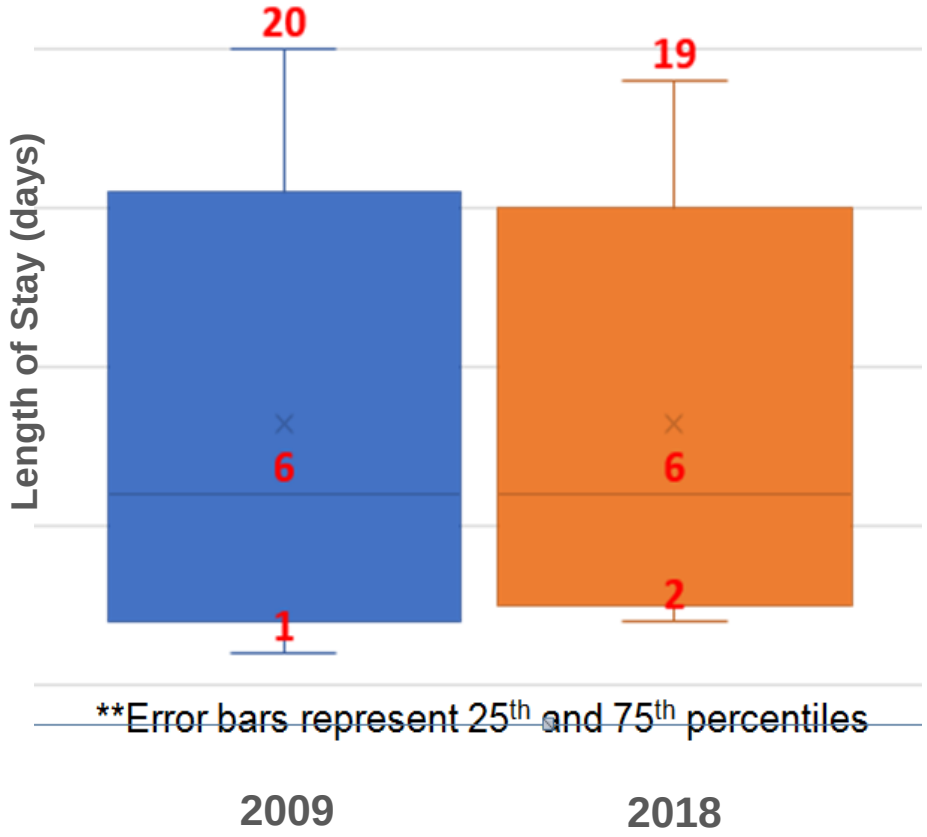


Reasons for 30-d Readmissions in 2009 and 2018

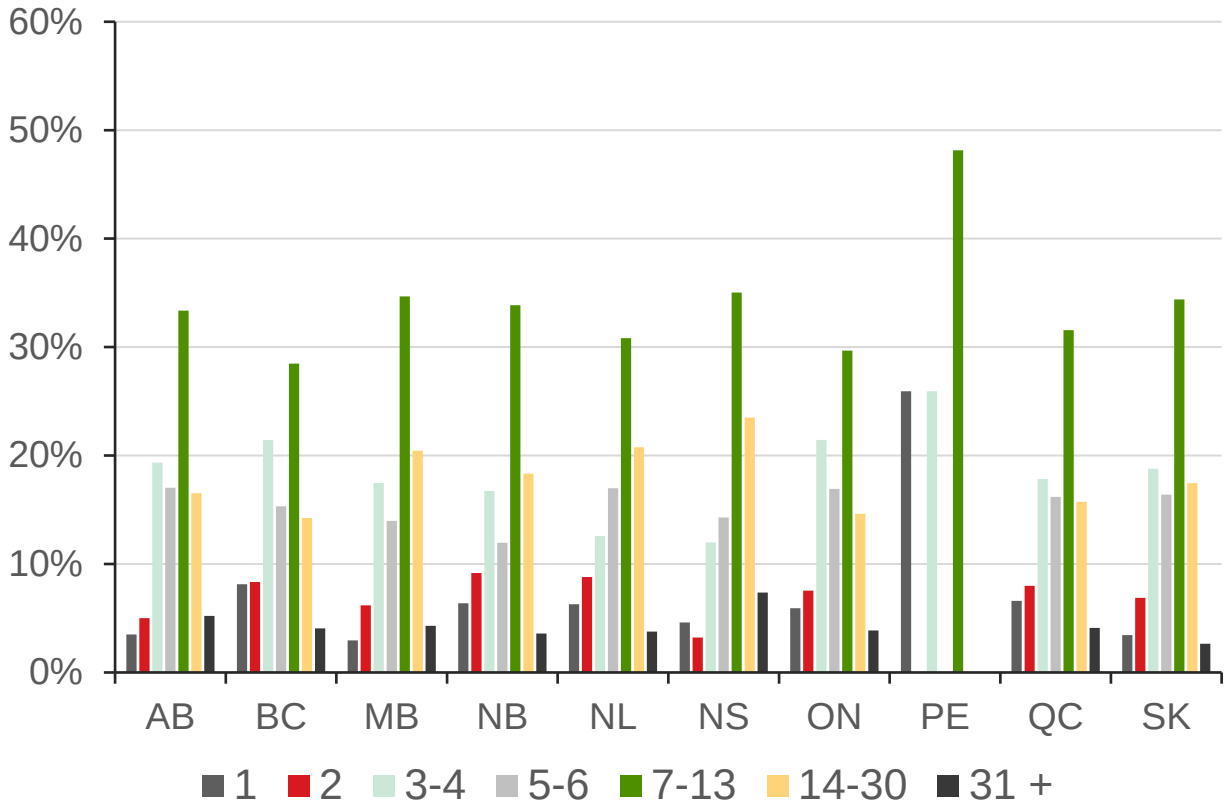


Heart Failure Length of Stay (LOS) in Canada

National Median HF LOS in 2009 and 2018



2018: HF LOS (days) According to Province (% of patients with corresponding LOS)



Relationship Between LOS, Readmissions, and Mortality

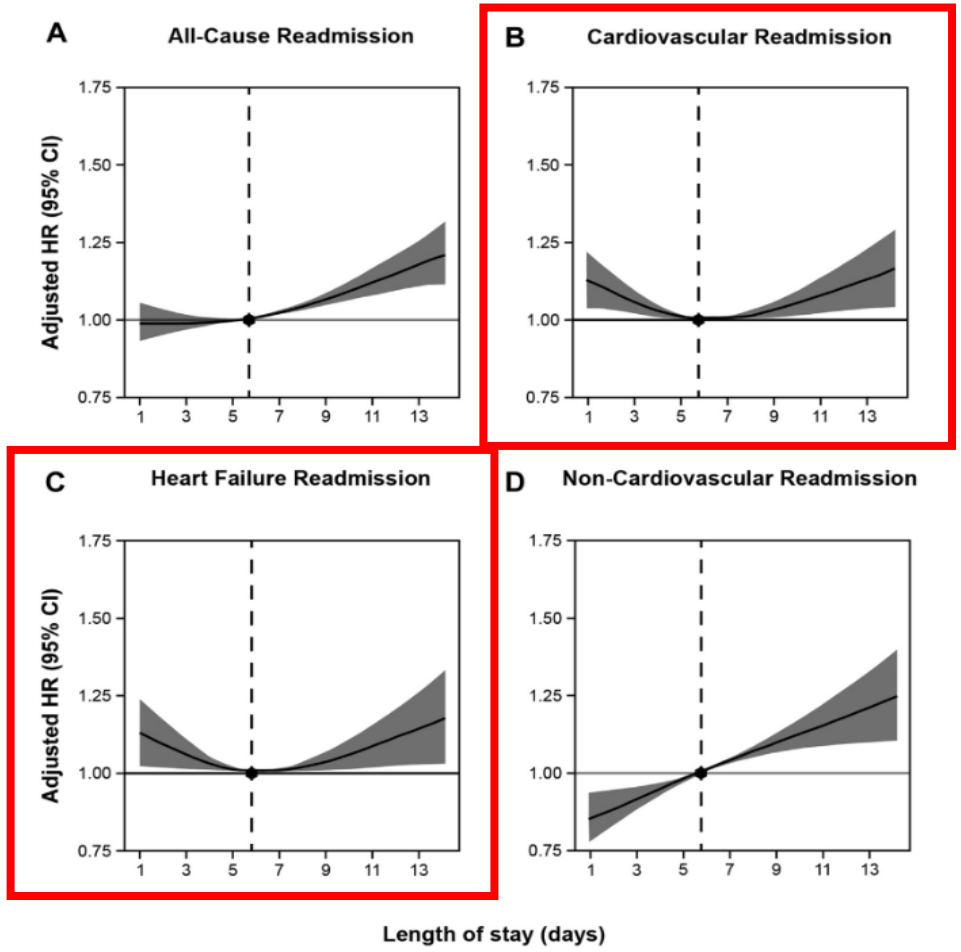


TABLE 3 Mortality Outcomes at 30 Days

Outcome	Length of Stay (Days)	Deaths/ Patients	Adjusted Rate/ 100 Persons (95% CI)*	Adjusted HR (95% CI)*
All-cause mortality	1-2	323/9,938	3.40 (3.03-3.77)	0.96 (0.83-1.11)
	3-4	424/15,288	2.81 (2.52-3.10)	0.79 (0.68-0.91)
	5-6	441/12,439	3.52 (3.20-3.85)	Referent
	7-8	344/8,786	3.93 (3.54-4.32)	1.12 (0.97-1.29)
	9-14	551/11,779	4.46 (4.13-4.78)	1.28 (1.14-1.43)†
Cardiovascular mortality	1-2	198/9,938	2.09 (1.79-2.38)	0.91 (0.76-1.09)
	3-4	270/15,288	1.76 (1.53-1.99)	0.77 (0.65-0.91)
	5-6	282/12,439	2.27 (2.01-2.52)	Referent
	7-8	208/8,786	2.40 (2.09-2.71)	1.06 (0.89-1.27)
	9-14	340/11,779	2.77 (2.51-3.03)	1.23 (1.06-1.44)
Noncardiovascular mortality	1-2	125/9,938	1.31 (1.08-1.54)	1.03 (0.81-1.32)
	3-4	154/15,288	1.05 (0.87-1.24)	0.82 (0.64-1.06)
	5-6	159/12,439	1.26 (1.06-1.46)	Referent
	7-8	136/8,786	1.53 (1.29-1.77)	1.22 (0.99-1.51)
	9-14	211/11,779	1.69 (1.49-1.89)	1.35 (1.09-1.67)

Sud M et al. JACC Heart Fail. 2017;5:578-88.

Limitations

- This study is based on hospital administrative data, which has known limitations regarding potential variability in the accuracy and consistency of coding the appropriate main diagnosis[1]
- Data from CIHI also does not contain information on left ventricular ejection fraction (LVEF) and brain-type natriuretic peptides (BNP), or clinical findings that would delineate severity of illness.
- Data does not account for patients with HF who may have died within 30 days.

[1]Masri A, Althouse AD, McKibben J et al. Limitations of administrative data for studying patients hospitalized with heart failure. *Ann Intern Med*. 2017;166:916-917.

CAN-HF: A Canadian multi-centre, retrospective, non-interventional study of inpatients and ambulatory patients with heart failure

Study Team

CAN-HF Steering Committee

- Dr. R. McKelvie (Chair)
- Dr. George Honos
- Dr. Stephanie Poon
- Dr. Sean Virani

Novartis Medical Affairs

- Carlos Rojas-Fernandez, PharmD
- Lamia Kalfane, PharmD

Study Sites

- BC: Vancouver Coastal Health Authority
  (Dr. Sean Virani)
- MB: Concordia Hospital
  (Dr. Shelley Zieroth)
- MB: Saint Bonafice Hospital
  (Dr. Shelley Zieroth)
- ON: Orillia Soldier's Memorial Hospital
  (Dr. John MacFadyen)
- ON: Lawson Health Research Institute
  (Dr. Robert McKelvie)
- QC: Centre Hospitalier de l'Universite de Montreal
  (Dr. George Honos)
- QC: CHU De Quebec-Universite Laval
  (Dr. Sebastien Joncas)

Total number of inpatients = 943

Inpatients: Selected baseline characteristics

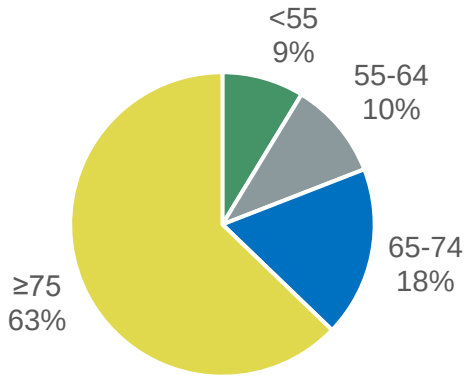
56.3%
Male patients

43.7%
Female patients

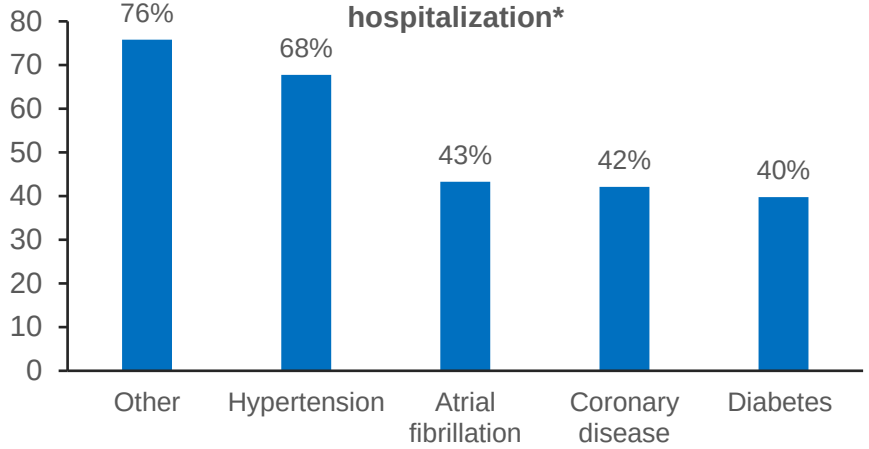
Mean Age: 76
SD 14.1
Median age: 80 (IQR 19.0)

HF History
Yes: 64%
No: 31%
Unk: 5%

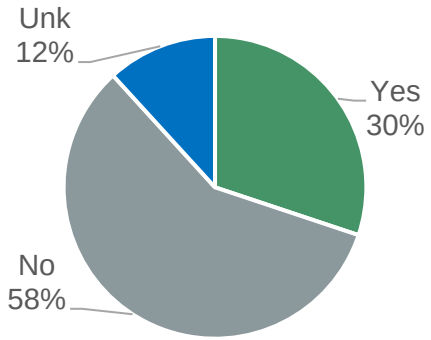
Age Group Distribution



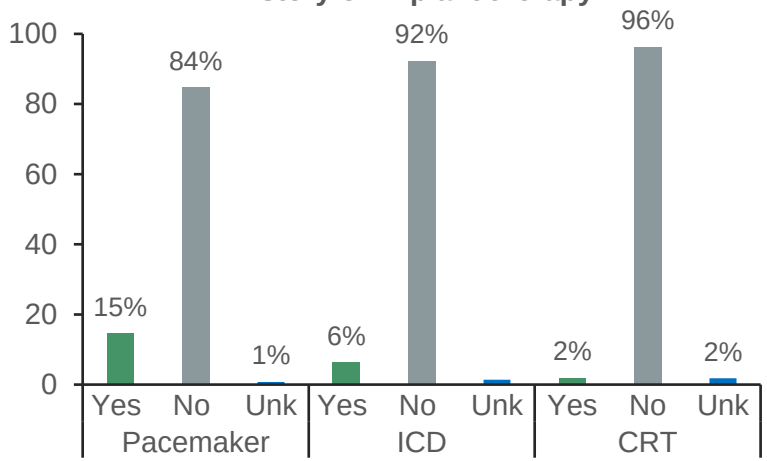
Top 5 comorbidities reported prior to hospitalization*



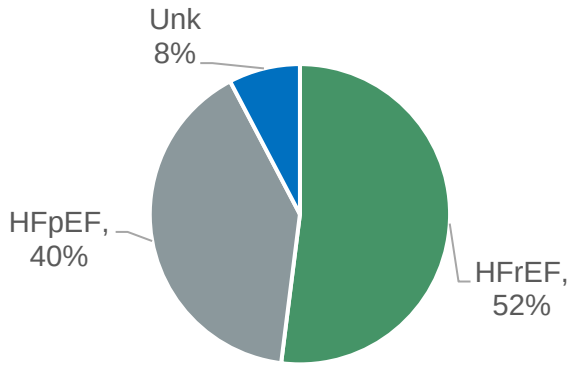
Patient admitted to hospital for heart failure in the past 12 months



History of implant therapy*



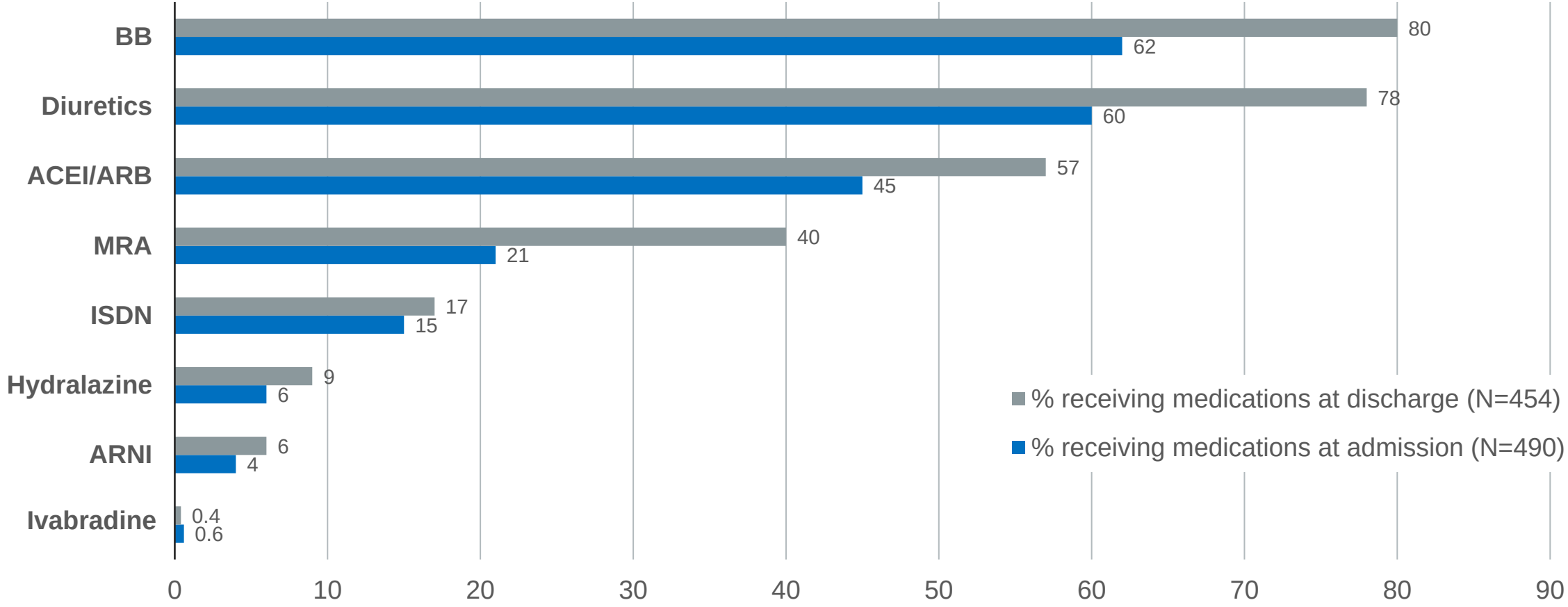
Heart failure diagnosis



*Multiple answers per patient possible

Inpatients with HFrEF:

