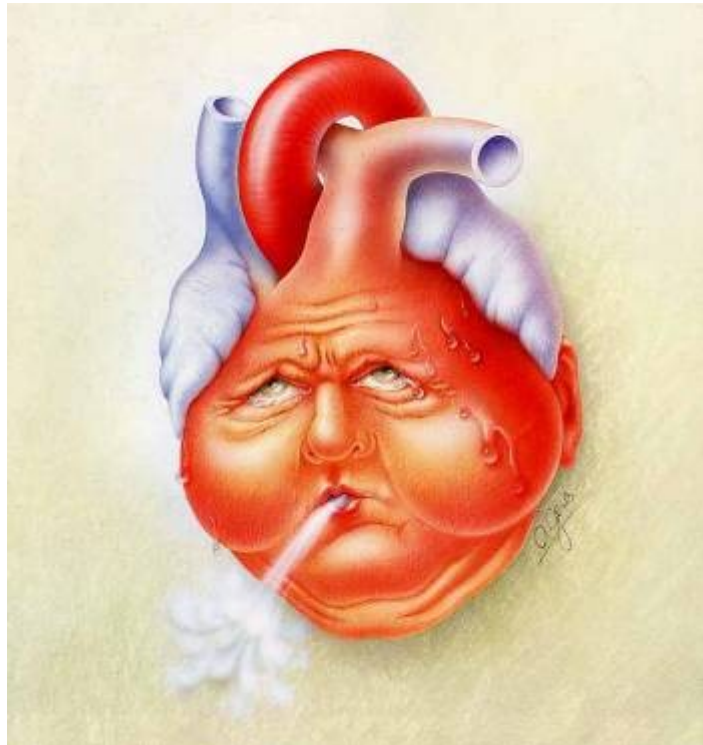


Prise en charge de l'insuffisance cardiaque



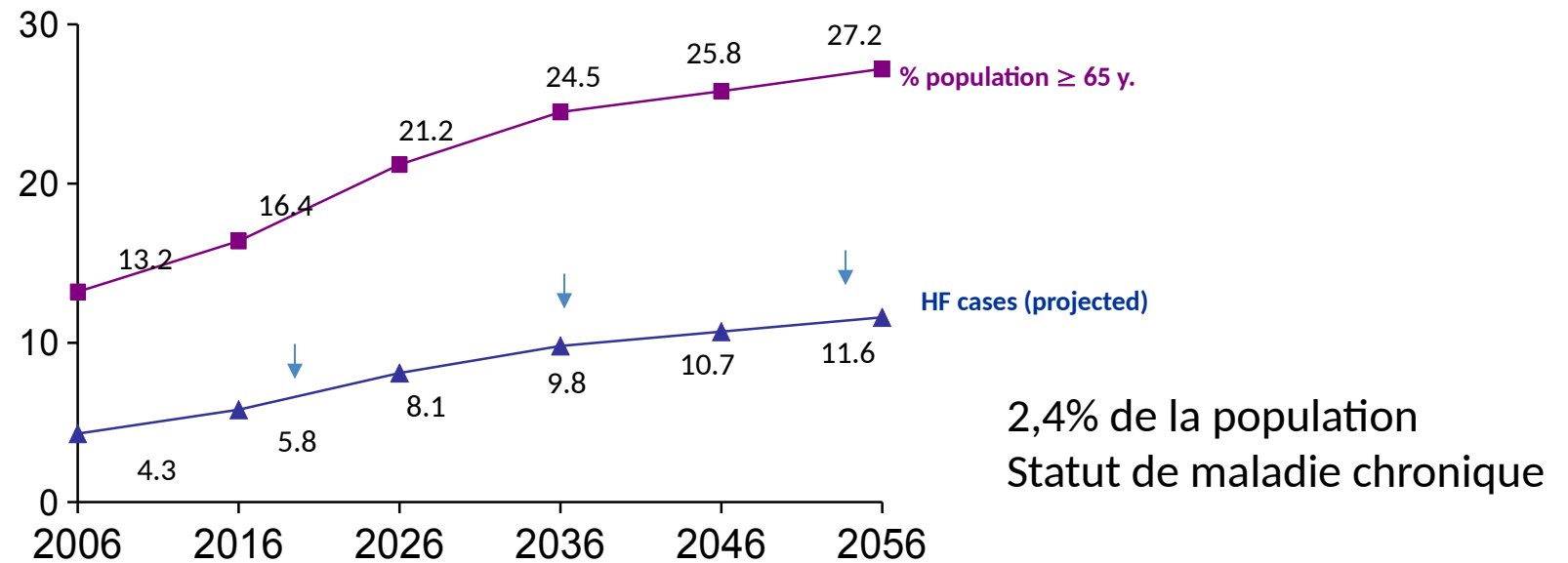
**Ou en sommes nous?
Doit on faire mieux?**

**Dr. Serge Lepage
Président sortant SQIC
Directeur CLIC CIUSS de l'Estrie
Comité guideline canadien (panel primaire)
Professeur titulaire
Université de Sherbrooke**

Divulgence de conflits d'intérêts potentiel

- Conférencier : Novartis, Amgen et Servier
- Comité consultatif : Novartis, Amgen et Servier
- Recherche : Novartis, Amgen et Servier

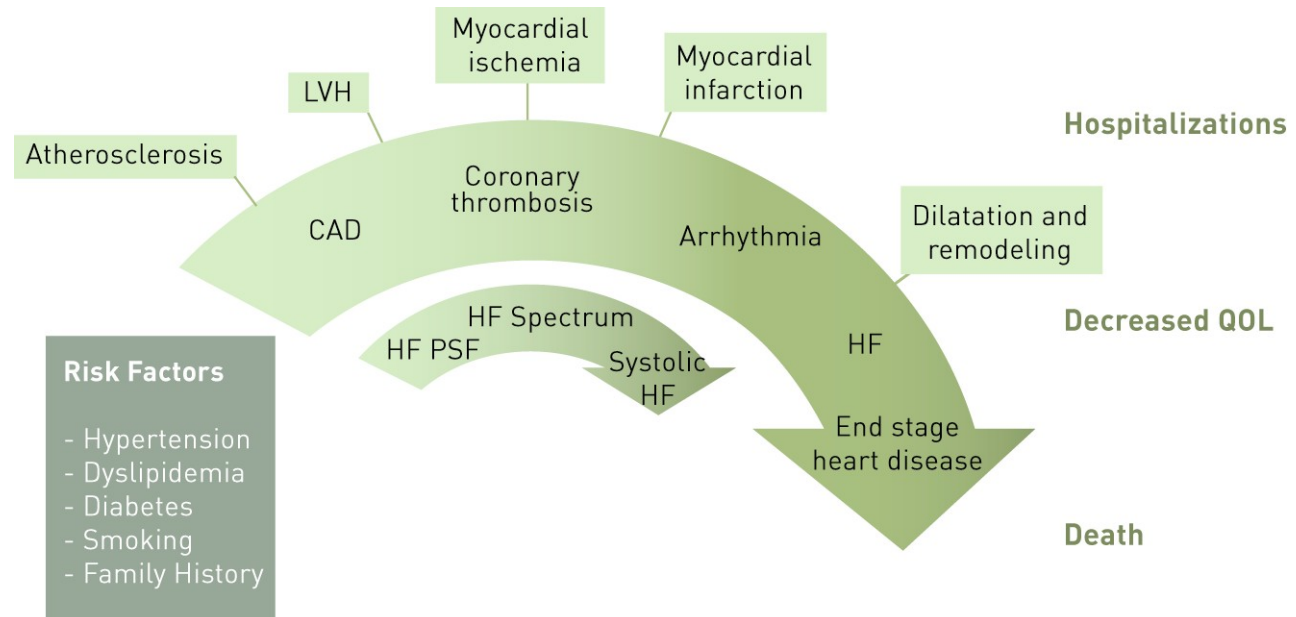
Prévalence de l'insuffisance cardiaque au Canada





“The good part, if you’re looking to impress, is that it’s not a disease, it’s a *syndrome*.”