Medication use at admission & discharge (% of patients)



*Multiple answers per patient possible

Total number of outpatients = 1775

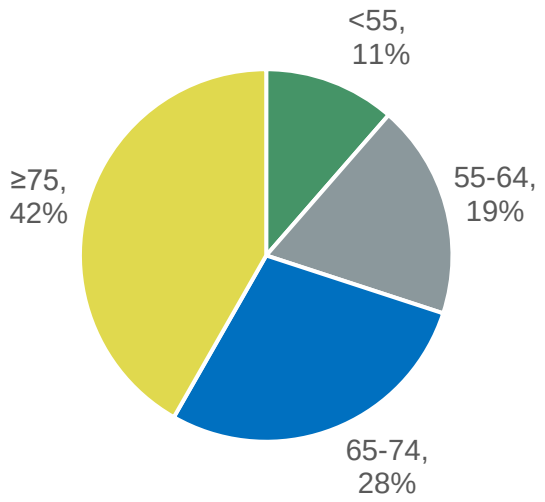
Outpatients: Selected baseline characteristics

66.4%
Male patients

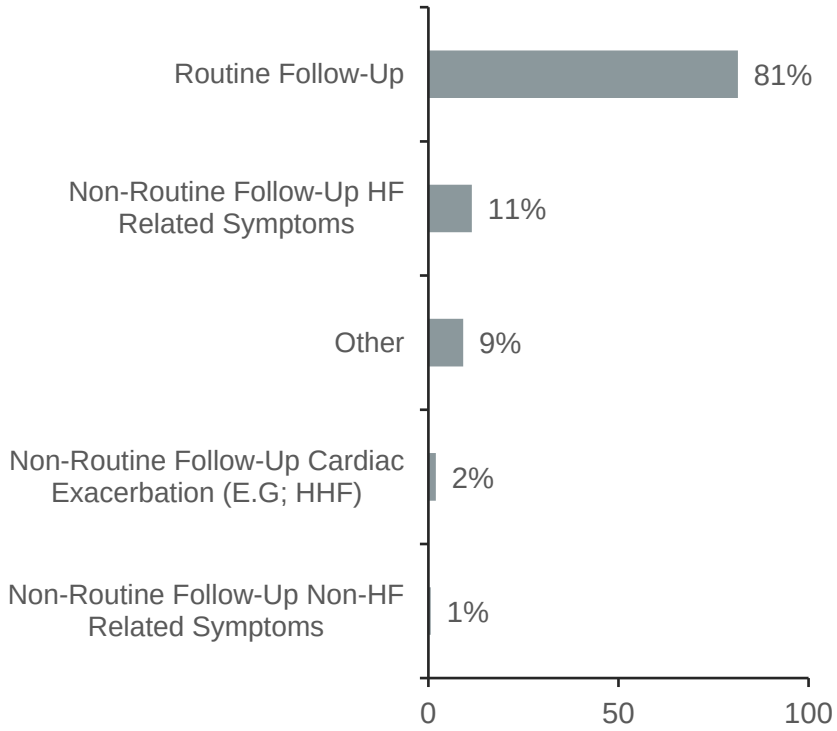
33.6%
Female patients

Mean Age: 70
SD 13.7
Median age: 72 (IQR 17.0)

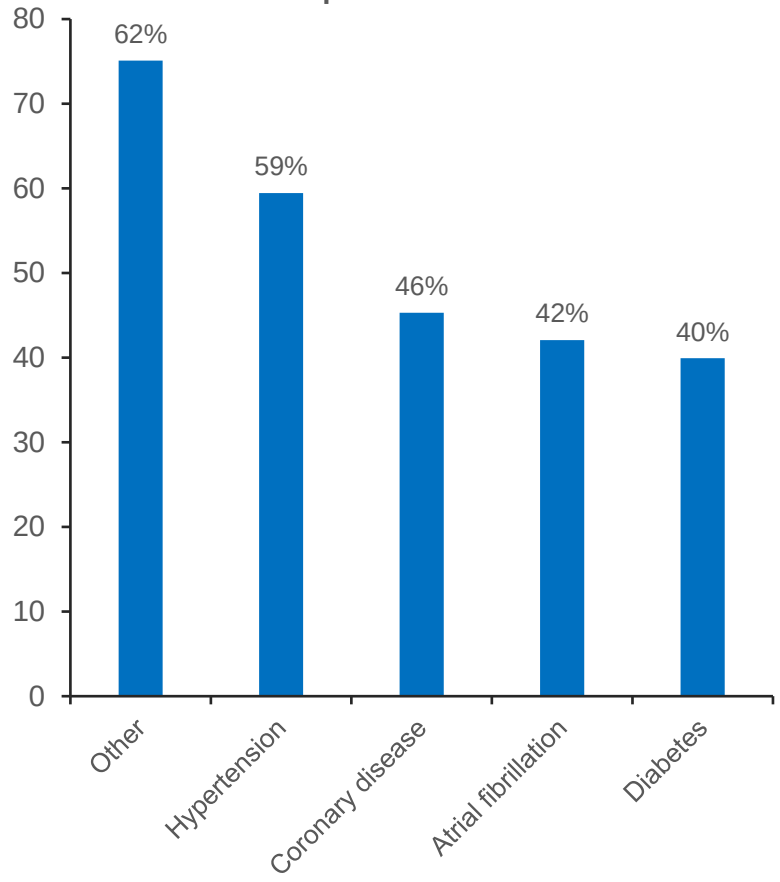
Age Groups Distribution



Reason for appointment*

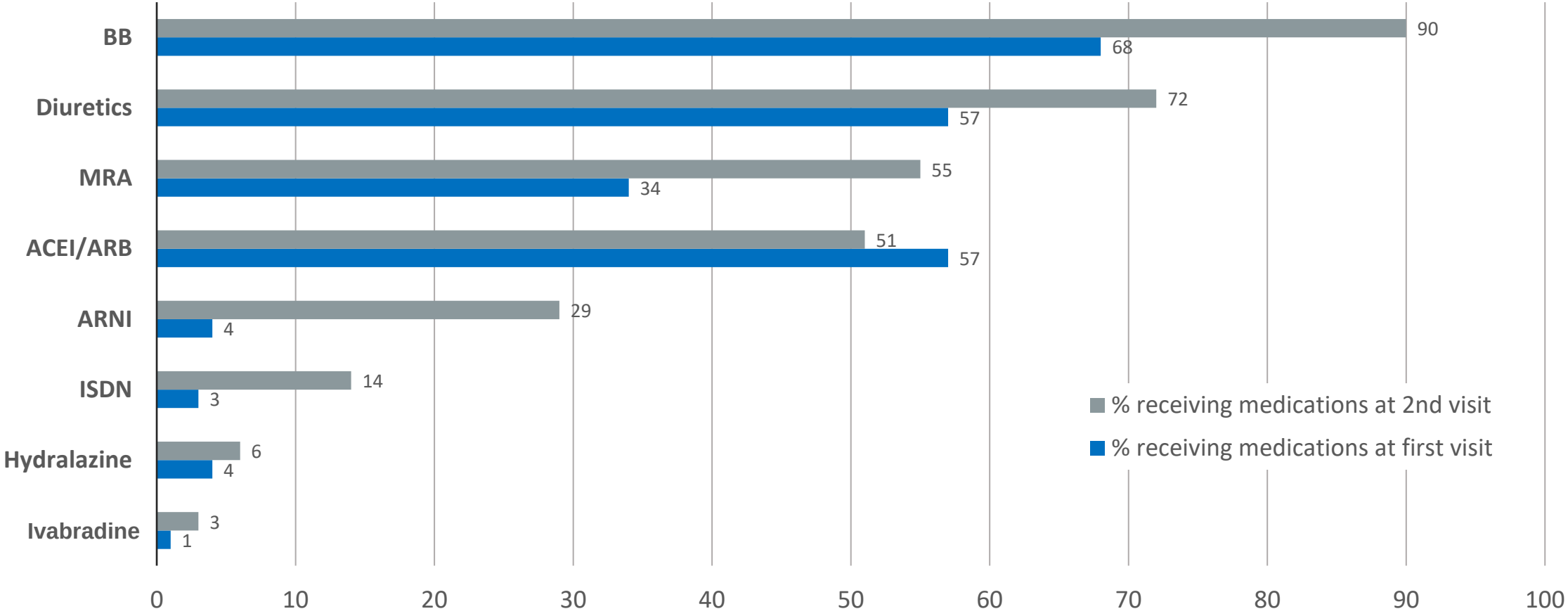


Top 5 comorbidities reported prior to outpatient visit*



*Multiple answers per patient possible

Outpatients with HFrEF:
Medication use at 1st and 2nd visit (% of patients; N=1319)



Conclusions

- Use of GDMT is improved in HFrEF patients both during hospitalization and with ambulatory follow-up
- There continues to be opportunities for improvement
- Patients with HFrEF have a high burden of co-morbidity
- >30% of patients admitted to hospital have *de novo* heart failure

#Guidelines for the Win: The new standard in HFrEF management

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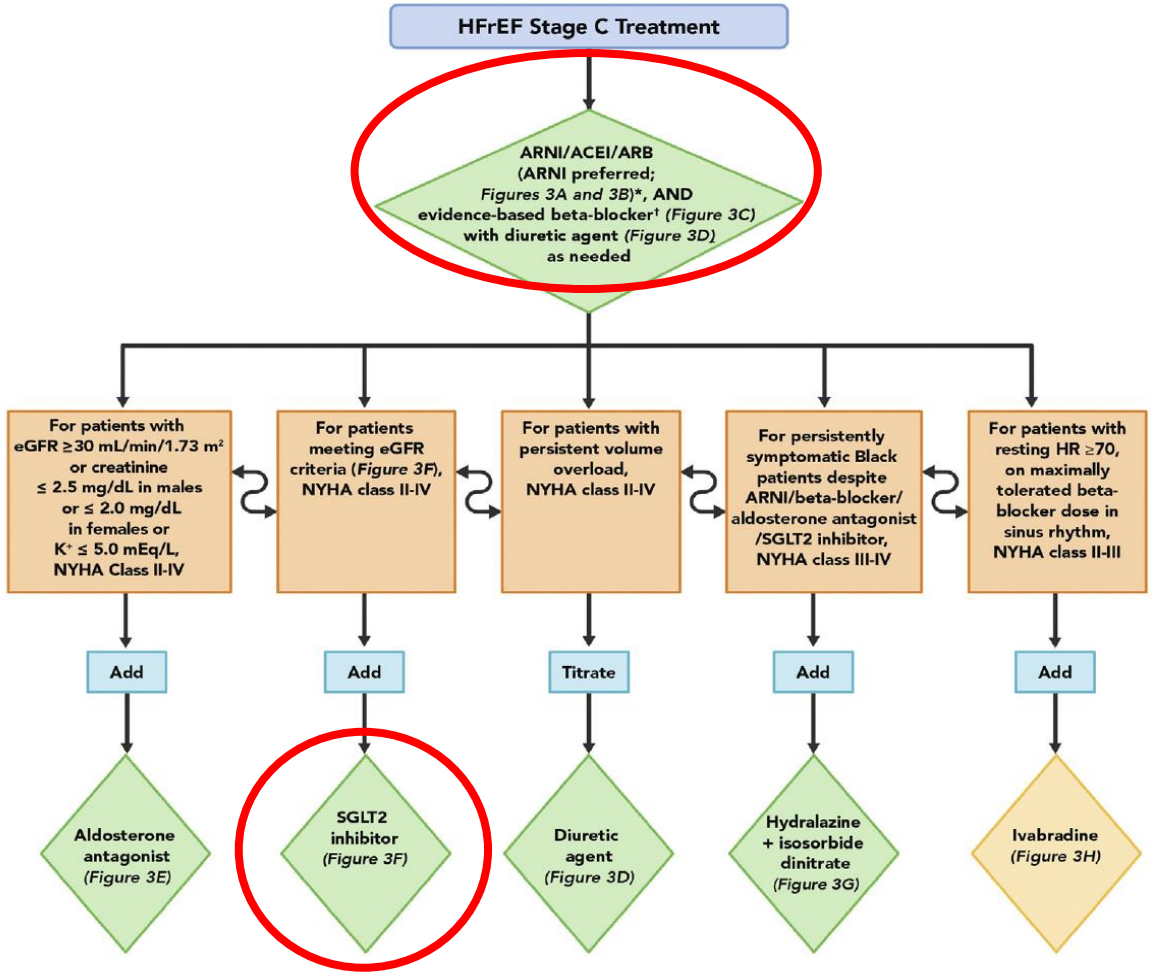
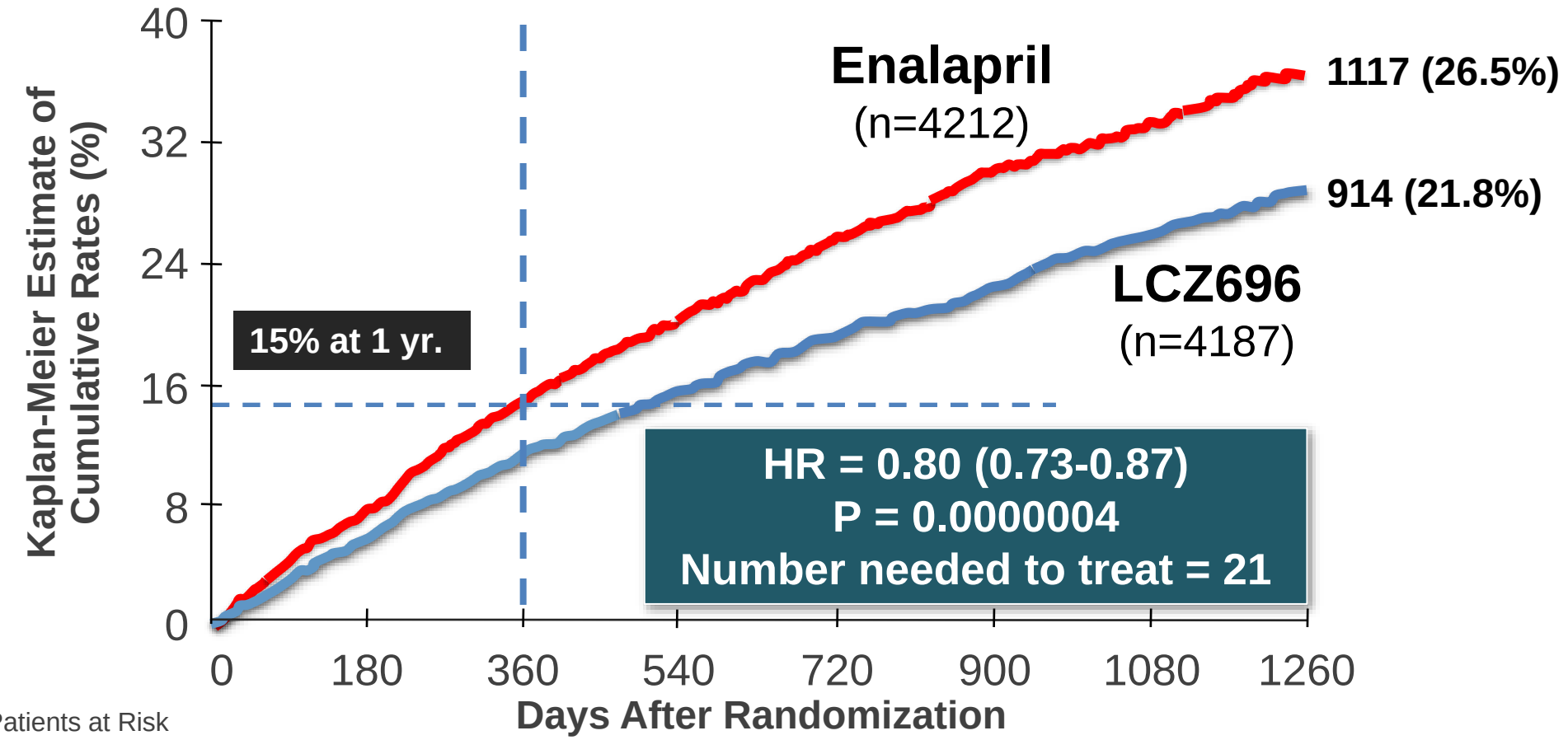
The 2021 Update to the 2017 HF ECDP



- Major changes in the ECDP include two medical therapies elevated to "front line"
  - ✓ Angiotensin receptor/neprilysin inhibitors (ARNI) are now the preferred, first line renin-angiotensin inhibitor
  - ✓ Sodium glucose co-transporter-2 (SGLT2) inhibitors are now a part of the foundational medical management

Maddox TM, Januzzi JL Jr, Allen LA, Breathett K, Butler J, Davis LL, Fonarow GC, Ibrahim NE, Lindenfeld J, Masoudi FA, Motiwala SR, Oliveros E, Patterson JH, Walsh MN, Wasserman A, Yancy CW, Youmans QR. 2021 Update to the 2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues About Heart Failure With Reduced Ejection Fraction: J Am Coll Cardiol. 2021 Jan 4:S0735-1097(20)37867-0. doi: 10.1016/j.jacc.2020.11.022. Epub ahead of print. PMID: 33446410.

PARADIGM-HF



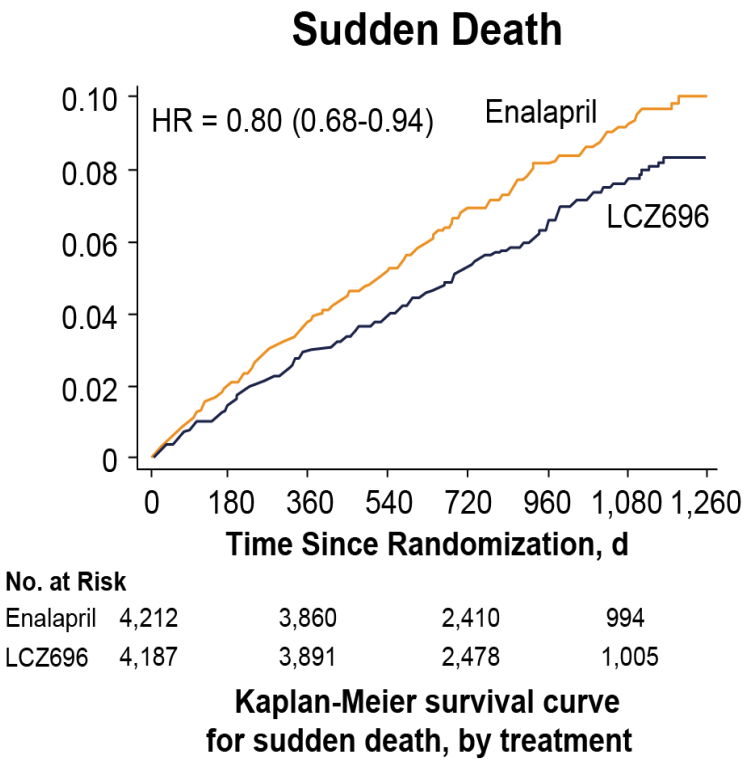
Patients at Risk

LCZ696	4187	3922	3663	3018	2257	1544	896	249
Enalapril	4212	3883	3579	2922	2123	1488	853	236

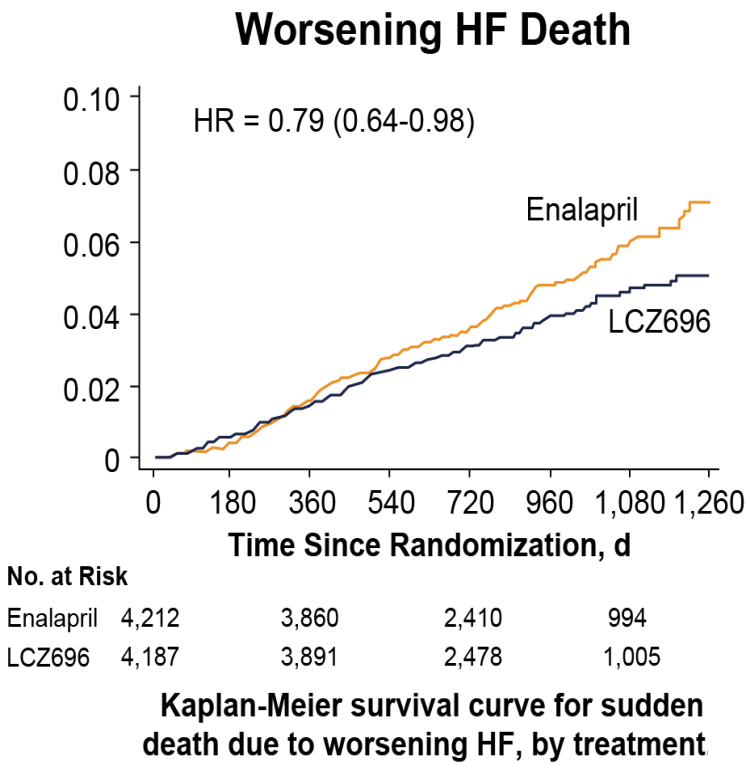
McMurray, et al. *N Engl J Med.* 2014;371:993-1004.