Évolution du pt avec ICC



Causes de l'insuffisance cardiaque

- Coronary artery disease
- Myocardial infarction
- Hypertension
- Diabetes
- Valvular heart disease
- Dilated or hypertrophic cardiomyopathy, myocarditis
- Congenital heart disease
- Severe lung disease

Diagnostic et investigations

Antécédents cliniques, examen physique et tests de laboratoire

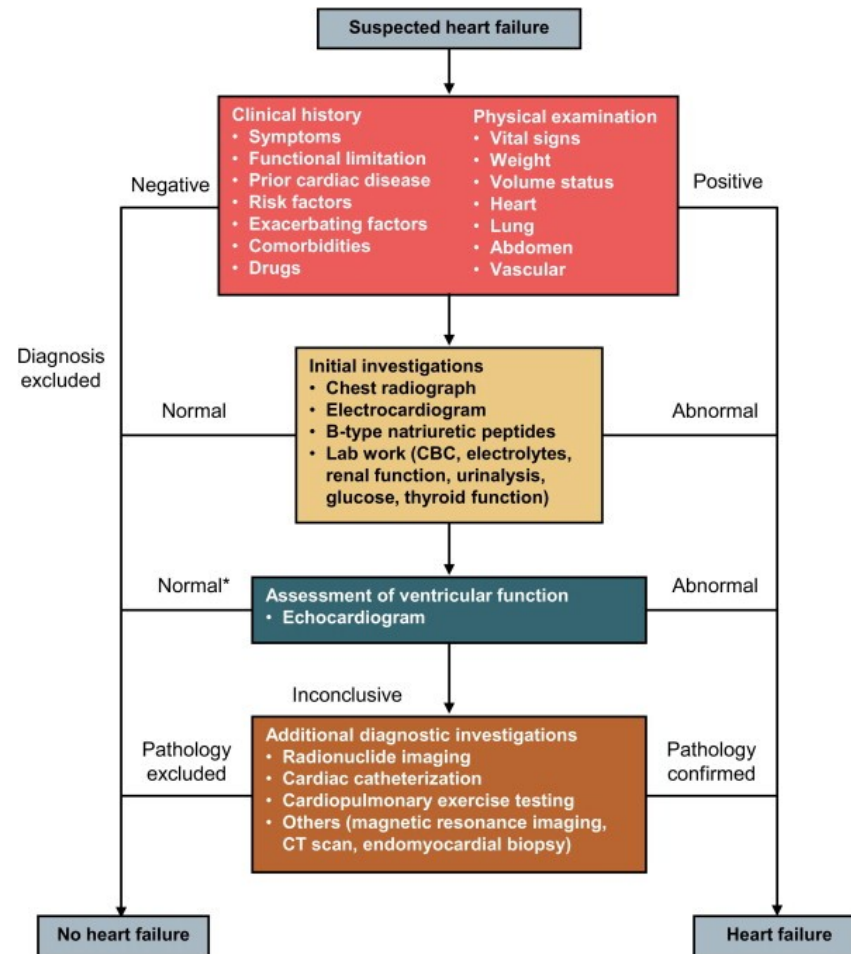
L'échocardiographie transthoracique (taille et fonction ventriculaires, valves, etc.)

Angiographie coronarienne chez les patients atteints d'une maladie coronarienne connue ou suspectée

La classification NYHA doit être utilisée pour documenter la capacité fonctionnelle de tous les patients

(Class I, Level C)





Présentation clinique des patients

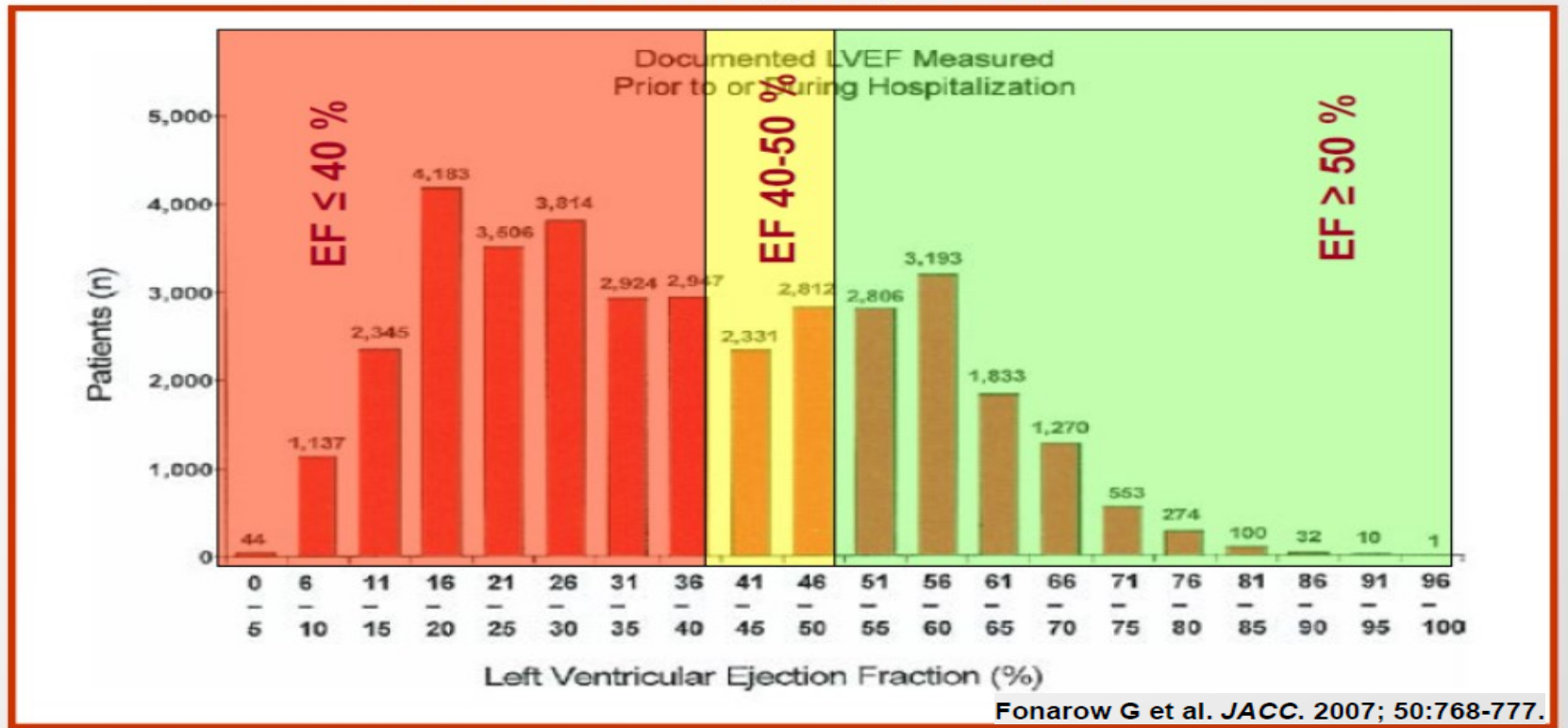
Common	Less Common
Dyspnée	Déficiência cognitive*
Orthopnée	Altération mentale ou délire *
Dyspnée paroxystique nocturne	La nausée
Fatigue	Douleur abdominale
Faiblesse	Oligurie
Intolérance à l'exercice	Anorexie
Oedème dépendant	Cyanose
Toux	
Gain de poids (rapide)	
Distension abdominale	
Nocturie	
Extrémités fraîches	

* May be more common presentation in elderly patients.

Arnold JMO, Liu P et al. *Can J Cardiol* 2006;22(1):23-45.

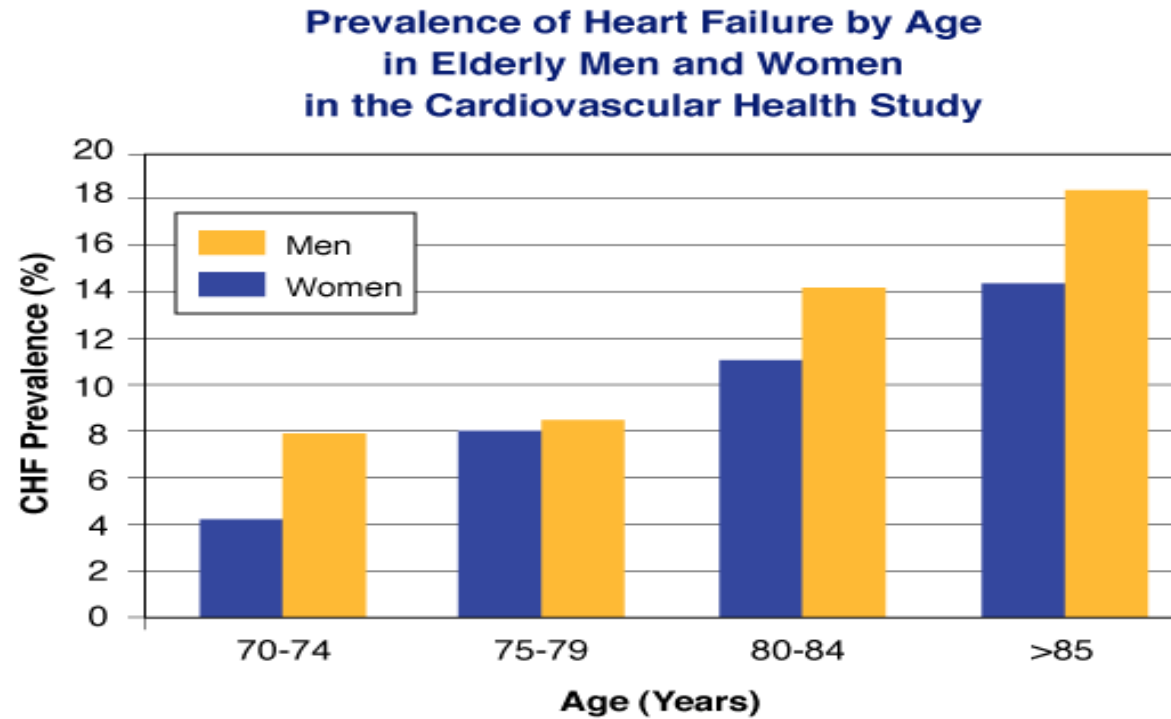
Distribution of EF in Hospitalized Patients with Heart Failure