MASSACHUSETTS GENERAL HOSPITAL
HEART CENTER

Effect of Sacubitril/Valsartan on Mode of Death



Kaplan-Meier survival curve for sudden death, by treatment



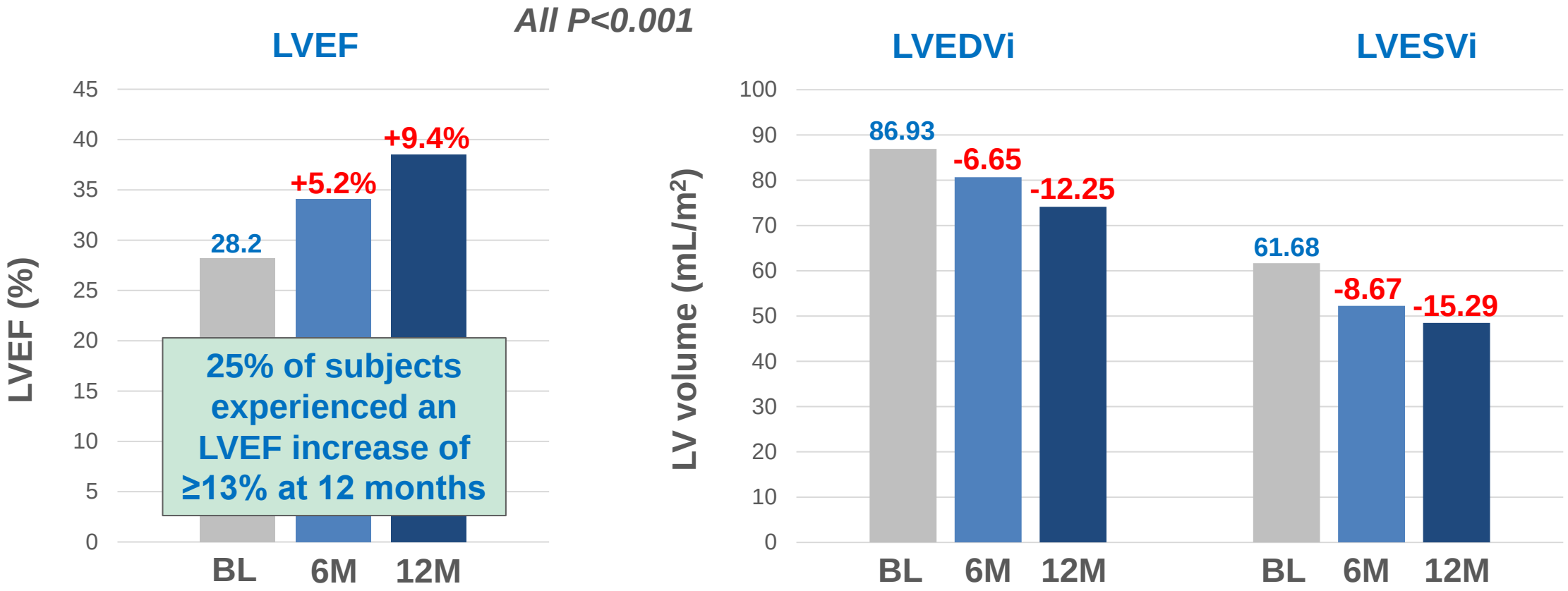
Kaplan-Meier survival curve for sudden death due to worsening HF, by treatment

- Sacubitril/valsartan reduced SCD risk in patients with an ICD (HR: 0.49) and in those who were eligible for but did not receive an ICD (HR: 0.81)
- This effect was particularly evident in nonischemic cardiomyopathy

PROVE-HF

Sacubitril/Valsartan and Reverse Remodeling

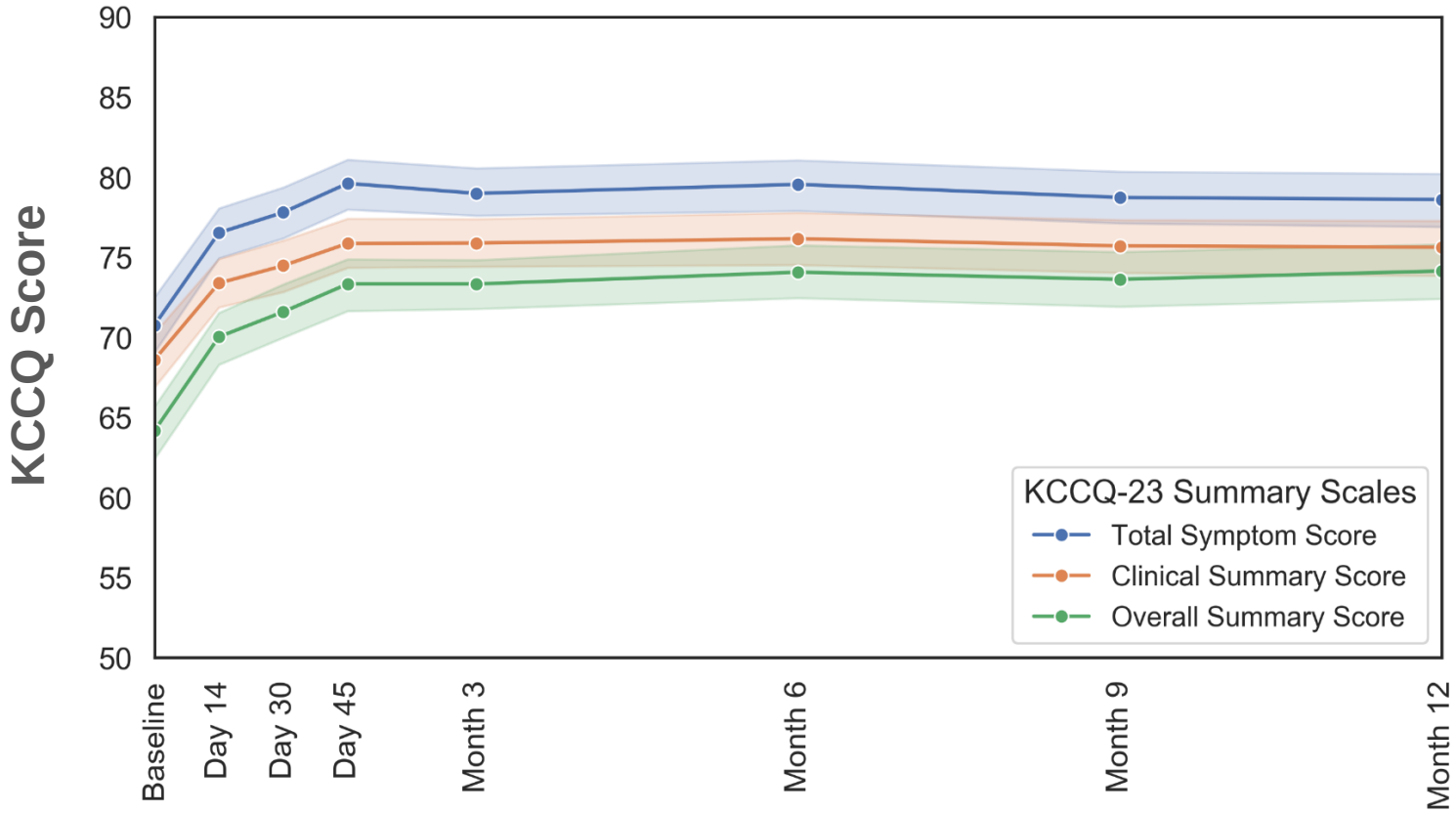
- Reverse cardiac remodeling to 12 months despite ACEi/ARB in 80% at BL



Januzzi JL, et al. JAMA 2019;322:1085–1095.

MASSACHUSETTS GENERAL HOSPITAL
HEART CENTER

Sacubitril/Valsartan and KCCQ Improvement



Initiating S/V in HFrEF:

- By 14 days: ↑ 6 points
- By 60 days: ↑ 9 points

- 61% KCCQ ↑ ≥10 points
- 26% KCCQ ↑ ≥20 points

✓ Early change identical to that seen in EVALUATE-HF

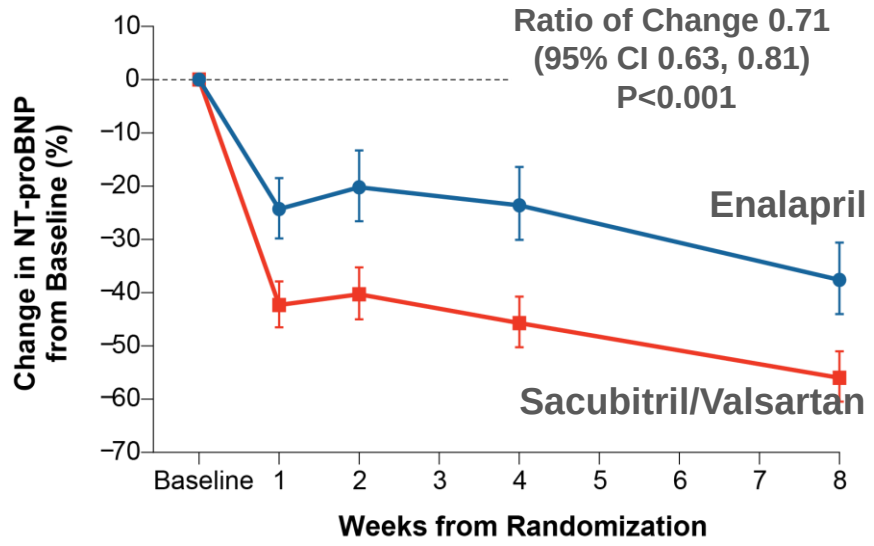
Pina et al, J Am Coll Cardiol Heart Fail. Nov 11, 2020. Epublished DOI: 10.1016/j.jchf.2020.09.012

In Hospital Initiation of Sacubitril/Valsartan: De novo patients

881 patients
61 yo
26% Women
36% AA

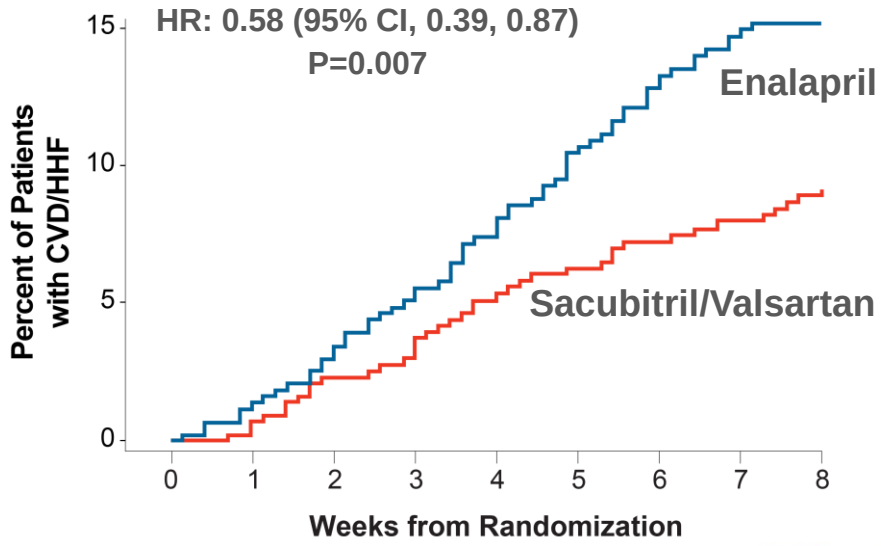
32% de novo HF
53% new ACE/ARB

Primary Endpoint: NT-proBNP Change



Velazquez EJ, *et al. N Engl J Med.* 2019

Exploratory Endpoint: CV death, HF hosp, LVAD, OHT listing

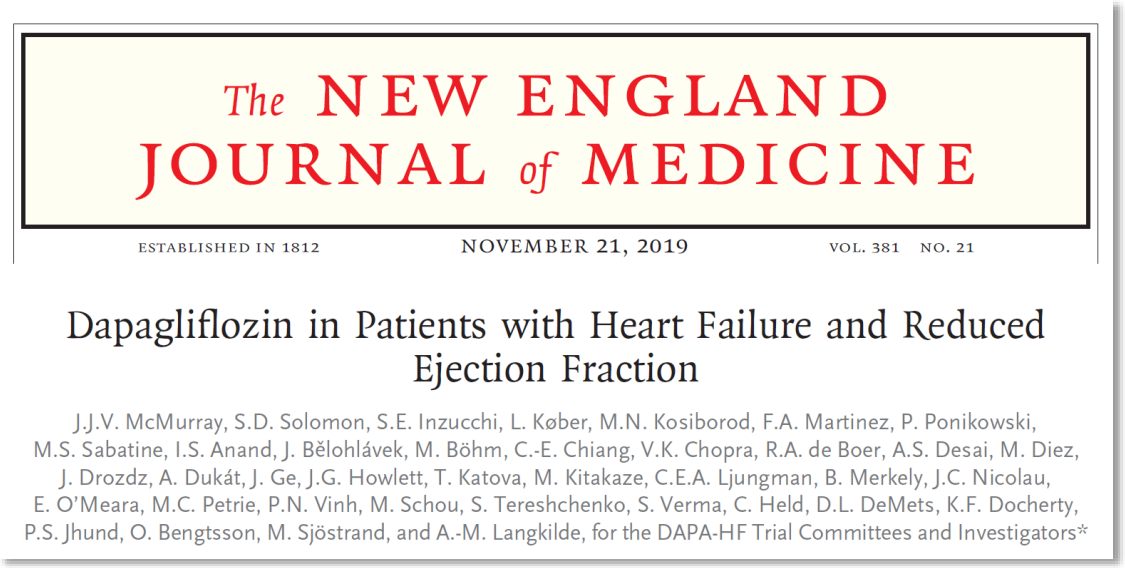


Morrow E, *et al. Circulation.* 2019.

So, why “ARNI-First”?

- There is no biological plausibility to sequencing with ACEi/ARB first, then changing to ARNI
- Going direct to ARNI is well tolerated (TRANSITION, PIONEER-HF, PROVE-HF)
- Benefit of ARNI in trials appears very early
- Patients receiving ARNI *de novo* have the most reverse remodeling
- Waiting for “failure” of ACEi/ARB to intensify to ARNI is exactly what we are trying to prevent!
- Waiting to start ARNI reduces the eventual likelihood that the change will occur

DAPA-HF and EMPEROR-REDUCED

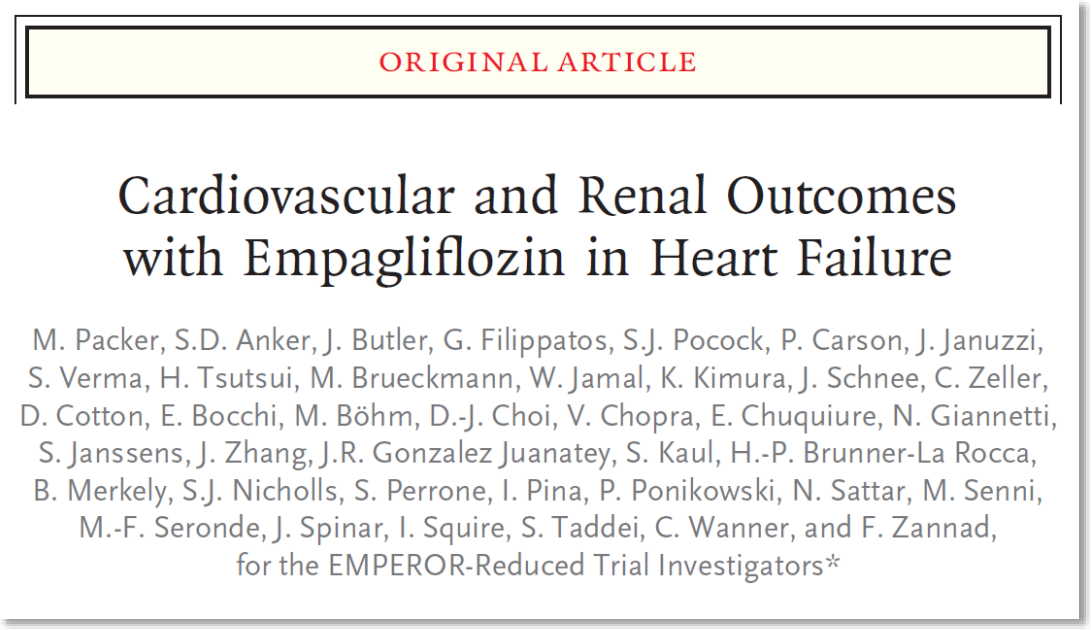


The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 NOVEMBER 21, 2019 VOL. 381 NO. 21

Dapagliflozin in Patients with Heart Failure and Reduced Ejection Fraction

J.J.V. McMurray, S.D. Solomon, S.E. Inzucchi, L. Køber, M.N. Kosiborod, F.A. Martinez, P. Ponikowski, M.S. Sabatine, I.S. Anand, J. Bělohlávek, M. Böhm, C.-E. Chiang, V.K. Chopra, R.A. de Boer, A.S. Desai, M. Diez, J. Drozdz, A. Dukát, J. Ge, J.G. Howlett, T. Katova, M. Kitakaze, C.E.A. Ljungman, B. Merkely, J.C. Nicolau, E. O'Meara, M.C. Petrie, P.N. Vinh, M. Schou, S. Tereshchenko, S. Verma, C. Held, D.L. DeMets, K.F. Docherty, P.S. Jhund, O. Bengtsson, M. Sjöstrand, and A.-M. Langkilde, for the DAPA-HF Trial Committees and Investigators*