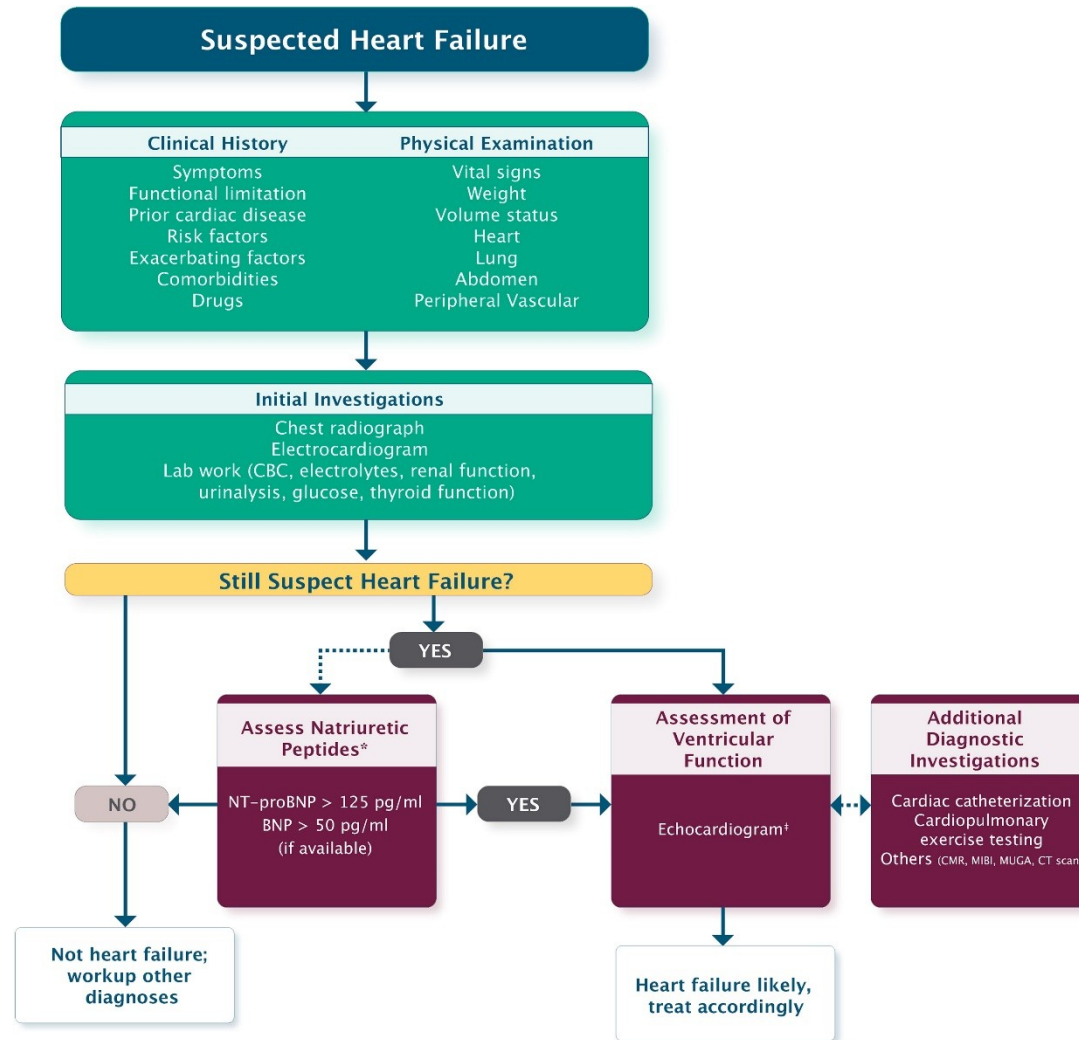
OPTIMIZE-HF Registry, N=41,267

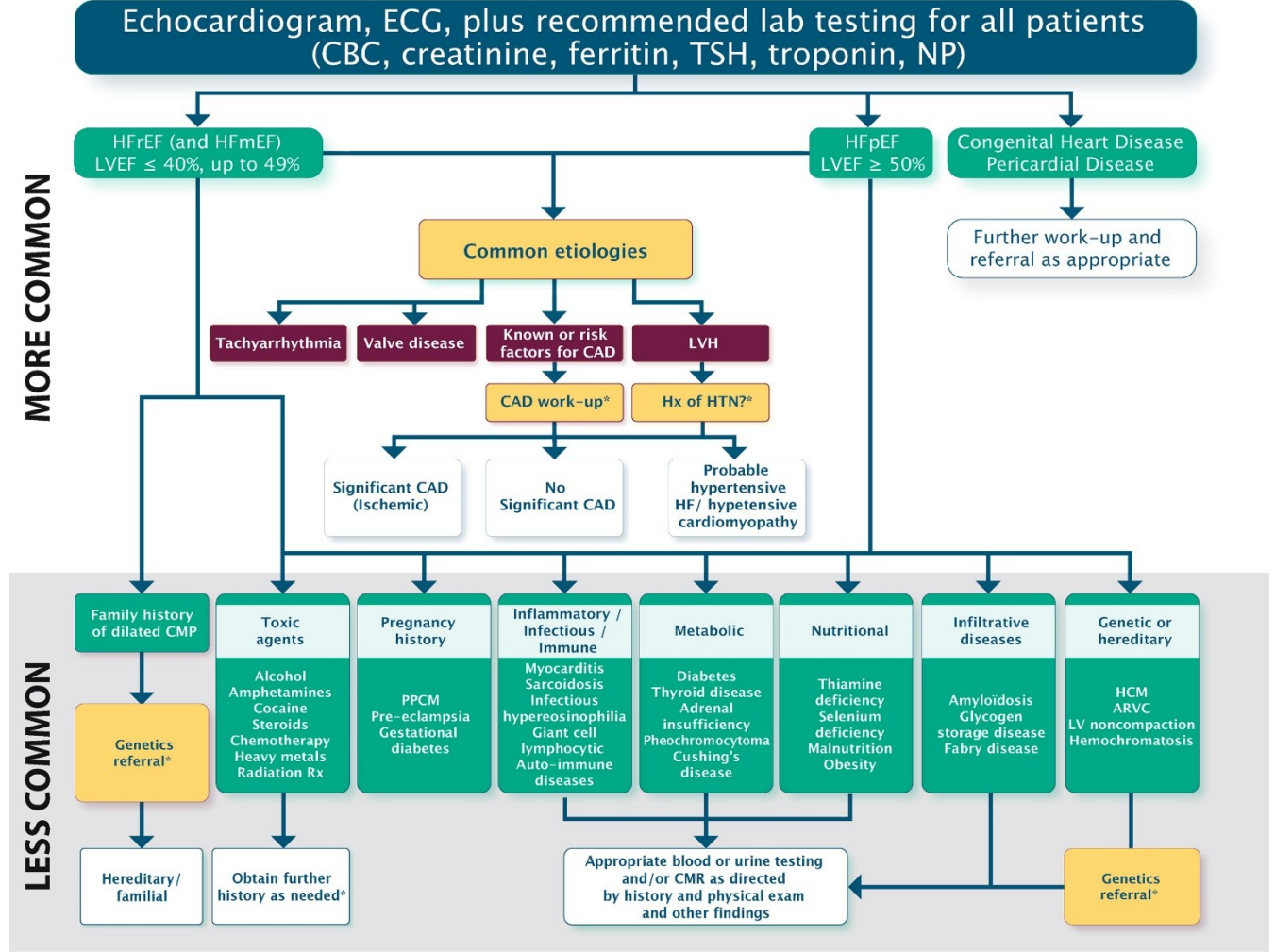


Prevalence of Heart Failure by Age and Sex in CHS

HF is predominantly a disorder of the older adult population and of the greater than 5 million adults with HF in the United States, 50% are at least 75 years of age..







The 2014 Canadian Cardiovascular Society Heart Failure Management Guidelines Focus Update: Anemia, Biomarkers, and Recent Therapeutic Trial Implications

Gordon W. Moe, MD, MSc, FRCPC, Justin A. Ezekowitz, MB, BCh, MSc, FRCPC, Eileen O'Meara, MD, FRCPC, Serge Lepage, MD, FRCPC, Jonathan G. Howlett, MD, FRCPC, Steve Frenes, MD, FRCSC, Abdul Al-Hesayen, MD, FRCPC, George A. Heckman, MD, MSc, FRCPC, Howard Abrams, MD, FRCPC, Anique Ducharme, MD, FRCPC, Estrellita Estrella-Holder, RN, BN, MScA, CCN(C), Adam Grzeslo, MD, CCFP, FCFP, Karen Harkness, RN, BScN, CCNC, PhD, Sheri L. Koshman, BScPharm, PharmD, ACRP, Michael McDonald, MD, FRCPC, Robert McKelvie, MD, PhD, FRCPC, Miroslaw Rajda, MD, FRCPC, Vivek Rao, MD, PhD, FRCPS, Elizabeth Swiggum, MD, FRCPC, Sean Virani, MD, FRCPC, Shelley Zieroth, MD, FRCPC, J. Malcolm O. Arnold, MD, FRCPC, Tom Ashton, MD, FRCPC, Michel D'Astous, MD, FRCPC, Michael Chan, MD, FRCPC, Sabe De, MD, FRCPC, Paul Dorian, MD, FRCPC, Nadia Giannetti, MD, FRCPC, Haissam Haddad, MD, FRCPC, Debra L. Isaac, MD, FRCPC, Simon Kouz, MD, FRCPC, FACC, Marie-Hélène Leblanc, MD, FRCPC, Peter Liu, MD, FRCPC, Heather J. Ross, MD, FRCPC, Bruce Sussex, MD, FRCPC, Michel White, MD, FRCPC

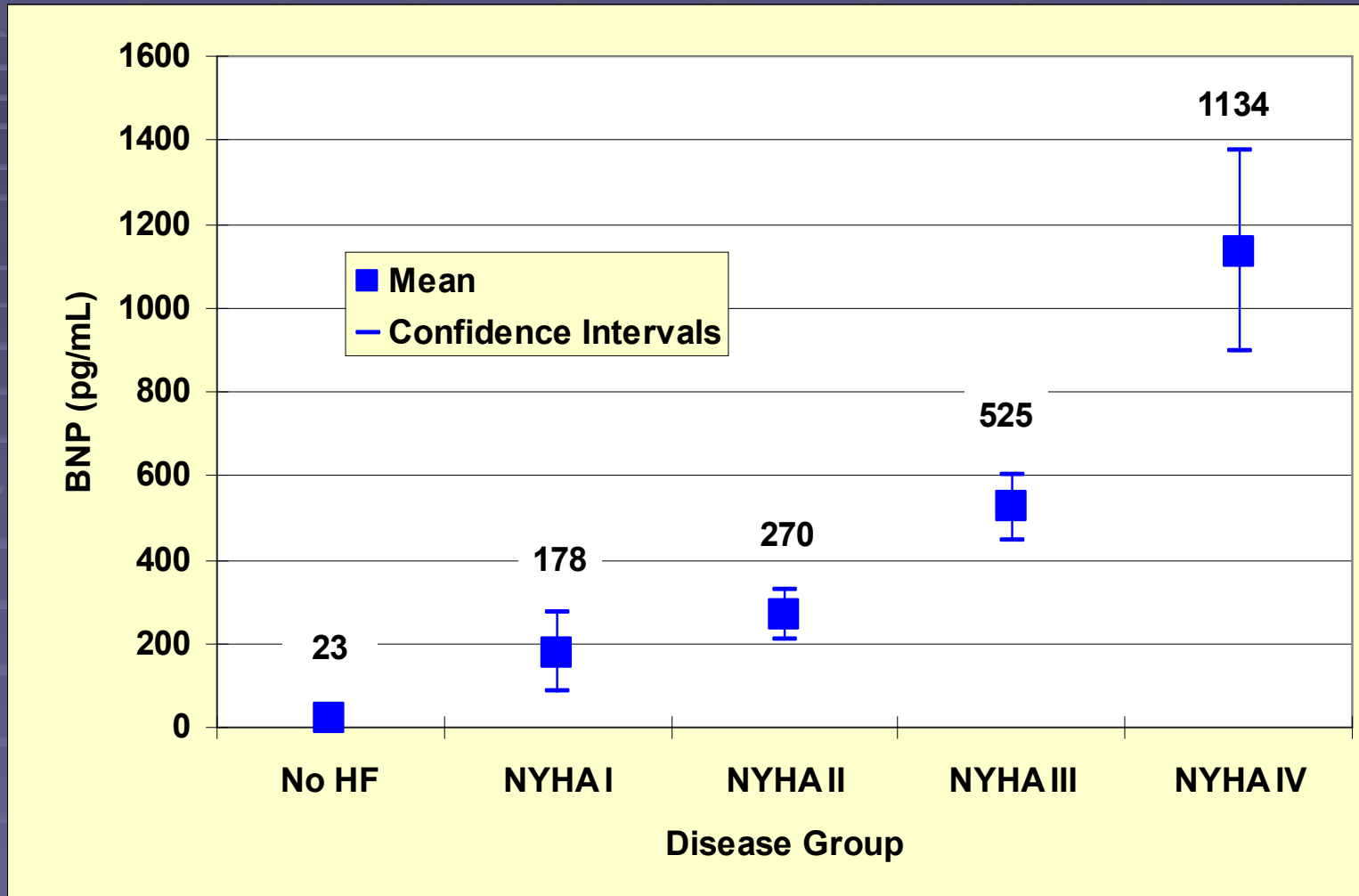
Canadian Journal of Cardiology
Volume 31, Issue 1, Pages 3-16 (January 2015)
DOI: 10.1016/j.cjca.2014.10.022