ORIGINAL ARTICLE

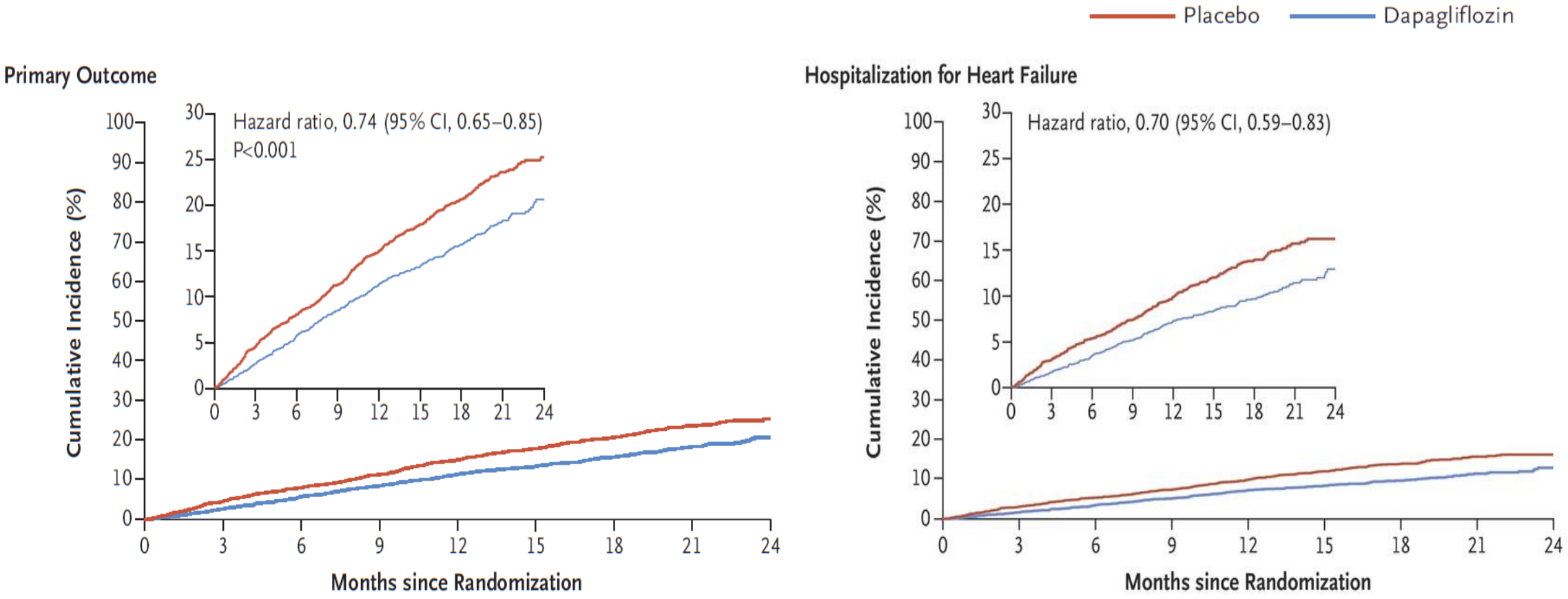
Cardiovascular and Renal Outcomes with Empagliflozin in Heart Failure

M. Packer, S.D. Anker, J. Butler, G. Filippatos, S.J. Pocock, P. Carson, J. Januzzi, S. Verma, H. Tsutsui, M. Brueckmann, W. Jamal, K. Kimura, J. Schnee, C. Zeller, D. Cotton, E. Bocchi, M. Böhm, D.-J. Choi, V. Chopra, E. Chuquiure, N. Giannetti, S. Janssens, J. Zhang, J.R. Gonzalez Juanatey, S. Kaul, H.-P. Brunner-La Rocca, B. Merkely, S.J. Nicholls, S. Perrone, I. Pina, P. Ponikowski, N. Sattar, M. Senni, M.-F. Seronde, J. Spinar, I. Squire, S. Taddei, C. Wanner, and F. Zannad, for the EMPEROR-Reduced Trial Investigators*

McMurray et al, NEJM 2019; Packer et al, NEJM 2020

MASSACHUSETTS GENERAL HOSPITAL HEART CENTER

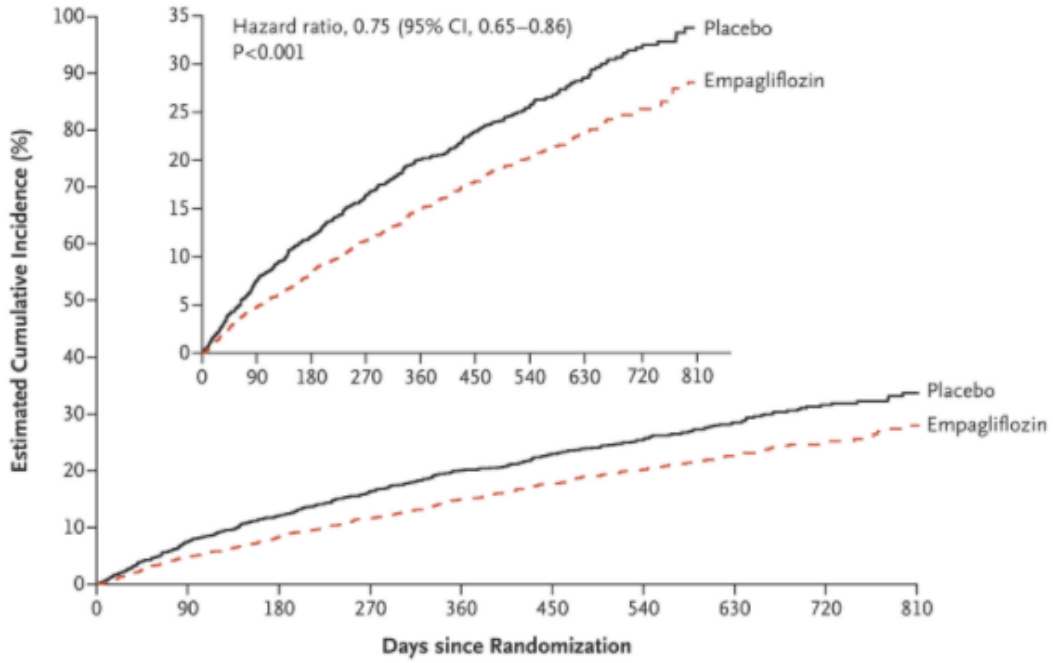
DAPA-HF: Primary endpoint and HHF



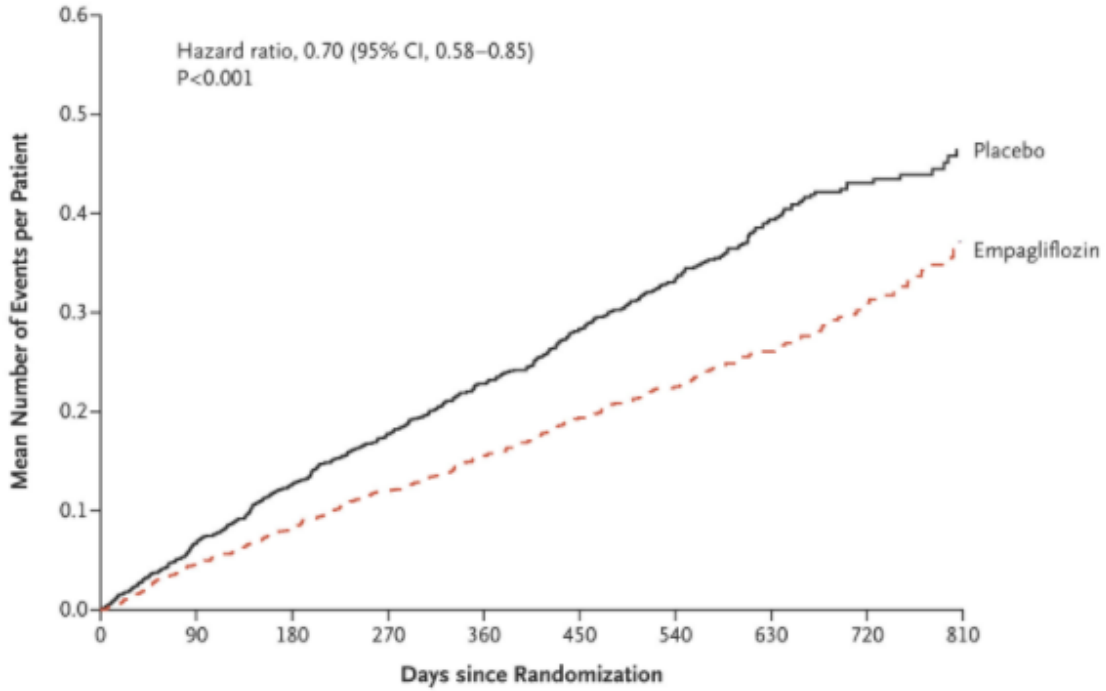
McMurray et al, NEJM 2019

EMPEROR-REDUCED

Primary endpoint
CV death/HF hospitalization



Secondary endpoint
First/recurrent HF hospitalization



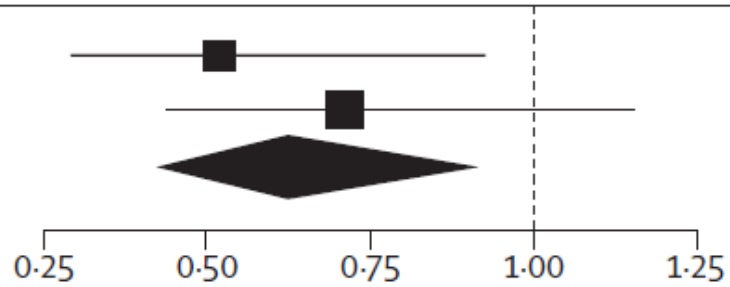
Packer et al, NEJM, 2020

EMPEROR-REDUCED: Renal endpoint

E First kidney outcome composite

	Number with event/number of patients (%)		HR (95% CI)
	SGLT2 inhibitor	Placebo	
EMPEROR-Reduced	18/1863 (1·0%)	33/1867 (1·8%)	0·52 (0·29–0·92)
DAPA-HF	28/2373 (1·2%)	39/2371 (1·6%)	0·71 (0·44–1·16)
Total			**0·62 (0·43–0·90)**

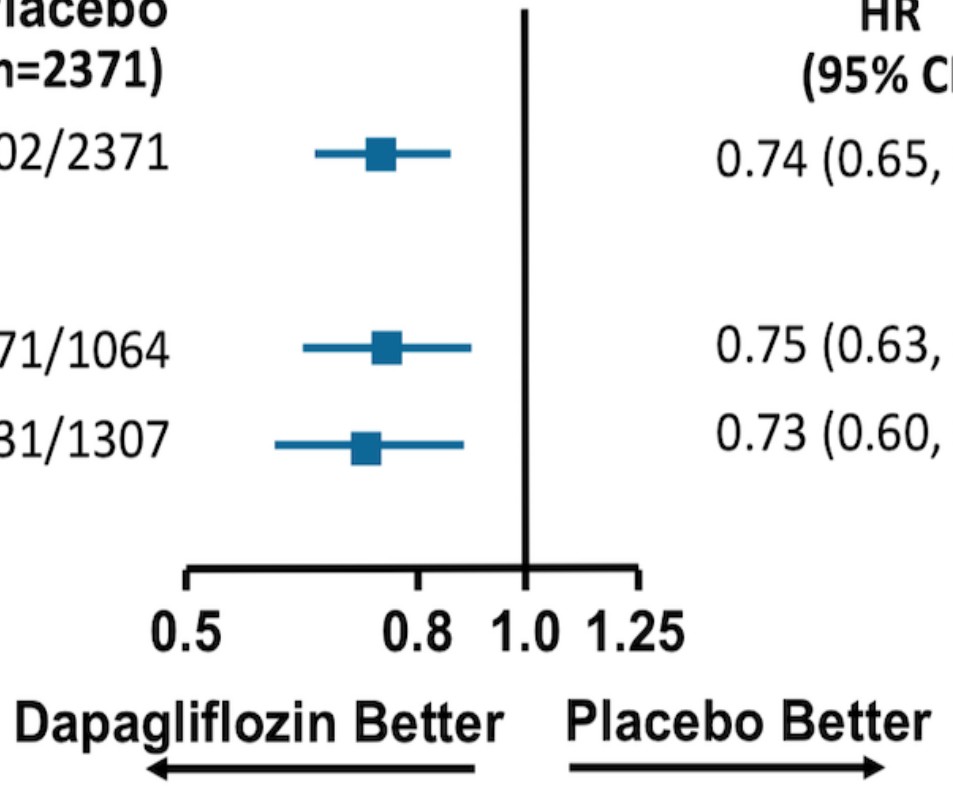
Test for overall treatment effect p=0·013
Test for heterogeneity of effect p=0·42



Packer et al, NEJM, 2020; Zannad et al, Lancet, 2020

HFrEF Benefit Regardless of Glycemic Status

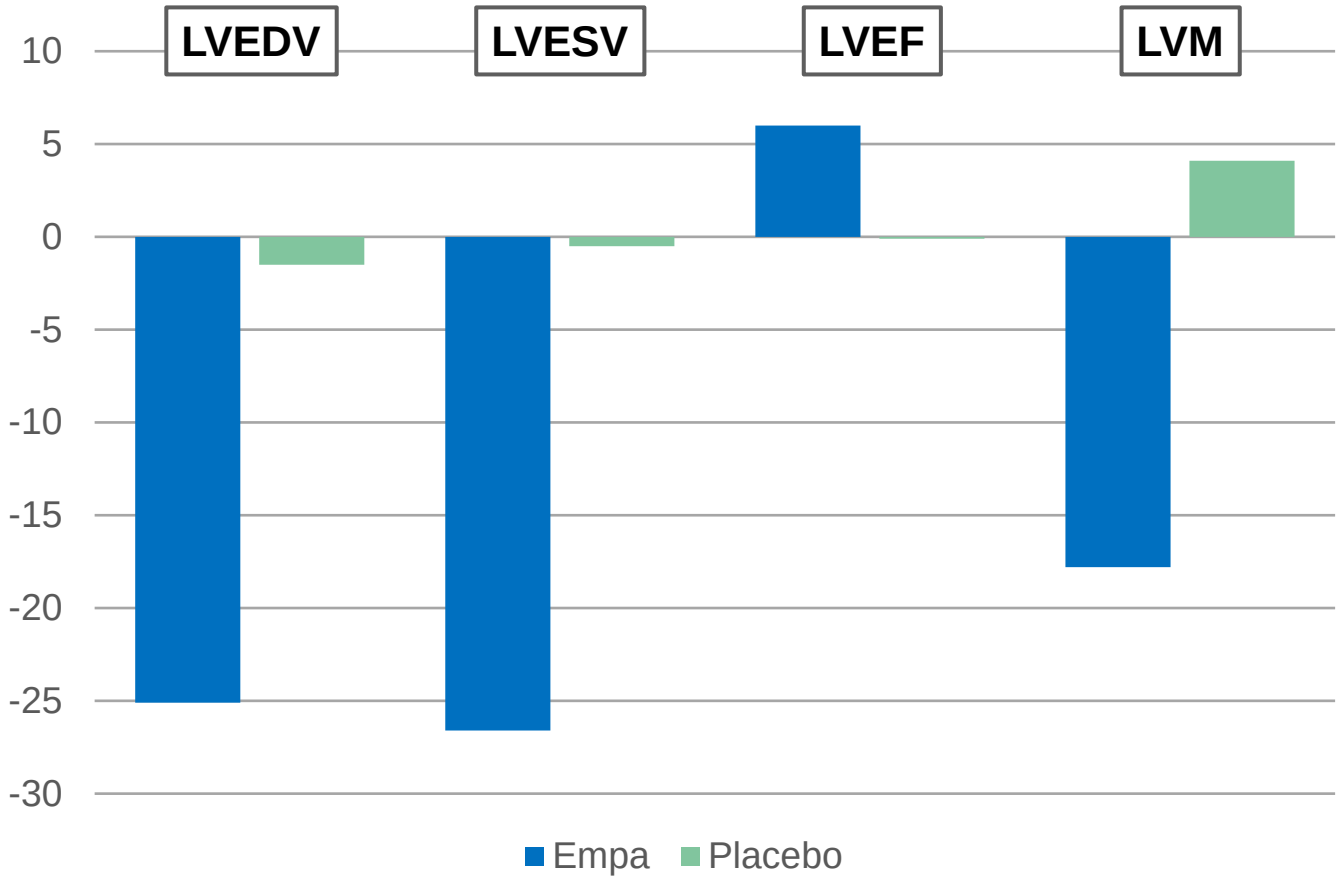
	Dapagliflozin (n=2373)	Placebo (n=2371)	HR (95% CI)
All patients	386/2373	502/2371	0.74 (0.65, 0.85)
Type 2 diabetes at baseline*			
Yes	215/1075	271/1064	0.75 (0.63, 0.90)
No	171/1298	231/1307	0.73 (0.60, 0.88)

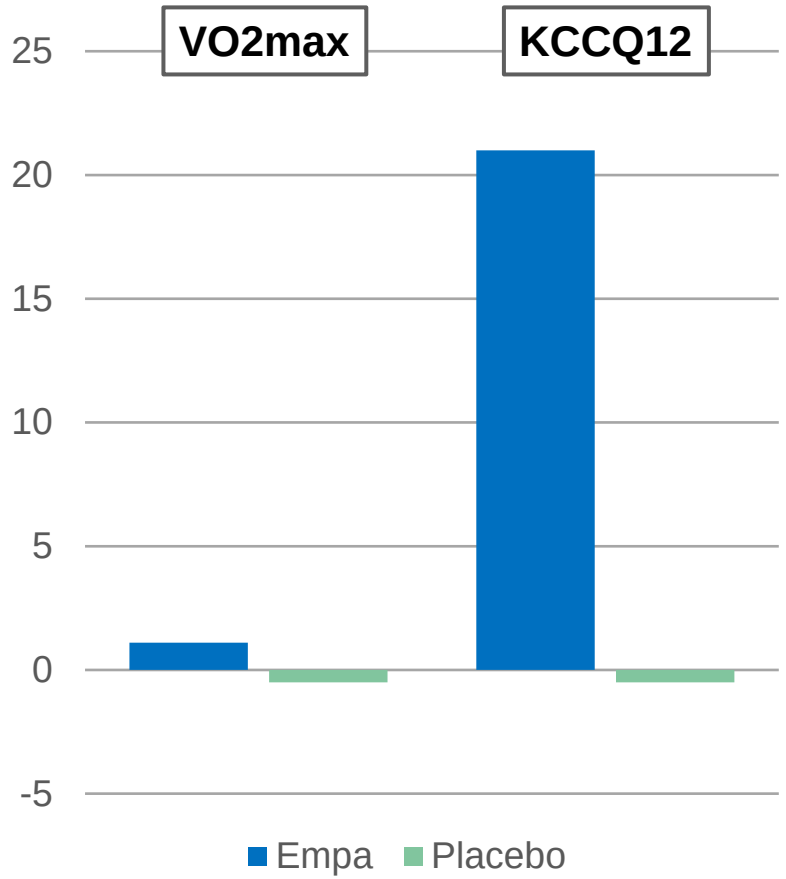


*Defined as history of type 2 diabetes or HbA1c ≥6.5% at both enrollment and randomization visits.

McMurray et al, NEJM 2019

EMPA-TROPISM: Structure and function improvement





NB: these are mean values with large SDs, subject to effects of outliers

Santos-Gallego et al, JACC 2020

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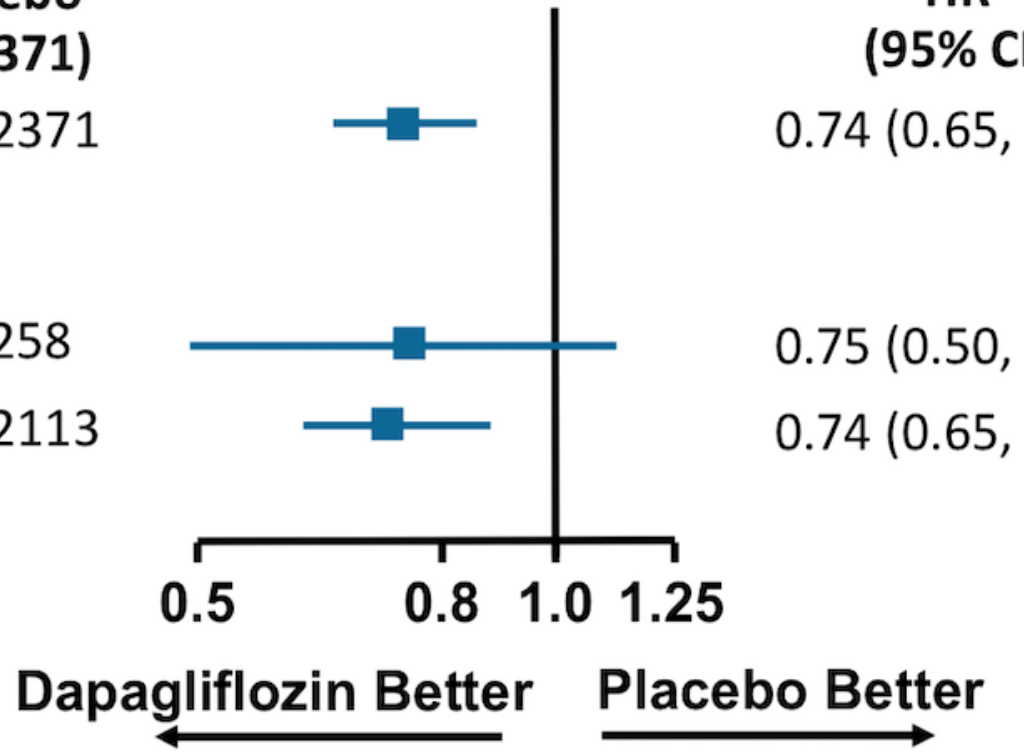
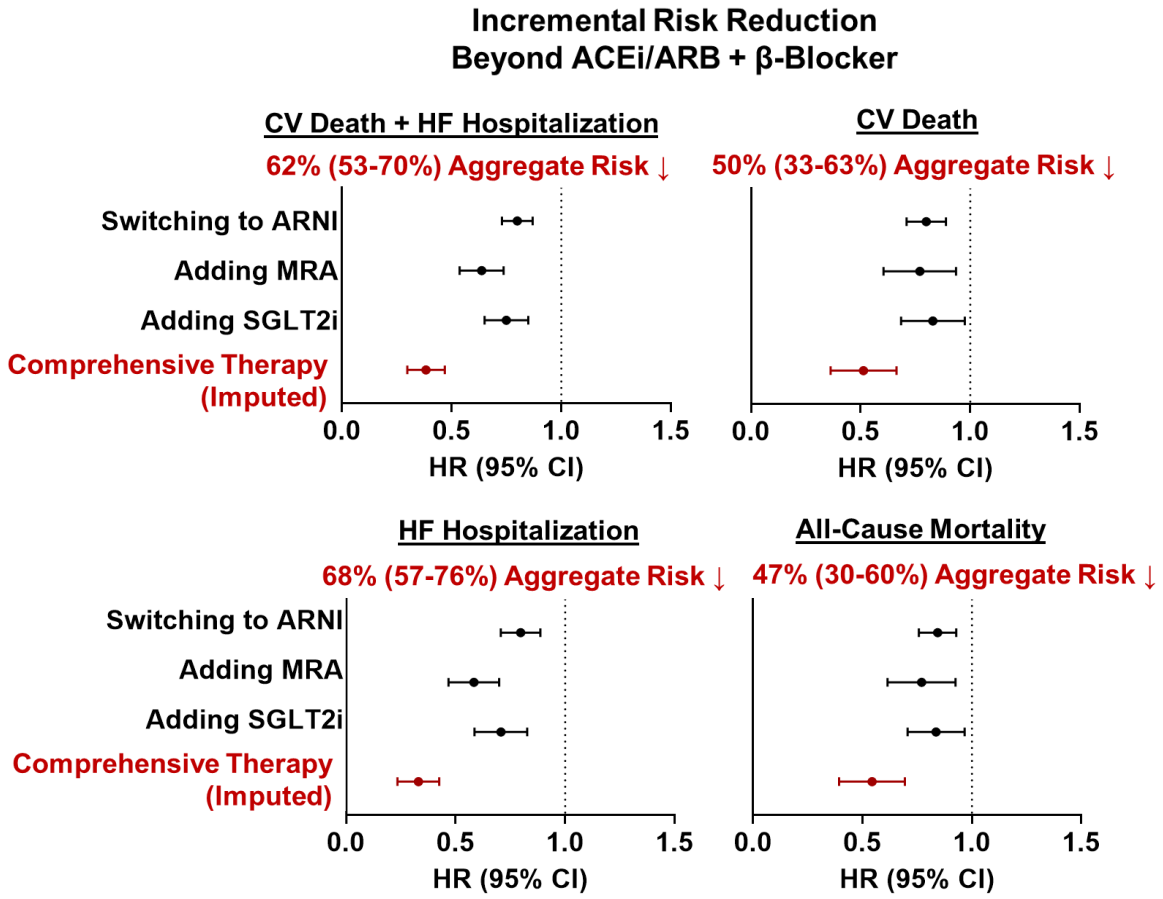
Additive Value of ARNI and SGLT2 inhibitors

	Dapagliflozin (n=2373)	Placebo (n=2371)	HR (95% CI)
All patients	386/2373	502/2371	0.74 (0.65, 0.85)
Angiotensin Receptor Neprilysin Inhibitor (ARNI)			
Yes	41/250	56/258	0.75 (0.50, 1.13)
No	345/2123	446/2113	0.74 (0.65, 0.86)



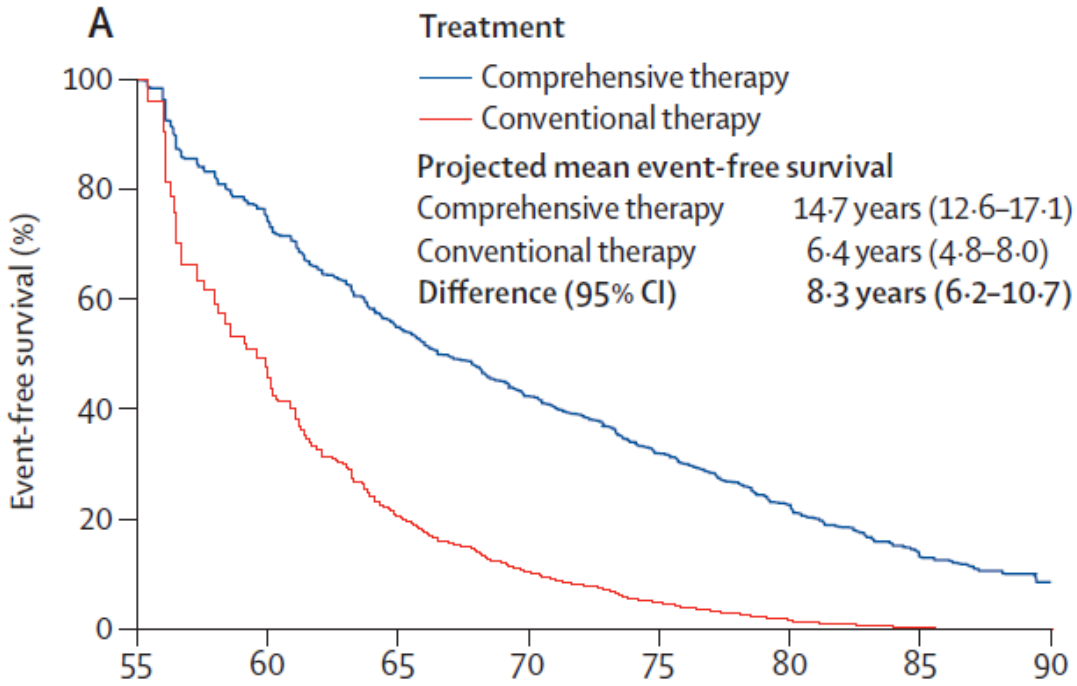
McMurray et al, NEJM 2019

Expected Lifetime Benefit of Comprehensive Disease-Modifying Therapy in Chronic HFrEF



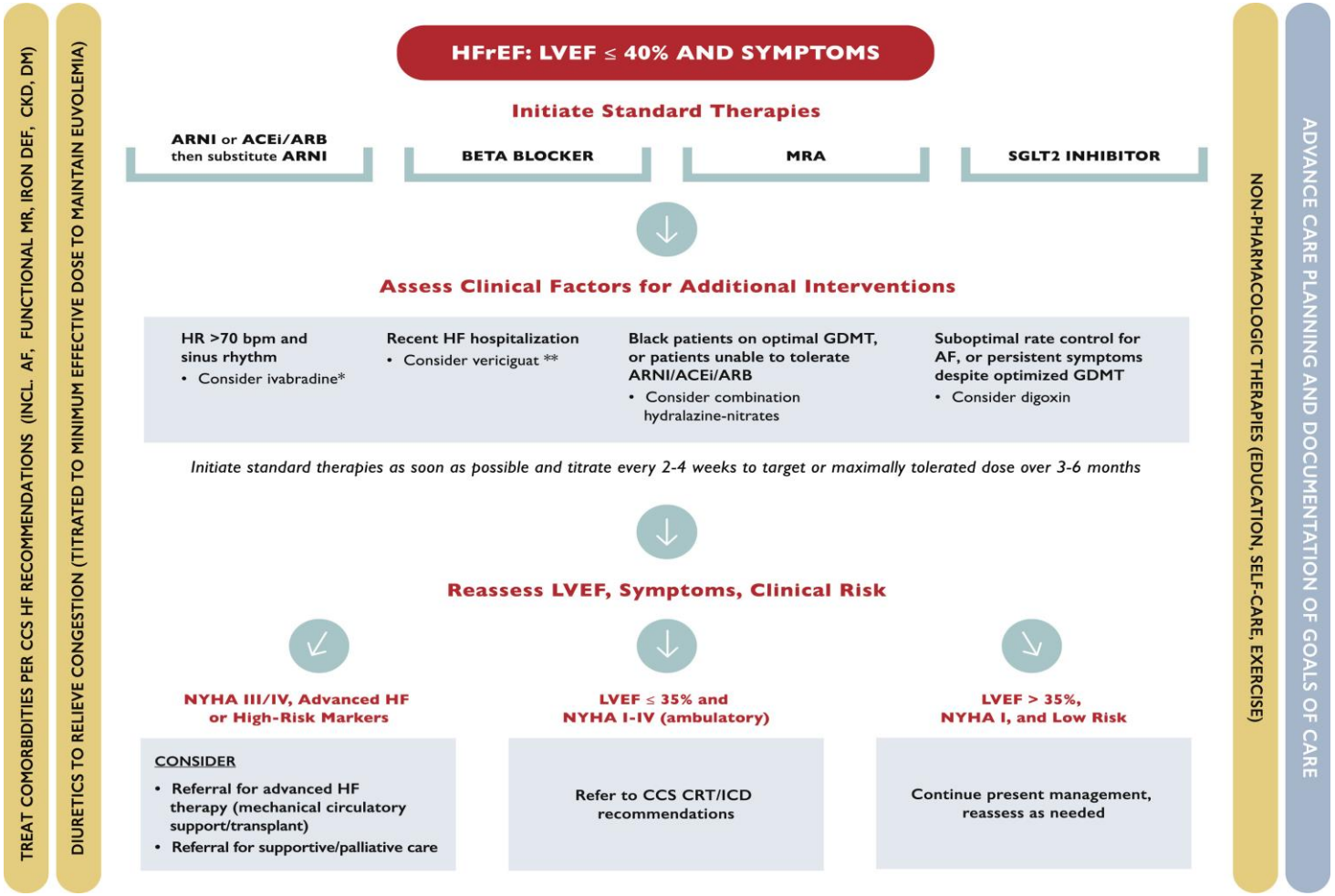
Comprehensive Therapy (ARNI+BB+MRA+SGLT2i) vs. **Conventional Therapy (ACEi/ARB + BB)** in a 55-year-old patient with HFrEF

8.3 additional years of event-free survival



Vaduganathan M et al. *Lancet* 2020;396:121–128 (including supplementary appendix).

2021 CCS/CHFS Heart Failure Guidelines Update:
Therapeutic approach to patients with HFrEF



2021 CCS/CHFS Heart Failure Guidelines Update:
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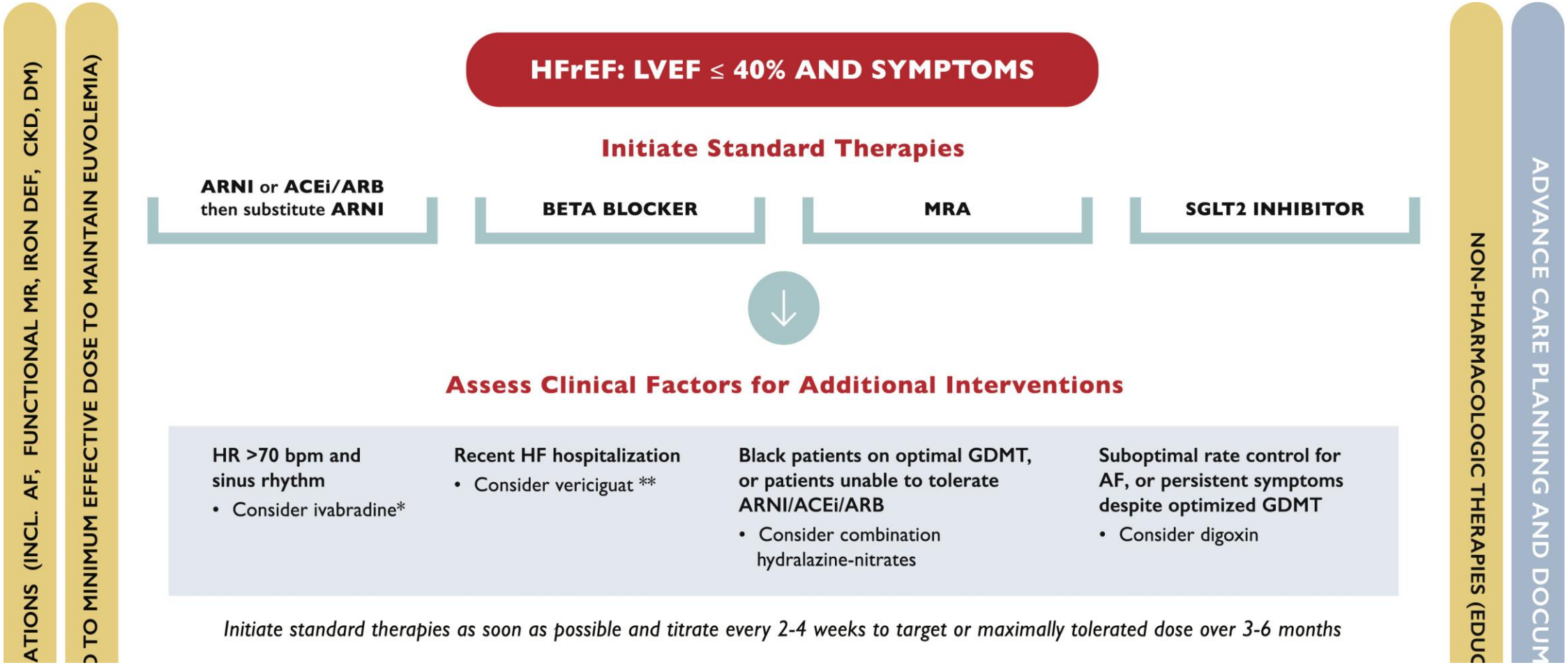

2021 CCS/CHFS HF Guidelines Update

RECOMMENDATION

1. We recommend that in the absence of contraindications, patients with HFrEF be treated with combination therapy including 1 evidence-based medication from each of the following categories:
   a. ARNI (or ACEI/ARB);
   b. β-blocker;
   c. MRA; and
   d. SGLT2 inhibitor.
   (Strong Recommendation; Moderate-Quality Evidence).

RECOMMENDATION

3. We recommend that an ARNI be used in place of an ACEI or ARB, in patients with HFrEF, who remain symptomatic despite treatment with appropriate doses of GDMT to decrease CV death, HF hospitalizations, and symptoms (Strong Recommendation; High-Quality Evidence).
4. We recommend that patients admitted to hospital for acute decompensated HF with HFrEF should be switched to an ARNI, from an ACEI or ARB, when stabilized and before hospital discharge (Strong Recommendation; Moderate-Quality Evidence).
5. We suggest that patients admitted to hospital with a new diagnosis of HFrEF should be treated with ARNI as first-line therapy, as an alternative to either an ACEI or ARB (Weak Recommendation; Moderate-Quality Evidence).

Values and preferences. These recommendation place high value on evidence that supports the safety and efficacy of initiating ARNI therapy in hospitalized patients with or without previous RASi exposure.

RECOMMENDATION

11. We recommend an SGLT2 inhibitor, such as dapagliflozin or empagliflozin, be used in patients with HFrEF, with or without concomitant type 2 diabetes, to improve symptoms and quality of life and to reduce the risk of HF hospitalization and/or CV mortality (Strong Recommendation; High-Quality Evidence).
12. We recommend an SGLT2 inhibitor, such as empagliflozin, canagliflozin, or dapagliflozin be used for treatment of patients with type 2 diabetes and atherosclerotic CV disease to reduce the risk of HF hospitalization and death (Strong Recommendation; High-Quality Evidence).
13. We recommend an SGLT2 inhibitor, such as dapagliflozin, be used in patients with type 2 diabetes who are older than 50 years with additional risk factors for atherosclerotic CV disease to reduce the risk of HF hospitalization (Strong Recommendation; High-Quality Evidence).
14. We recommend SGLT2 inhibitors such as canagliflozin or dapagliflozin be used in patients with albuminuric renal disease, with or without type 2 diabetes, to reduce the risk of HF hospitalization and progression of renal disease (Strong Recommendation; High-Quality Evidence).

Values and preferences. These recommendations place weight on the results from large randomized, placebo-controlled trials that consistently showed a benefit of SGLT2 inhibitor treatment on HF prevention and treatment among patients with and without type 2 diabetes.