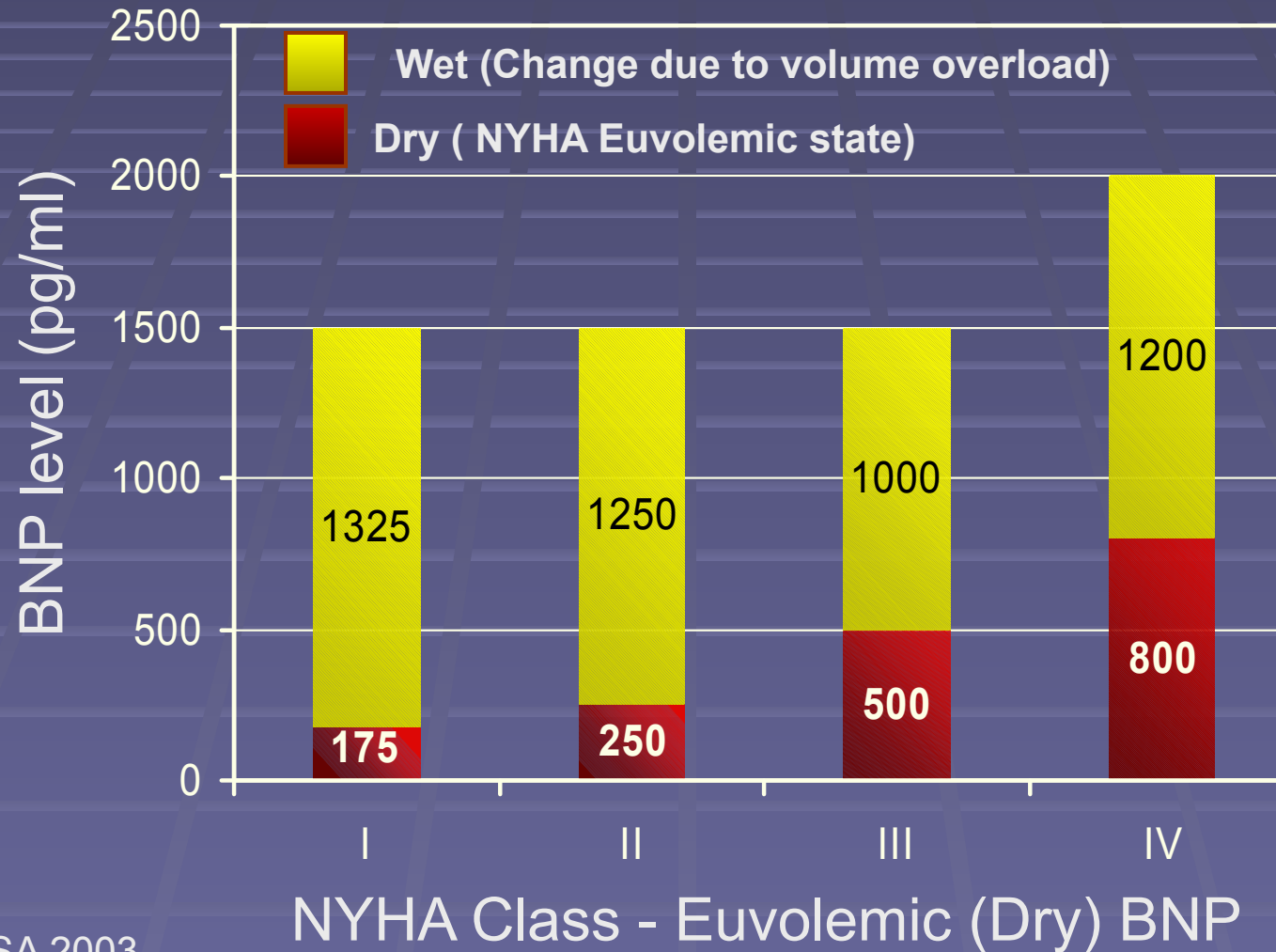
The 2014 Canadian Cardiovascular Society Heart Failure Management Guidelines Focus Update: Anemia, Biomarkers, and Recent Therapeutic Trial Implications

- La mise à jour 2014 des Lignes directrices de la Société canadienne de cardiologie sur la prise en charge de l'insuffisance cardiaque aborde les recommandations de prise en charge de 3 domaines spécialisés
 - 1) l'anémie;
 - 2) les biomarqueurs, particulièrement les peptides natriurétiques;
 - 3) les essais cliniques qui changeraient la pratique de la prise en charge des patients souffrant d'insuffisance cardiaque.

Bayer BNP as an Aid in the Assessment of Severity of Heart Failure



In volume overloaded patients: BNP level =
baseline BNP (dry) plus change due to
increased volume (wet)



Patient Population

Natriuretic Peptide Level

Actions

Risk factors
for HF

NT-proBNP > 300 $\mu\text{g/mL}$
BNP > 100 $\mu\text{g/mL}$

More frequent follow
up, consideration of
intensification of
existing therapy

Stable
ambulatory
HF

> 30% \uparrow from clinic
baseline value

More frequent follow
up \pm intensification of
HF therapy

Hospitalized
for HF and
before
discharge

> 30% \downarrow from
admission
value

Discharge if relatively
free from congestion



Autres marqueurs

- NGAL rénale
- Cystatin C rénale
- Cardiac hs-troponins nécrose
- ST2 fibrose/inflammation
- Galectin-3 fibrose

Heart Failure in Canada

Survival, Hospitalization and Readmissions

PREVALENCE/INCIDENCE

- 3.3% Canadian population 40 years +²
- ≈ 550 000 Canadians²
- ≈ 75 000 new patients/year²

SURVIVAL

- HF patients average life span → 5.5 years¹
- 1-year mortality rate after diagnosis → 25%²
- 30-day mortality rate after HF hospitalization → 16%²

HOSPITALIZATION ADMISSION/READMISSION

- 2nd most responsible diagnosis for hospitalization (65+) (after COPD)³
- Highest 30-day readmission rates (22.9%-all cause vs 9.5% HF vs 1% COPD)⁴
- Survival rate ↓ with the number of hospitalization⁵



ECONOMIC BURDEN

¹ Alter DA, Ko DT, Tu JV, et al. The average lifespan of patients discharged from hospital with heart failure. *JGIM* 2012. P1171-9. Canadian HF cohort of 7,865 patients from the EFFECT provincial quality improvement initiative. (Ontario, 1999-2010 data)