#HeartSuccess

- GDMT for HFrEF has evolved
- QUADRUPLE THERAPY = New Standard of Therapy
- INITIATE all 4 standard therapies then UPTITRATE
- Favorable remodeling, improved clinical outcomes + QOL
- Populations for consideration of sacubitril/valsartan have expanded
- In hospital initiation of newer HF therapies should be considered

#Join the Fight: Implementing the CHFS Order Set in your hospital

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Cardiologist, St Joseph's Healthcare Hamilton and Hamilton Health Sciences
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Objectives

1. Discuss the evidence for use of a standardized order set to assist in guiding management of patients who are hospitalized with heart failure (HF)
2. Review the key components of the CHFS HF order set
3. Illustrate the adaptation of the CHFS HF order set to an existing hospital order set

The Burden of Heart Failure (HF) in Canada

PREVALENCE/INCIDENCE[1]

- 669,600 HF patients in Canada, aged 40 years and older
- 92,900 adult Canadians received a new diagnosis of HF

MORTALITY[2,3]

- One-year mortality rate: 25%
- Median life expectancy: 5.5 years

HOSPITALIZATIONS[3-4]

- Third highest cause of hospitalization
- LOS approximately 8 days, $10,000/hospitalization

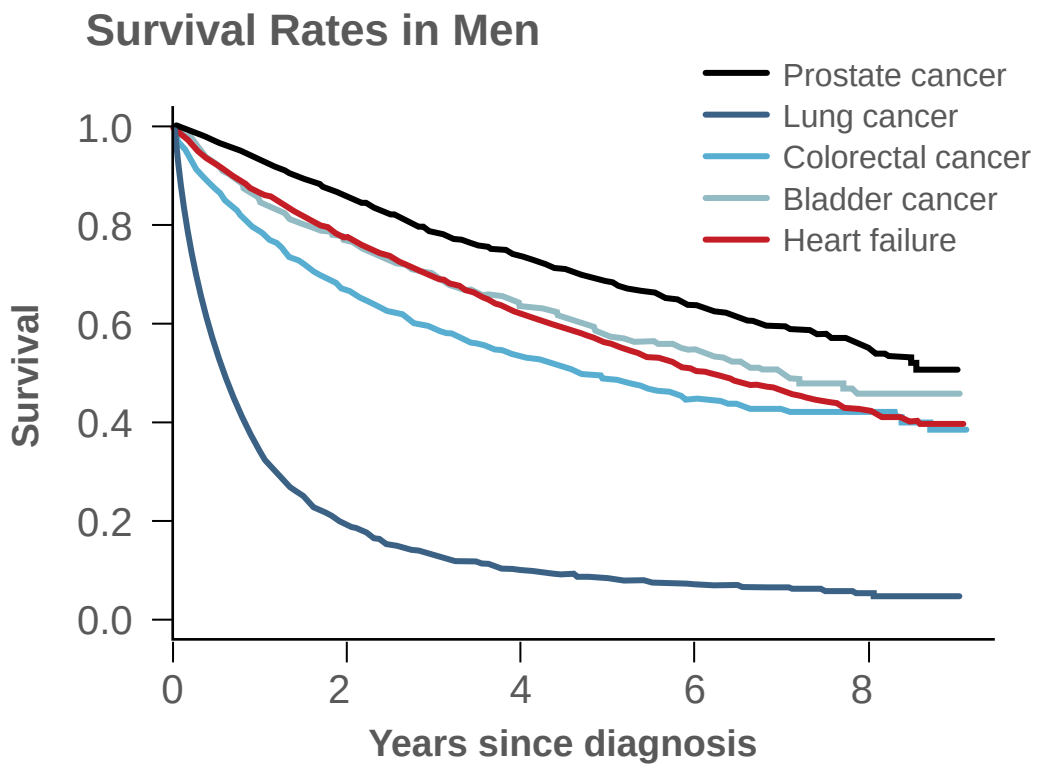
BURDEN ON THE HEALTHCARE SYSTEM[4]

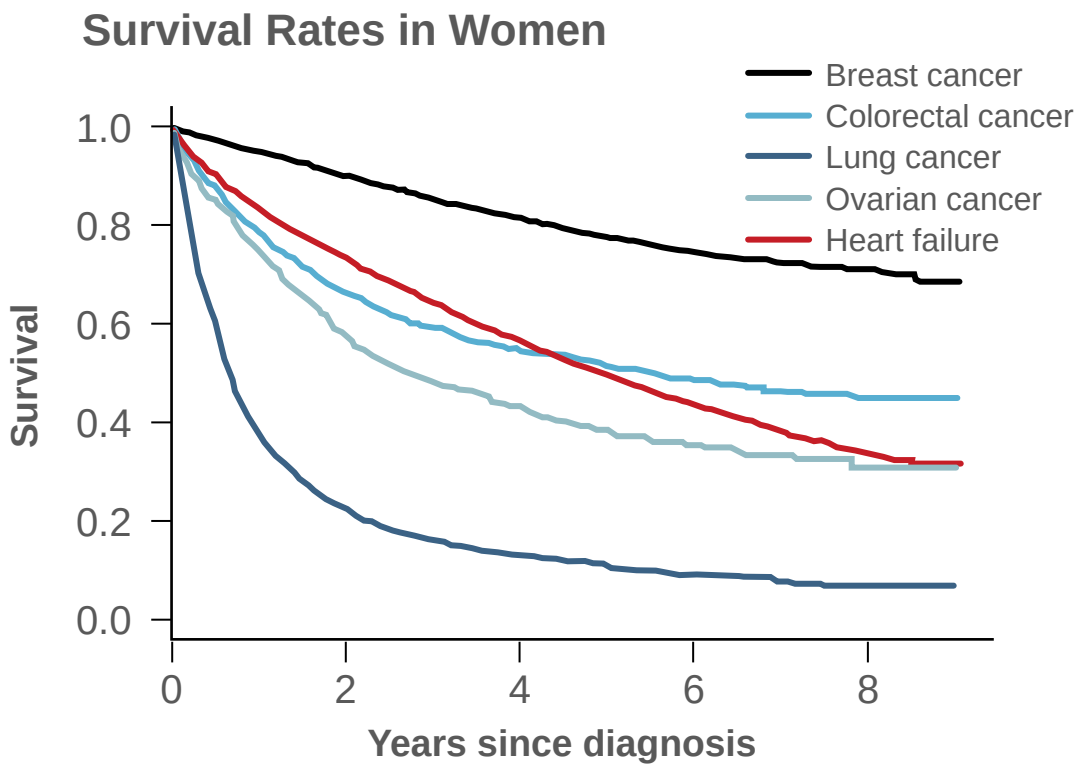
- Expected cost of $2.8 billion per year by 2030 (direct and indirect costs)

LOS, length of stay

1. 2017 Heart disease in Canada: Highlights from the Canadian Chronic Disease Surveillance System; 2. Atler DA et al. J Gen Intern Med 2012;27(9):1171-1179; 3. Yeung DF et al. CMAJ 2012;184(14):E765-E773.
4. Tran DT et al. CMAJ Open 2016;4(3):E365-E370.

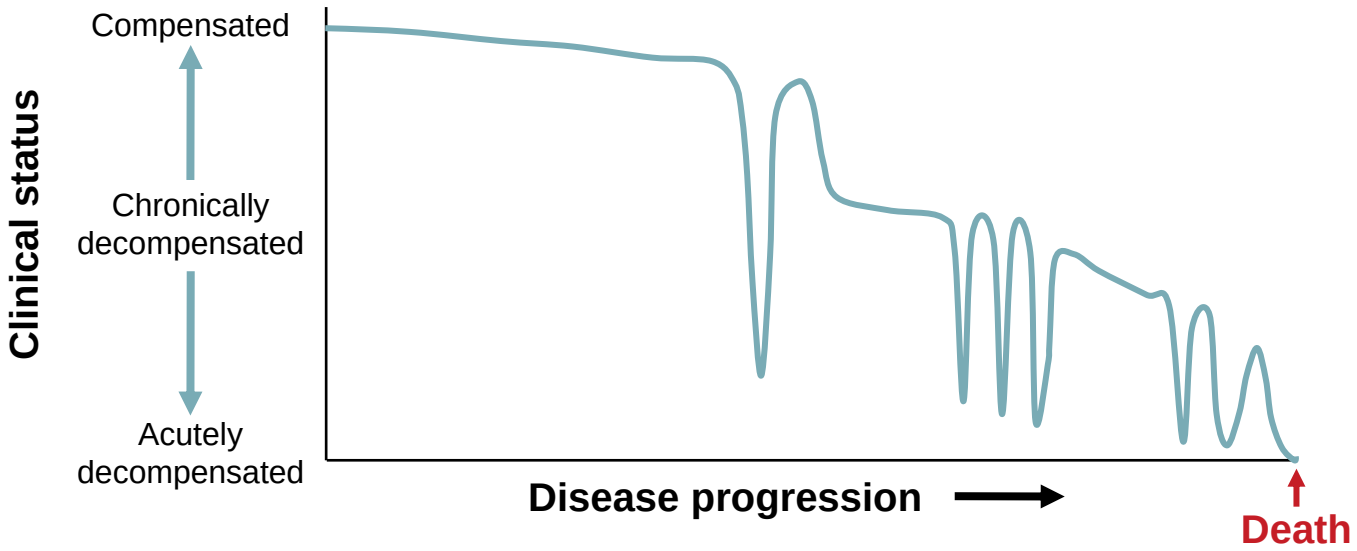
Mortality Rate is Higher for HF Than Some Cancers

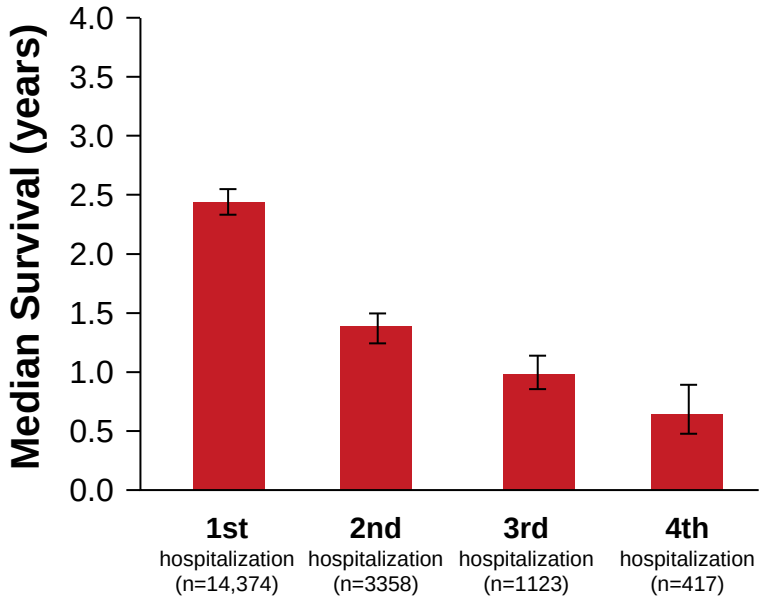




Mamas MA et al. Eur J Heart Fail 2017;19(9):1095-1104; Benjamin EJ et al. Circulation 2017;135(10):e146-e603; Roger VL et al. JAMA 2004;292(3):344-350.

Mortality Risk Increases After Every Hospitalization





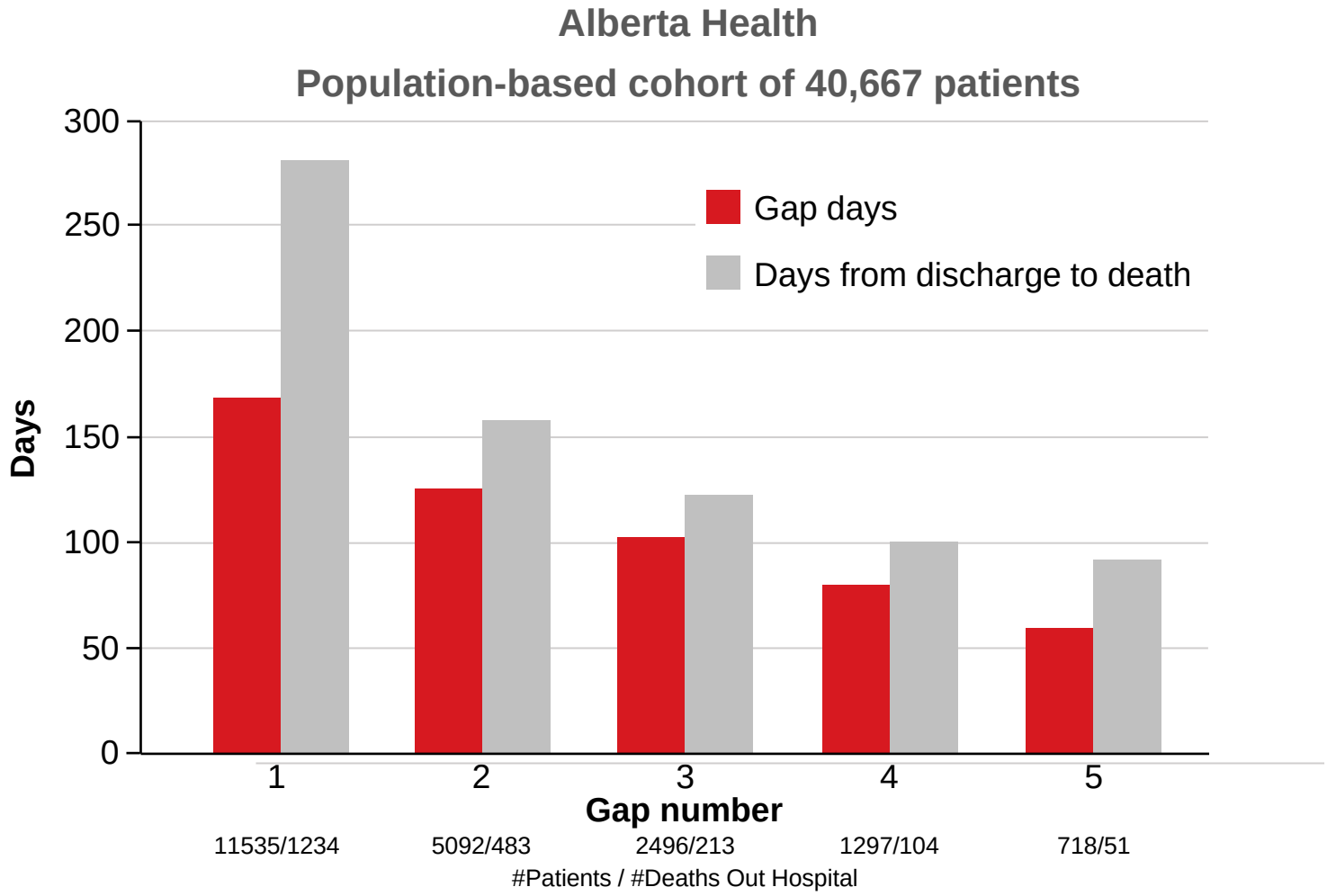
50% mortality rate at 5 years[3,4]

Median survival (50% mortality) and 95% confidence limits in patients with HF after each HF hospitalization.[2]

Image adapted from Gheorghiade M et al.

1. Gheorghiade M et al. Am J Cardiol 2005;96(6A):11G–17G; 2. Setoguchi S et al Am Heart J 2007;154(2):260-266;
3. Benjamin EJ et al. Circulation 2017;135(10):e146-e603;4. Roger VL et al. JAMA 2004;292(3):344-350.

Each Time Patients Are Hospitalized for HF, They Are Back in Hospital 28 Days Faster Than the Last Time



168

Median gap days between first and second hospitalizations

Average reduction of 28 gap days for each rehospitalization

60

Median gap days between fourth and fifth hospitalizations

Bakal JA et al. PLoS One 2014;9(9)e106494.

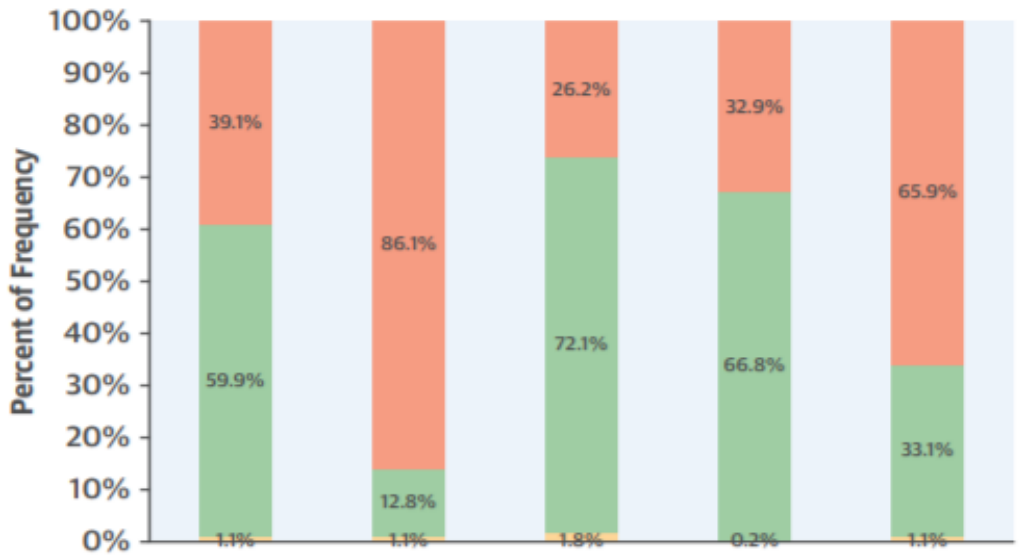
Cumulative Impact of Evidence-Based HFrEF Therapies On All-Cause Mortality

	Relative Risk	Two-year Mortality
None	–	35.0%
ARNI (vs. imputed placebo)	↓ 28%	25.2%
Beta-blocker	↓35%	16.4%
Aldosterone antagonist	↓30%	11.5%
SGLT2i	↓17%	9.5%

Cumulative risk reduction in mortality if all evidence-based medical therapies are used: relative reduction 72.9%; absolute risk reduction: 25.5%; NNT=3.9

ARNI, angiotensin-receptor-neprilysin inhibitor; HFrEF, heart failure with reduced ejection fraction; NNT, number needed to treat; SGLT2i, sodium-glucose cotransporter 2 inhibitor;
Adapted from Fonarow GC et al. Am Heart J 2011;161(6):1024-30.e3 and Fonarow GC. Lancet 2008;372(9645):1195-1196.

Use of Guideline-Directed Medical Therapy In Patients with Chronic HFrEF: CHAMP-HF Registry

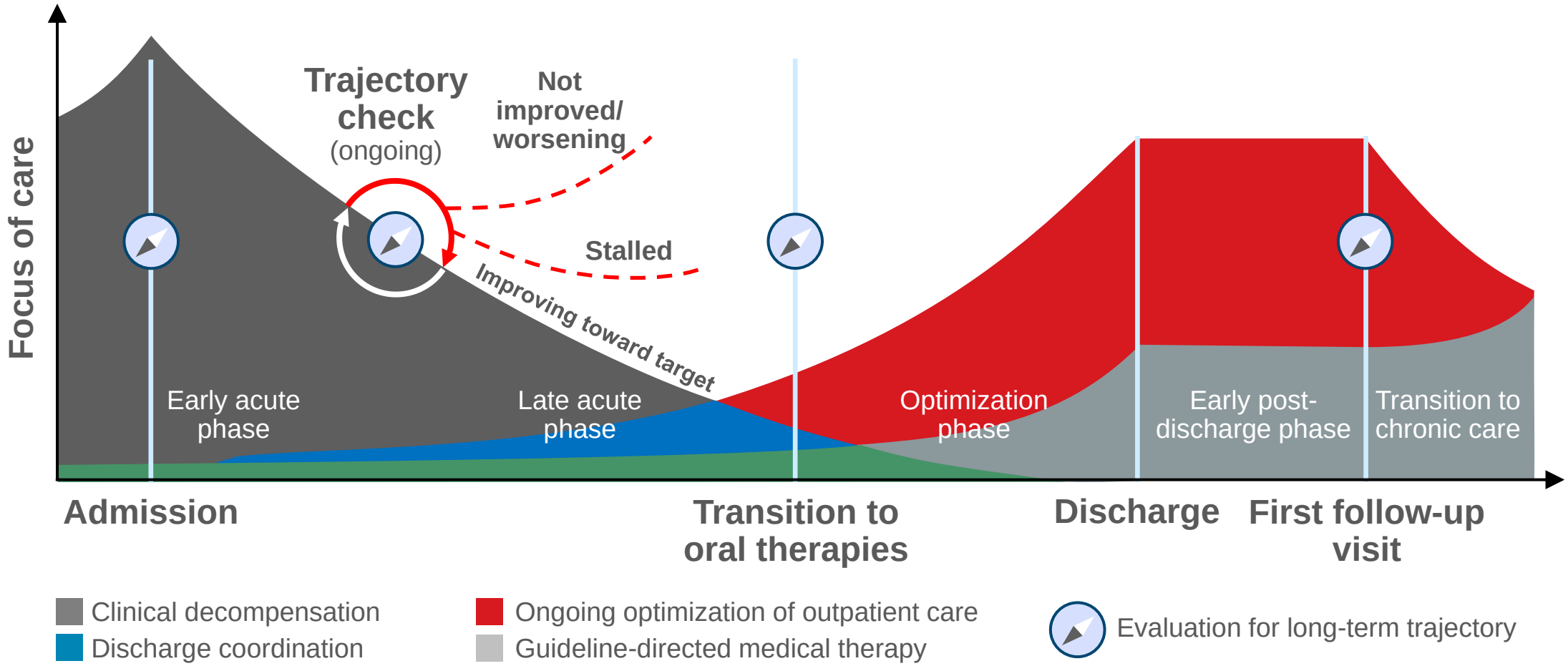


	ACEI/ARB	ARNI	ACEI/ARB/ ARNI	Beta-Blocker	MRA
Without Contraindication and Not Treated	1374	3029	920	1159	2317
Treated	2107	452	2536	2351	1163
With Contraindication	37	37	62	8	38

- Despite <2% with contraindications, use of GDMT was <75% for each therapy
- Use of both MRA and ARNI was particularly low, at 33% and 13%, respectively

Greene SJ et al. *J Am Coll Cardiol*. 2018;72:351-66

Pathway to Improve HF Outcomes Begins at Admission



Hollenberg SM. J Am Coll Cardiol 2019;74(15):1966-2011.