² Blais C et al. *CJC* 2014;30:352-358

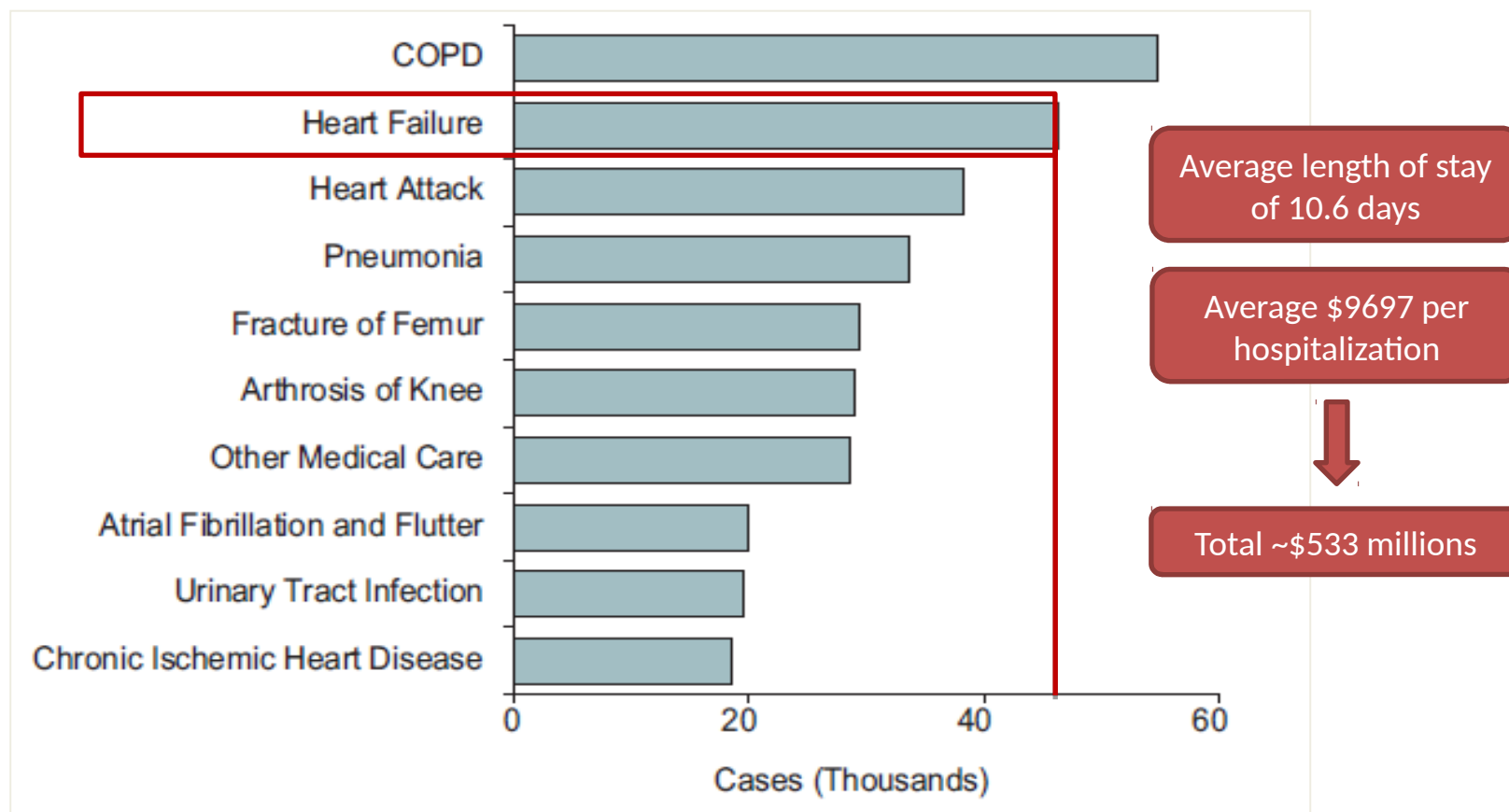
³ A snapshot of Health in Canada as Demonstrated by Top 10 Lists, 2011, CIHI, 2012

⁴ All-Cause Readmission to Acute Care and Return to the Emergency Department, CIHI internal data, 2012

⁵ Setoguchi S et al., *Am Heart J*. 2007 Aug;154(2):203-5

HF is the 2nd most frequent diagnosis for hospitalizations in Canada (65+)

- Primary cause of hospitalization for patients 65 years old and older in 2011
 - 86% of all hospitalization for HF