Why Use An Order Set?

Across all indications, standardized order sets in the acute setting significantly reduce:

- Hospital length of stay
- Medication errors
- Mortality

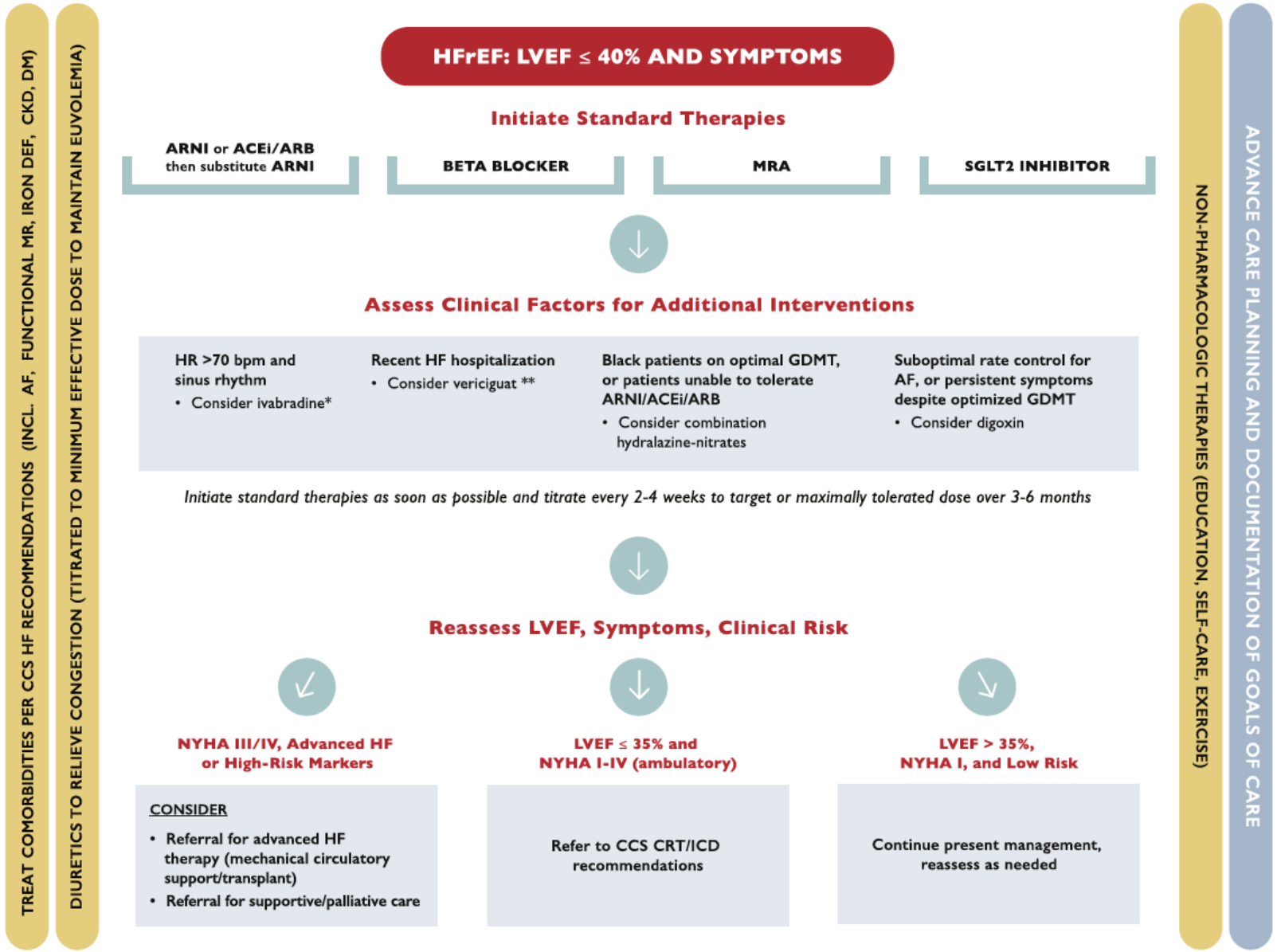
1. CADTH Rapid Response Report: Standardized Hospital Order Sets in Acute Care: A Review of Clinical Evidence, Cost-Effectiveness, and Guidelines (July 25, 2019).

Why Use An Order Set?

- Large retrospective analysis of heart failure order set use
- Mortality and length of stay were significantly reduced

Outcomes and Measures	Free Text Group	Order Set Group	Pearson Chi-Squared (χ^2)
Mortality = yes	331	13	
Mortality = no	9888	706	
Percent (Mortality=yes) / total	3.2%	**1.8%**	4.516 (p= 0.034)

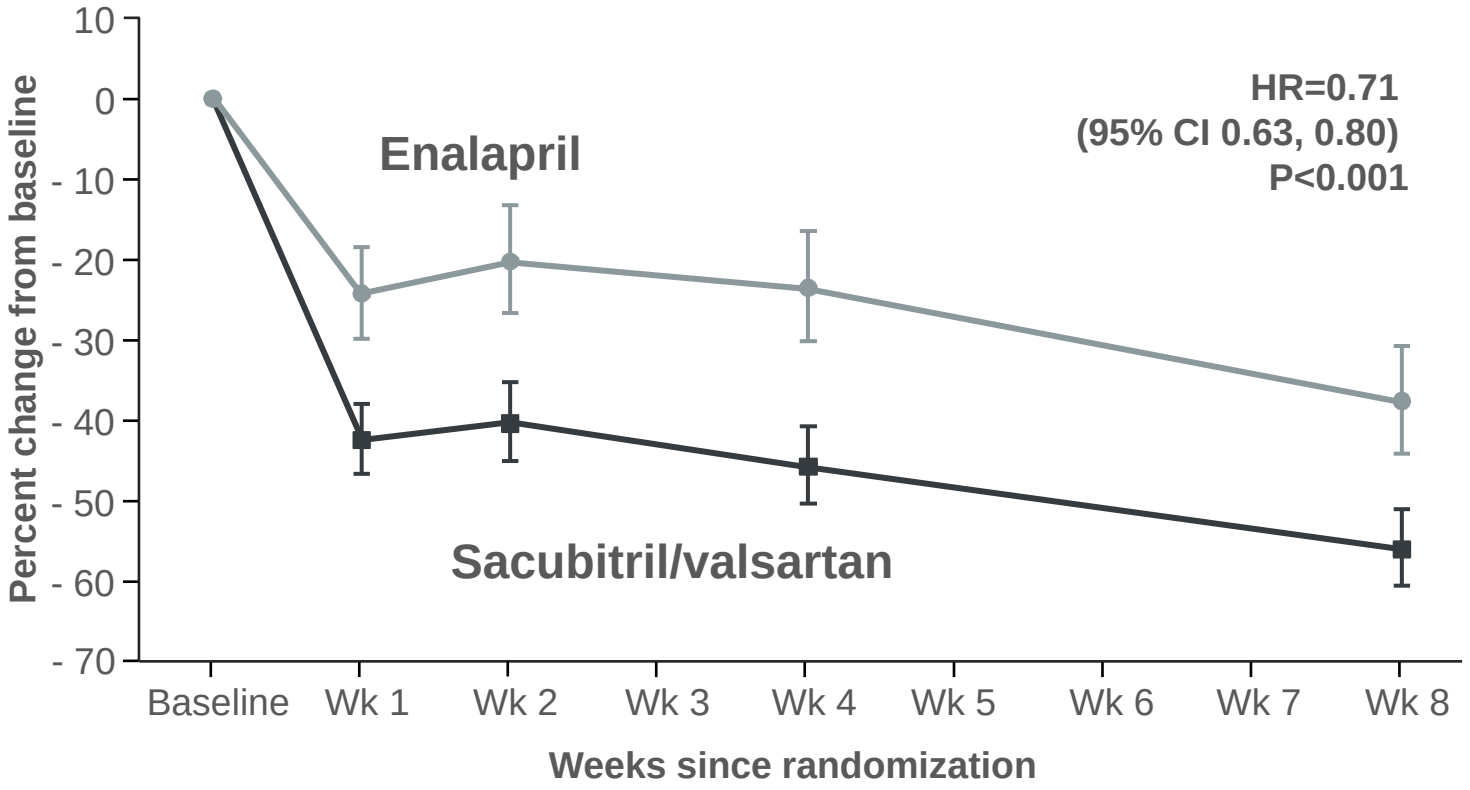
1. Krive J et al. AMIA Annu Symp Proc 2014;2014:815-824;


TREAT COMORBIDITIES PER CCS HF RECOMMENDATIONS (INCL. AF, FUNCTIONAL MR, IRON DEF, CKD, DM)
DIURETICS TO RELIEVE CONGESTION (TITRATED TO MINIMUM EFFECTIVE DOSE TO MAINTAIN EUVOLEMIA)
HFrEF: LVEF ≤ 40% AND SYMPTOMS
Initiate Standard Therapies
ARNI or ACEi/ARB then substitute ARNI
BETA BLOCKER
MRA
SGLT2 INHIBITOR
Assess Clinical Factors for Additional Interventions
HR >70 bpm and sinus rhythm
• Consider ivabradine*
Recent HF hospitalization
• Consider vericiguat **
Black patients on optimal GDMT, or patients unable to tolerate ARNI/ACEi/ARB
• Consider combination hydralazine-nitrates
Suboptimal rate control for AF, or persistent symptoms despite optimized GDMT
• Consider digoxin
Initiate standard therapies as soon as possible and titrate every 2-4 weeks to target or maximally tolerated dose over 3-6 months
Reassess LVEF, Symptoms, Clinical Risk
NYHA III/IV, Advanced HF or High-Risk Markers
CONSIDER
• Referral for advanced HF therapy (mechanical circulatory support/transplant)
• Referral for supportive/palliative care
LVEF ≤ 35% and NYHA I-IV (ambulatory)
Refer to CCS CRT/ICD recommendations
LVEF > 35%, NYHA I, and Low Risk
Continue present management, reassess as needed
NON-PHARMACOLOGIC THERAPIES (EDUCATION, SELF-CARE, EXERCISE)
ADVANCE CARE PLANNING AND DOCUMENTATION OF GOALS OF CARE

Implementing the CHFS Order Set in Your Hospital

Demonstrated Benefit of In-Hospital ARNI Initiation

PIONEER-HF Primary Endpoint: Time-average Proportional Change of NT-proBNP from Baseline



Secondary analysis:
34% reduction in risk of readmission (HR=0.66, 95% CI 0.35–0.88; P=0.011)

NT-proBNP, N-terminal pro b-type natriuretic peptide
(%) change from baseline to mean of Weeks 4 and 8
Velazquez EJ et al. New Eng J Med 2019;380(6):539-548; Morrow DA et al. Eur Heart J 2019;40(40):3345-3352.

Key HF Order Set Components

ADMISSION ORDERS

- Notification to PCP
- Patient care instructions including:
  - Daily morning weights
  - Fluid and sodium restriction
  - Supplemental oxygen, if needed
- Laboratory investigations specific to HF, including when to repeat
- Medications, including target doses

TRANSITION TO COMMUNITY CARE

- Consults and referrals to HF clinics and other HCPs
- Education and self-care instruction
- Discharge management plan
- Early outpatient follow-up

Order sets ensure that critical components of patient care are considered and discussed with the patient

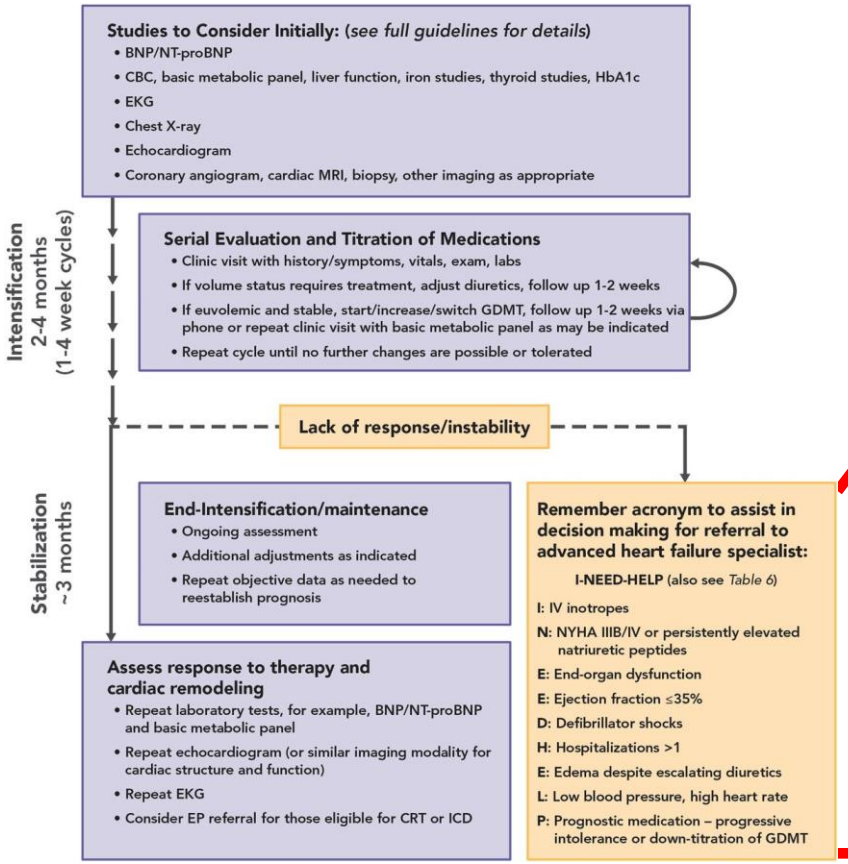
HCP, healthcare professional; PCP, primary care provider

Alberta Health Services. Heart Failure Acute Admission Order Set Bundle Supportive Source: Heart Failure Evidence Document (April 2019).

Non-Pharmacologic Strategies for All HF Patients

- Typical sodium intake ≤2000 mg/day
- Fluid restriction in selected patients
- Daily weight monitoring with diuretic sliding scale
- Regular exercise may improve quality of life
- Smoking cessation
- Annual influenza, periodic pneumococcal pneumonia immunizations and current/future vaccines relevant to this high-risk population (e.g. COVID-19)
- Close follow-up and disease management
- Patient and caregiver education

I-NEED-HELP



Remember acronym to assist in decision making for referral to advanced heart failure specialist:

I-NEED-HELP (also see *Table 6*)

I: IV inotropes

N: NYHA IIIB/IV or persistently elevated natriuretic peptides

E: End-organ dysfunction

E: Ejection fraction ≤35%

D: Defibrillator shocks

H: Hospitalizations >1

E: Edema despite escalating diuretics

L: Low blood pressure, high heart rate

P: Prognostic medication – progressive intolerance or down-titration of GDMT

Yancy et al, 2017 ACC Expert Consensus Decision Pathway for Optimization of HF Treatment: JACC Dec 2017, 24465; DOI: 10.1016/j.jacc.2017.11.025

CHFS Heart Failure Order Set

Most Responsible Diagnosis: _____
Allergy / Intolerance_____
Patient's weight on admission: _____ kg
☒ **To be performed routinely** ☐ **To be performed if selected by prescriber**

I - GENERAL PROVISIONS

Goals of Care: *Fill out the form: *Level of medical intervention*

Admit to unit: _____ Attending MD: _____

☐ Cardiac monitor (telemetry)	☐ Vital signs q ___ h + PRN (6, 8, or 12h) ☒ Blood glucose q ___ h + PRN ☐ Maintain oximetry reading ≥ 93% ☐ For COPD patients: Maintain oximetry reading between 88-92%
☐ IV line _____ at _____cc/hour or ☐ IV Saline lock ☐Insert urinary catheter	☐ Fluid limit _____L/24h ☐ Sodium restriction 2,000 mg daily ☐ I&O q ___ h
☐ NPO ☐ Diabetic diet ☐ Cardiac diet	☐ Weight on admission and OD (before breakfast) (Ideally on standing scale)

Activity Levels:
☐ Level 1: Bedrest, commode chair ☐ Level 2: Up in chair, bathroom privileges
☐ Level 3: Progressive increase in mobility, shower after consulting physician/nurse practitioner

Provide standard ☒ Heart failure education materials to the patient/family ☒ Standard heart failure teaching to the patient/family

II - TEST — CHECKED REQUEST TO BE COMPLETED

TESTS ON ADMISSION (if not already done)

☒ CBC	☐ Ca	☐ TSH
☒ Electrolytes	☐ Mg	☒ NT-proBNP or BNP
☐ Glucose	☐ HDL, LDL, Total Cholesterol, Triglycerides	☐ Uric Acid
☐ HBA1C	☒ PT/INR ☐ OD	☐ Urinalysis
☒ Urea, Creatinine	☐ PTT: _____	☒ Troponin _____ ☐ CRP

☒ **Liver function tests** (AST, ALT, LDH, alkaline phosphatase, GGT, total and conjugated bilirubin, albumin)
☐ Total protein
☐ Other: _____

☐ **Anemia workup** (serum iron, ferritin, transferrin saturation, B12, folic acid, LDH, bilirubin, haptoglobin, reticulocytes, TIBC)

☒ EKG on admission if not already performed today ☐ OD ☐ Chest pain ☒ Chest X-ray on admission if not already performed today ☐ OD	☐ Trans-thoracic echocardiogram "***Repeat echocardiogram if none performed within last 12 months***"

RECURRING TESTS

☒ Electrolytes, urea, creatinine OD ☐ CBC ☐ OD	☐ PT/INR ☐ OD ☐ PTT: _____

☐ Other tests: _____

III- CONSULTATIONS — CHECKED REQUESTS TO BE COMPLETED

☐ Cardiology	☐ Pharmacy	☐ Other: _____
☐ Nephrology	☐ Physiotherapy	☐ Other: _____
☐ Respirology	☐ Occupational Therapy	☐ Other: _____
☐ Microbiology	☐ Social Work	☐ Other: _____
☐ Internal Medicine	☐ Nutritional Therapy	☐ Other: _____
☐ Hematology	☐Spiritual Therapy	
☐ Psychiatry	☐ Community Care Access Centre	
☐ Geriatric Medicine		

IIII- MEDICATION AND PROTOCOLS

☒ Medication Reconciliation to be performed by qualified person according to standard hospital procedures

ACEI/ARB OR ARNI (Sacubitril/Valsartan) or other vasodilators

Angiotensin Neprilysin Inhibitor (ARNi) is the preferred drug for HF with LVEF ≤ 40% (unless intolerant/contraindicated
Eligibility criteria for initiating ARNI: LVEF ≤ 40%, NYHA II or III with a β-blocker (unless intolerant/contraindicated).

1. Initiate/continue ACEI or ARB:

☐ Ramipril	_____ mg	PO bid	☐ Valsartan _____	mg PO BID
☐ Perindopril	_____mg	PO daily	☐ Candesartan _____	mg PO daily
☐ Captopril	_____mg	PO tid	☐ Other: _____	mg PO _____

2. Initiation of an ARNI:

(verify patient coverage/provincial reimbursement prior to initiation)

☐ If currently taking ACE inhibitor, THEN discontinue ACE AND 48 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
☐ If currently taking ARB inhibitor, THEN discontinue ARB AND 24 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
☐ If not taking ACE or ARB, THEN initiate Sacubitril/valsartan: ☐ 24/26 mg
☐ If currently taking sacubitril/valsartan, THEN continue Sacubitril/valsartan: ☐ 24/26 mg ☐ 49/51 mg ☐ 97/103 mg PO BID

3. Other Vasodilators: to be considered if LVEF ≤ 40% and not currently eligible for ARB/ACEI or ARNI (e.g., severe CKD (eGFR <30 mL/min/1.73 m2), hyperkalemia (potassium > 5.5 mmol/L))

☐ Hydralazine	_____ mg PO q 8 h
☐ Isosorbide dinitrate	_____mg PO tid
☐ Isosorbide-5-mononitrate	_____mg PO OD
☐ Nitroglycerin Transdermal	_____mg/hr topical apply daily @ ____ hours and remove daily @_____hours

Beta-blockers

HF recommendations: LVEF ≤ 40% or for another indication for beta blocker

☐ Bisoprolol	____ mg PO daily
☐ Carvedilol	____ mg PO bid
☐ Other β-blocker (∅ approved for HF):	_____mg po ____

ACEI/ARB OR ARNI (Sacubitril/Valsartan) or other vasodilators

Angiotensin Neprilysin Inhibitor (ARNi) is the preferred drug for HF with LVEF ≤ 40% (unless intolerant/contraindicated
Eligibility criteria for initiating ARNI: LVEF ≤ 40%, NYHA II or III with a β-blocker (unless intolerant/contraindicated).

ARNI eligibility criteria

1. Initiate/continue ACEI or ARB:

☐ Ramipril	_____ mg	PO bid	☐ Valsartan _____	mg PO BID
☐ Perindopril	_____mg	PO daily	☐ Candesartan _____	mg PO daily
☐ Captopril	_____mg	PO tid	☐ Other: _____	mg PO _____

2. Initiation of an ARNI:

(verify patient coverage/provincial reimbursement prior to initiation)

- ☐ If currently taking ACE inhibitor, THEN discontinue ACE AND 48 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If currently taking ARB inhibitor, THEN discontinue ARB AND 24 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If not taking ACE or ARB, THEN initiate Sacubitril/valsartan: ☐ 24/26 mg
- ☐ If currently taking sacubitril/valsartan, THEN continue Sacubitril/valsartan: ☐ 24/26 mg ☐ 49/51 mg ☐ 97/103 mg PO BID

3. Other Vasodilators: to be considered if LVEF ≤ 40% and not currently eligible for ARB/ACEI or ARNI (e.g., severe CKD (eGFR <30 mL/min/1.73 m2), hyperkalemia (potassium > 5.5 mmol/L))

☐ Hydralazine	_____ mg PO q 8 h
☐ Isosorbide dinitrate	_____mg PO tid
☐ Isosorbide-5-mononitrate	_____mg PO OD
☐ Nitroglycerin Transdermal	_____mg/hr topical apply daily @ ____ hours and remove daily @_____hours

Beta-blockers

HF recommendations: LVEF ≤ 40% or for another indication for beta blocker

☐ Bisoprolol	____ mg PO daily
☐ Carvedilol	____ mg PO bid
☐ Other β-blocker (∅ approved for HF):	_____mg po ____

ACEI/ARB OR ARNI (Sacubitril/Valsartan) or other vasodilators

Angiotensin Neprilysin Inhibitor (ARNi) is the preferred drug for HF with LVEF ≤ 40% (unless intolerant/contraindicated
Eligibility criteria for initiating ARNI: LVEF ≤ 40%, NYHA II or III with a β-blocker (unless intolerant/contraindicated).

1. Initiate/continue ACEI or ARB:

☐ Ramipril	_____ mg	PO bid	☐ Valsartan _____	mg PO BID
☐ Perindopril	_____mg	PO daily	☐ Candesartan _____	mg PO daily
☐ Captopril	_____mg	PO tid	☐ Other: _____	mg PO _____

2. Initiation of an ARNI:

(verify patient coverage/provincial reimbursement prior to initiation)

- ☐ If currently taking ACE inhibitor, THEN discontinue ACE AND 48 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If currently taking ARB inhibitor, THEN discontinue ARB AND 24 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If not taking ACE or ARB, THEN initiate Sacubitril/valsartan: ☐ 24/26 mg
- ☐ If currently taking sacubitril/valsartan, THEN continue Sacubitril/valsartan: ☐ 24/26 mg ☐ 49/51 mg ☐ 97/103 mg PO BID

3. Other Vasodilators: to be considered if LVEF ≤ 40% and not currently eligible for ARB/ACEI or ARNI (e.g., severe CKD (eGFR <30 mL/min/1.73 m2), hyperkalemia (potassium > 5.5 mmol/L))

☐ Hydralazine	_____ mg PO q 8 h
☐ Isosorbide dinitrate	_____mg PO tid
☐ Isosorbide-5-mononitrate	_____mg PO OD
☐ Nitroglycerin Transdermal	_____mg/hr topical apply daily @ ____ hours and remove daily @_____hours

Beta-blockers

HF recommendations: LVEF ≤ 40% or for another indication for beta blocker

☐ Bisoprolol	____ mg PO daily
☐ Carvedilol	____ mg PO bid
☐ Other β-blocker (∅ approved for HF):	_____mg po ____

ARNI eligibility criteria

Instructions for ARNI conversion from ACE-I or ARB, and ARNI dosing

ACEI/ARB OR ARNI (Sacubitril/Valsartan) or other vasodilators

Angiotensin Neprilysin Inhibitor (ARNi) is the preferred drug for HF with LVEF ≤ 40% (unless intolerant/contraindicated
Eligibility criteria for initiating ARNI: LVEF ≤ 40%, NYHA II or III with a β-blocker (unless intolerant/contraindicated).

1. Initiate/continue ACEI or ARB:

☐ Ramipril	_____ mg	PO bid	☐ Valsartan _____	mg PO BID
☐ Perindopril	_____mg	PO daily	☐ Candesartan _____	mg PO daily
☐ Captopril	_____mg	PO tid	☐ Other: _____	mg PO _____

2. Initiation of an ARNI:

(verify patient coverage/provincial reimbursement prior to initiation)

- ☐ If currently taking ACE inhibitor, THEN discontinue ACE AND 48 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If currently taking ARB inhibitor, THEN discontinue ARB AND 24 hours later on ____ ☐ initiate Sacubitril/valsartan 24/26 mg po bid
- ☐ If not taking ACE or ARB, THEN initiate Sacubitril/valsartan: ☐ 24/26 mg
- ☐ If currently taking sacubitril/valsartan, THEN continue Sacubitril/valsartan: ☐ 24/26 mg ☐ 49/51 mg ☐ 97/103 mg PO BID

3. Other Vasodilators: to be considered if LVEF ≤ 40% and not currently eligible for ARB/ACEI or ARNI (e.g., severe CKD (eGFR <30 mL/min/1.73 m2), hyperkalemia (potassium > 5.5 mmol/L))

☐ Hydralazine	_____ mg PO q 8 h
☐ Isosorbide dinitrate	_____mg PO tid
☐ Isosorbide-5-mononitrate	_____mg PO OD
☐ Nitroglycerin Transdermal	_____mg/hr topical apply daily @ ____ hours and remove daily @_____hours

Beta-blockers

HF recommendations: LVEF ≤ 40% or for another indication for beta blocker

☐ Bisoprolol	____ mg PO daily
☐ Carvedilol	____ mg PO bid
☐ Other β-blocker (∅ approved for HF):	_____mg po ____

ARNI eligibility criteria

Instructions for ARNI conversion from ACE-I or ARB, and ARNI dosing

Alternative ACE-I, ARB and other vasodilators if contraindication for ARNI

APPENDIX 1 ACEI to ARB Conversion Table [1]

ACEI					ARB		
Enalapril	Ramipril	Lisinopril	Perindopril	Trandolapril	Valsartan	Candesartan	Losartan
2.5 mg BID	1.25 mg BID	5 mg OD	2 mg OD	0.5 mg OD	40 mg BID	2-4 mg OD	25 mg OD
5 mg BID	2.5 mg BID	10 mg OD	4 mg OD	1 mg OD	80 mg BID	8 mg OD	50 mg OD
10 mg BID	3.75 mg BID	20 mg OD	6 mg OD	2 mg OD	120 mg BID	16 mg OD	75 mg OD
20 mg BID	5 mg BID	40 mg OD	8 mg OD	4 mg OD	160 mg BID	32 mg OD	100 mg OD

APPENDIX 2 ARB to sacubitril/valsartan (Entresto® Conversion Table) [1]

Valsartan	Candesartan	Losartan	Irbesartan	Telmisartan	Olmesartan	Sacubitril-Valsartan
40 mg BID	2-4 mg OD	25 mg OD	75 mg OD	20 mg OD	10 mg OD	24/26 mg BID
80 mg BID	8 mg OD	50 mg OD	150 mg OD	40 mg OD	20 mg OD	
120 mg BID	16 mg OD	75 mg OD	225 mg OD	60 mg OD	30 mg OD	49/51 mg BID
160 mg BID	32 mg OD	100 mg OD	300 mg OD	80 mg OD	40 mg OD	

Mineralocorticoid receptor antagonists (MRA)

☐ Spironolactone _____mg PO_____(**HF recommendations:** LVEF ≤ 40% or *to consider in HFpEF if potassium < 5 mmol/L and CrCl ≥ 30 mL/min)*

☐ Eplerenone _____mg PO____(**Eligibility criteria:** LVEF ≤ 40% post recent infarction or LVEF ≤ 35%, NYHA II with intolerance to spironolactone)

☐ MRA contraindicated (reason): _____

Sinus node modulator

Eligibility criteria: LVEF ≤ 35%, ongoing treatment for ≥ 4 weeks with an ARB, ACEI or ARNI, and sinus rhythm with a resting HR ≥ 77 bpm despite taking a maximum-tolerated-dose β-blocker in patient who has been hospitalized or requiring consultation (emergency, clinic, CLIC) for the past ≤ 12 months because of worsening HF.

☐ Ivabradine _____ mg PO q BID (start at 2.5 mg if patient ≥ 75 years)

Sodium-glucose co-transporter type 2 (SGLT2) inhibitors:

Considering the risk of euglycemic ketoacidosis, to be initiated in a hemodynamically stable type 2 diabetic or non-diabetic patient

Eligibility criteria: LVEF ≤ 40%, NYHA II or III and treatment with ARB, ACEI or ARNI for ≥ 4 weeks with β-blocker (unless intolerant/contraindicated).

☐ Dapagliflozin _____mg PO OD to start on _____ (recommended dose: 10 mg) if CrCl ≥ 25 mL/min

☐ Empaglifozin _____ mg PO OD to start on _____ if CrCl ≥ 20 mL/min

☐ Continue SGLT-2 in progress: _____

Loop diuretic, diuretic with synergistic effect and potassium

HF recommendations: indicated for the management of hypervolemia and titrate to the minimum effective dose to maintain a euvolemic state.

☐ Furosemide PO _____ mg q _____h

☐ Discontinue Furosemide PO

☐ Furosemide Bolus IV _____ mg q _____h

☐ Furosemide 400 mg/100 mL NaCl 0.9% (total vol. = 140 mL for 2.86 mg/mL) Infusion rate _____ mg/h

☐ Metolazone _____ mg PO _____ to be administered 30 minutes before furosemide.

☐ Potassium_____mEq PO q_____ (Serum [K+] ≥ 4 mEq/L is recommended) ☐ Discontinue oral potassium supplementation

☐ Other _____

Antiarrhythmic and unclassified agents

If an antiarrhythmic agent is discontinued due to contraindication, a cardiology/arrhythmia consultation should be considered

☐ Amiodarone ☐ _____mg PO____ ☐ ____mg IV X _____ q _____

☐ Start amiodarone infusion: _____mg/250 mL of: ☐ D5% ☐ NS 0.9% ☐ Rate: 36 mg/h (20 mL/h) ☐ Rate _____

☐ Discontinue non-dihydropyridine calcium channel blockers (class 4): _____(contraindicated patient with LVEF < 40%)

(e.g., diltiazem, verapamil)

☐ Digoxin ☐ _____mg PO OD ☐ ____mg IV q _____(Caution in kidney failure or K+ disorder)

**Digoxin plasma target < 0.8/mL or < 1 nmol/L 1 week after titration.*

Anticoagulation and thromboprophylaxis

DVT Prophylaxis

☐ Enoxaparin: 40 mg SC OD (30 mg OD if < 40 kg or eGFR <30, 40 mg BID if > 100 kg)

☐ Start IV heparin protocol ☐ with bolus ☐ without bolus Time administered: _____

☐ Heparin 5,000 units SC ☐ q 12 h or ☐ q 8 h if weight > 120 kg

☒ TED stockings if high risk for bleeding

Systemic Anticoagulation

☐ Warfarin: Target INR: _____ ☐ _____ mg PO OD ☐ According to schedule

☐ Direct oral anticoagulants: _____ mg _____ PO _____

☐ Discontinue oral anticoagulants: _____

Antiplatelet Therapy

☐ Ticagrelor 90 mg PO BID

☐ ECASA 81 mg PO OD

☐ Clopidogrel 75 mg PO OD

Case Study (St. Joseph's Healthcare Hamilton)

Chronic Heart Failure Medications

If ACE inhibitor or ARB contraindicated consider hydralazine/nitrates.

Note: 2 days washout of ACE inhibitor or ARB required

☐ ACE Inhibitors / ARBs	
☐ captopril (CAPOTEN) tablet	6.25 mg, oral, 3 times a day
☐ enalapril (VASOTEC) tablet	2.5 mg, oral, Twice a day
☐ lisinopril (PRINIVIL) tablet	5 mg, oral, Daily
☐ candesartan (ATACAND) tablet	4 mg, oral, Daily
☐ losartan (COZAAR) tablet	25 mg, oral, Daily
☐ valsartan (DIOVAN) tablet	40 mg, oral, Twice a day
☐ Hydralazine / nitrates	**"And" Linked Panel**
☐ hydrALAZINE (APRESOLINE) tablet	10 mg, oral, Every 8 hours scheduled Maximum 300 mg in 24 hours
☐ isosorbide dinitrate (ISORDIL) tablet	10 mg, oral, 3 times a day Maximum 120 mg in 24 hours

Case Study (SJHH)

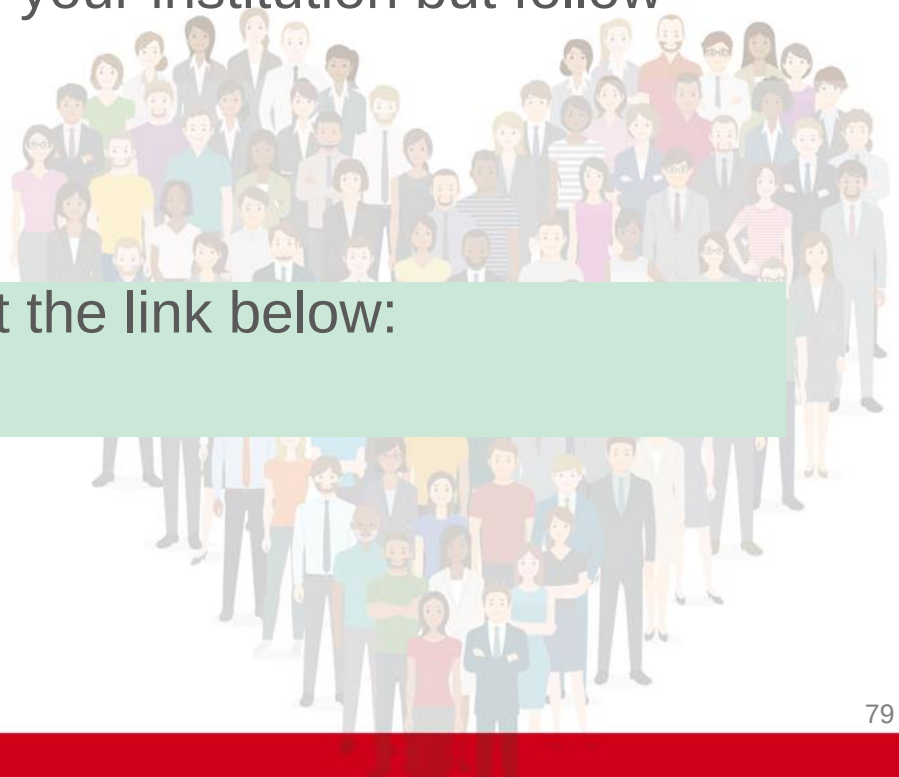
☐ Beta Blockers (Single Response)	
◯ carvedilol (COREG) tablet	6.25 mg, oral, Twice a day If HR less than 50 beats / minute or SBP less than 90 mmHg, hold and notify MD
◯ bisoprolol (MONOCOR) half tablet	2.5 mg, oral, Daily Maximum 10 mg daily
◯ metoprolol (LOPRESSOR) quarter tablet	6.25 mg, oral, Twice a day
☐ Other Medications for CHF (Single Response)	
◯ spironolactone (ALDACTONE) tablet	12.5 mg, oral, Daily
◯ sacubitril-valsartan (ENTRESTO) tablet 24-26 mg	1 tablet, oral, Twice a day
◯ sacubitril-valsartan (ENTRESTO) tablet 49-51 mg	1 tablet, oral, Twice a day
◯ sacubitril-valsartan (ENTRESTO) tablet 97-103 mg	1 tablet, oral, Twice a day

Case Study

- Novel heart failure medications must be added (Ivabradine and SGLT2 inhibitors)
- Include more information on eligibility criteria for medications
- Include practical information on switching ACE-I and ARB to ARNI
- Reorganize medications to highlight option for first line ARNI in keeping with 2020 CCS guidelines
- Include justification for BB or MRA ineligibility

Take home points

1. Hospital admission is a unique opportunity to optimize heart failure management
2. Dedicated heart failure order sets reduce mortality and hospital length of stay
3. Don’t reinvent the wheel – personalize the order set to your institution but follow best practices



Access the CHFS Admission Order Set at the link below:

https://hfordersets.ca