Traitement de l'insuffisance cardiaque



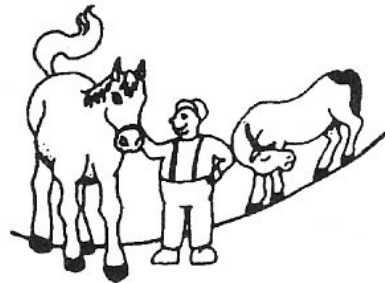
WHIP THE HORSE



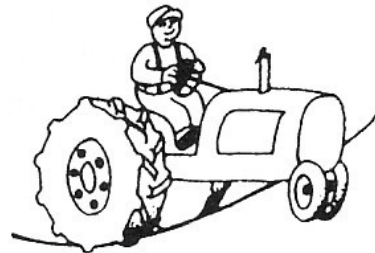
UNLOAD THE WAGON



SLOW THE HORSE



GET A NEW HORSE

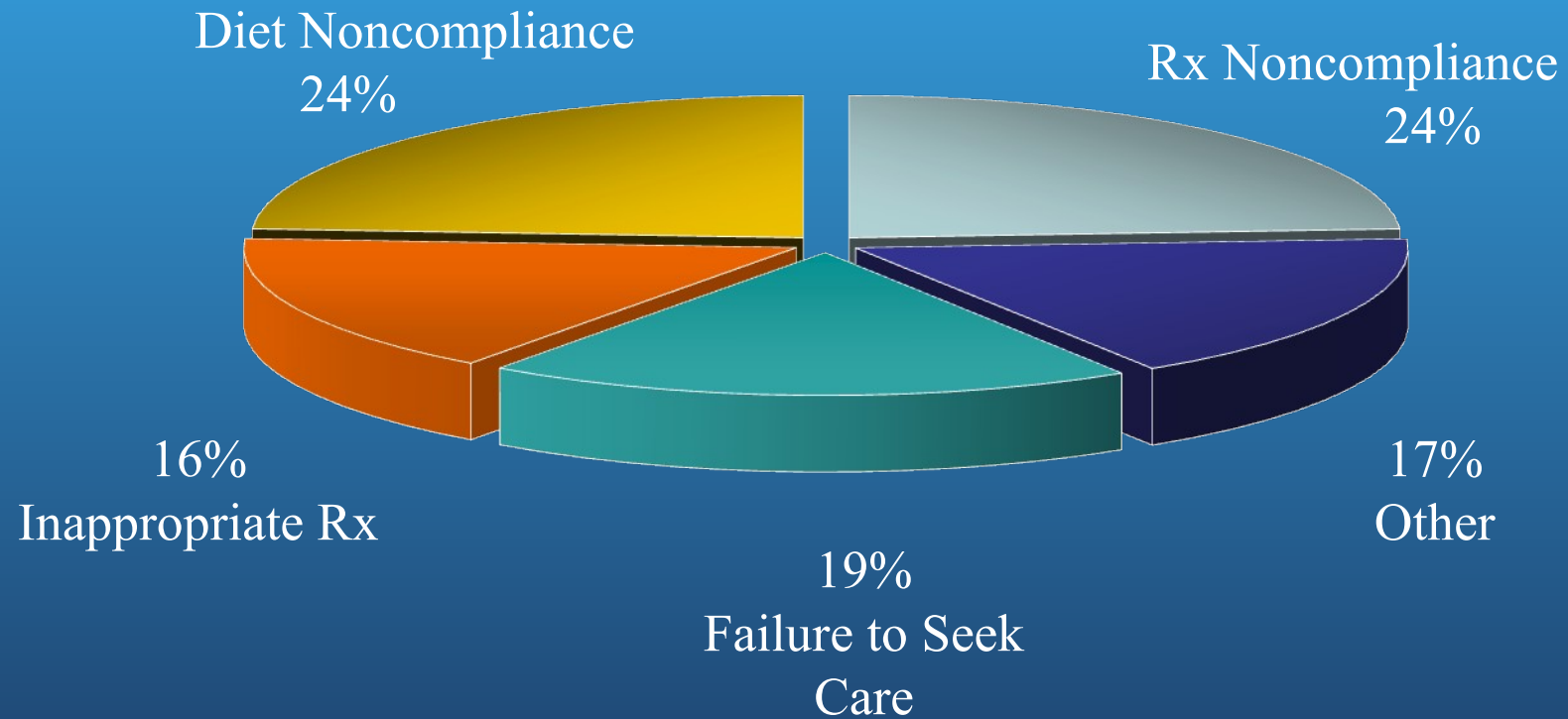


GET A TRACTOR



HEAL THE HORSE

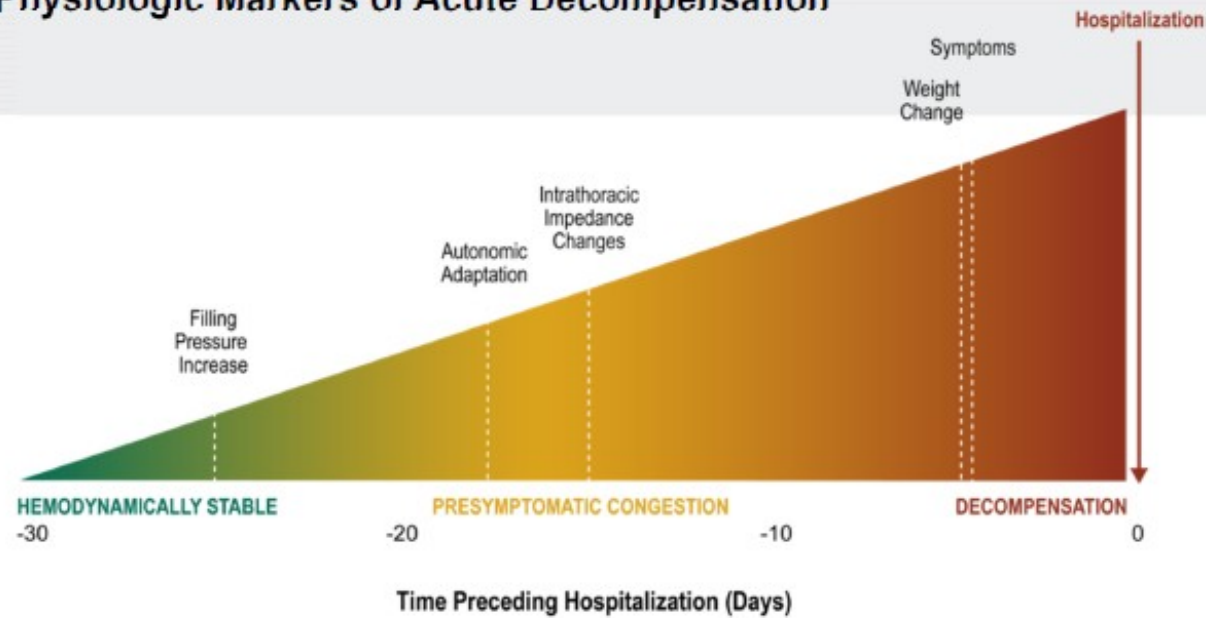
Potential to Prevent HF Hospitalizations



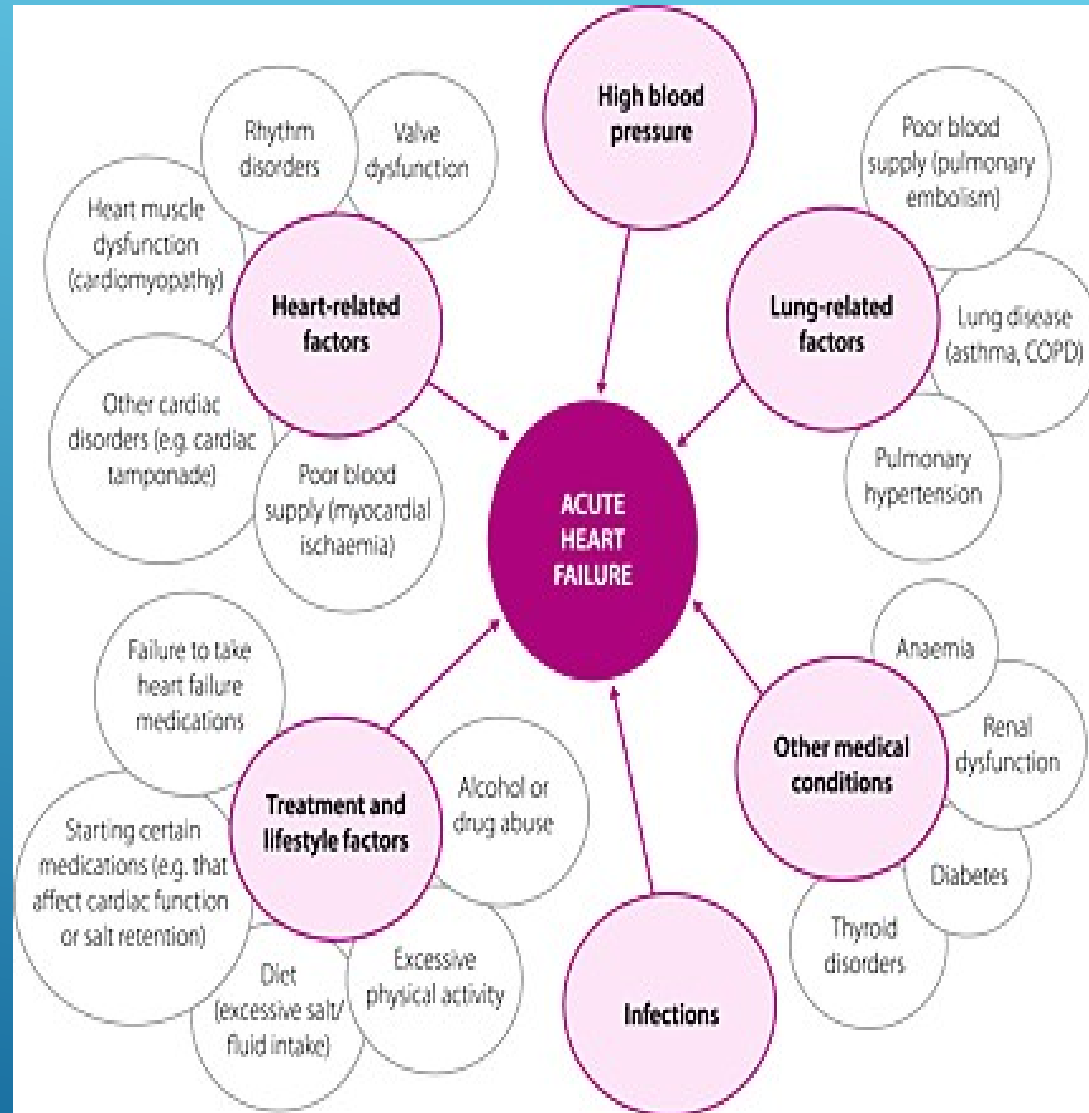
Diagnosis of Heart Failure

TIME COURSE OF DECOMPENSATION

Physiologic Markers of Acute Decompensation

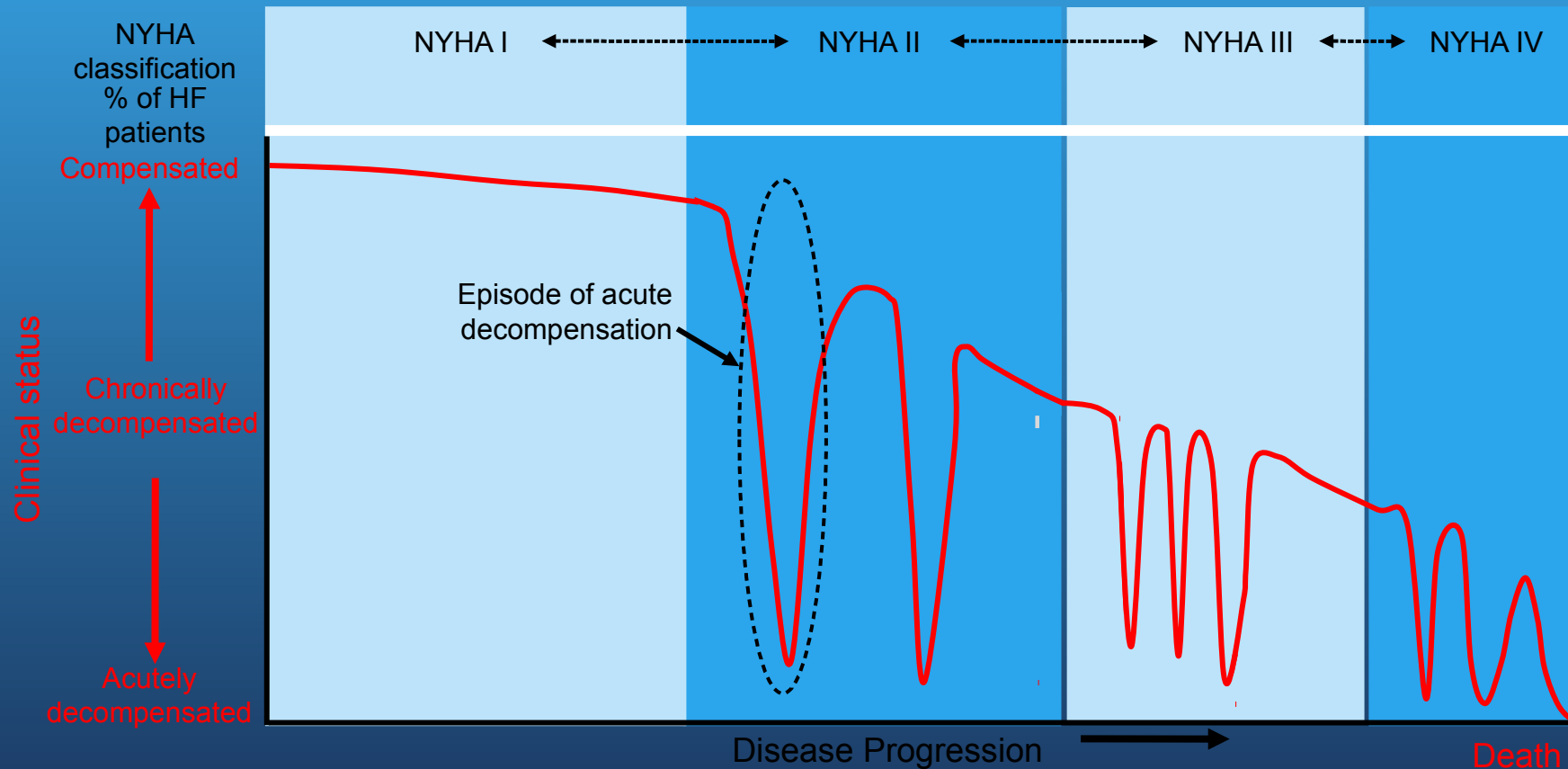


* Graph adapted from Adamson PB, et al. *Curr Heart Fail Reports*, 2009.

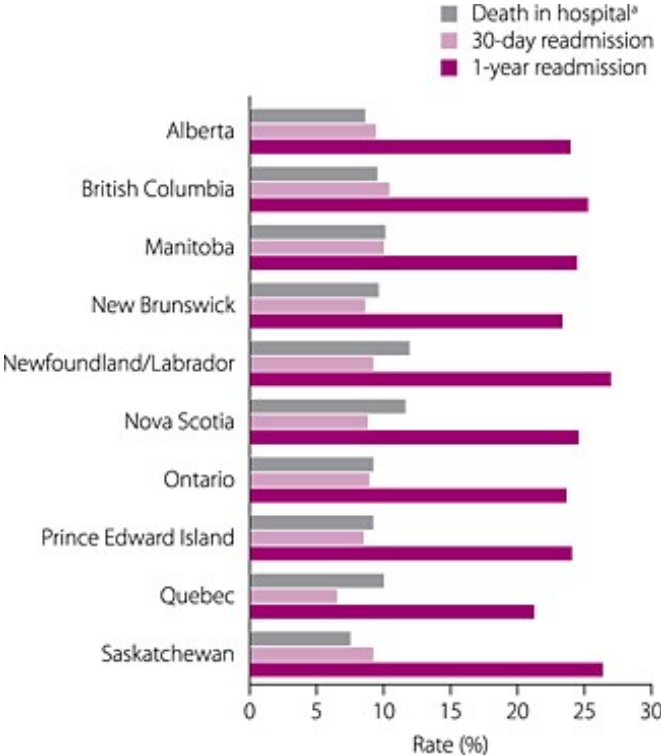


Heart Failure progression, morbidity and mortality

- With each acute event, myocardial injury may contribute to progressive LV dysfunction
- Increasing frequency of acute events with disease progression leads to high rates of hospitalization and increased risk of mortality
- ≈50% of people diagnosed with HF, 75 years of age, will die within 5 years

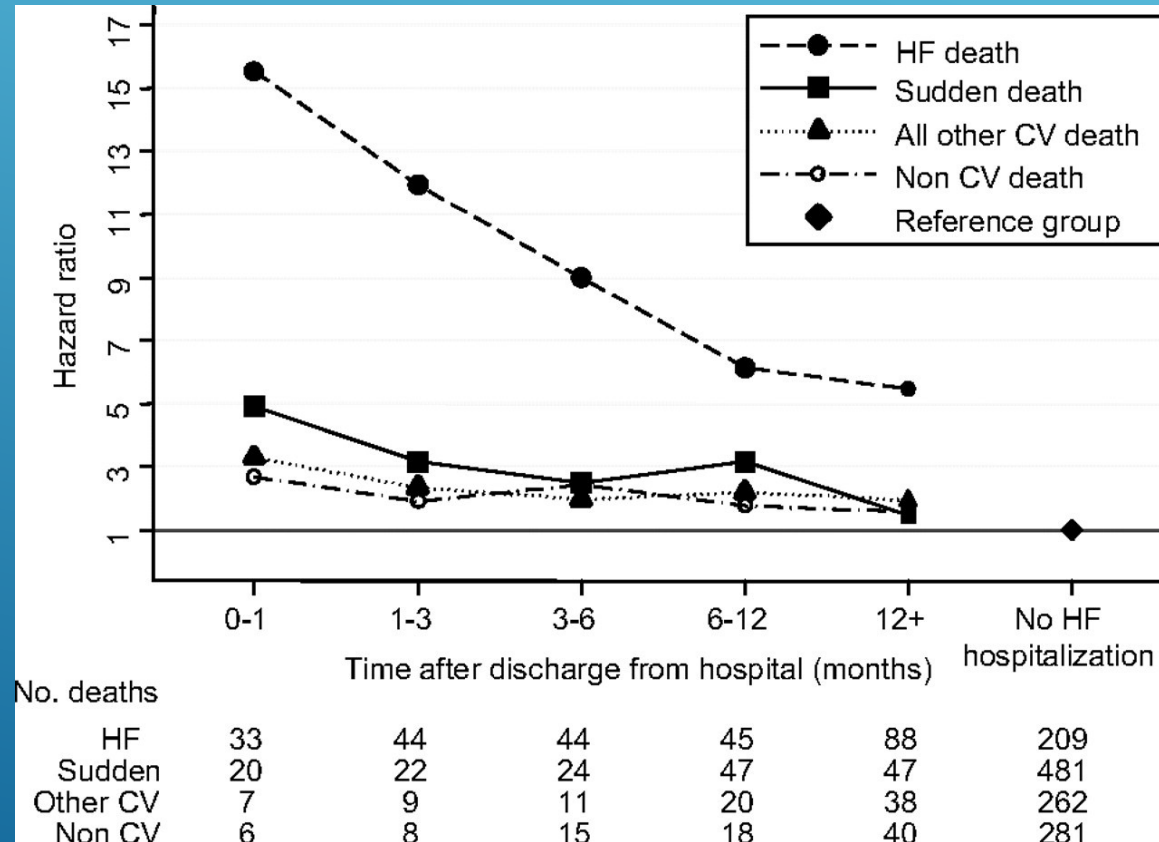


Improving Care for Patients with Acute HF: Before, During and After Hospitalization 2015 ISIS

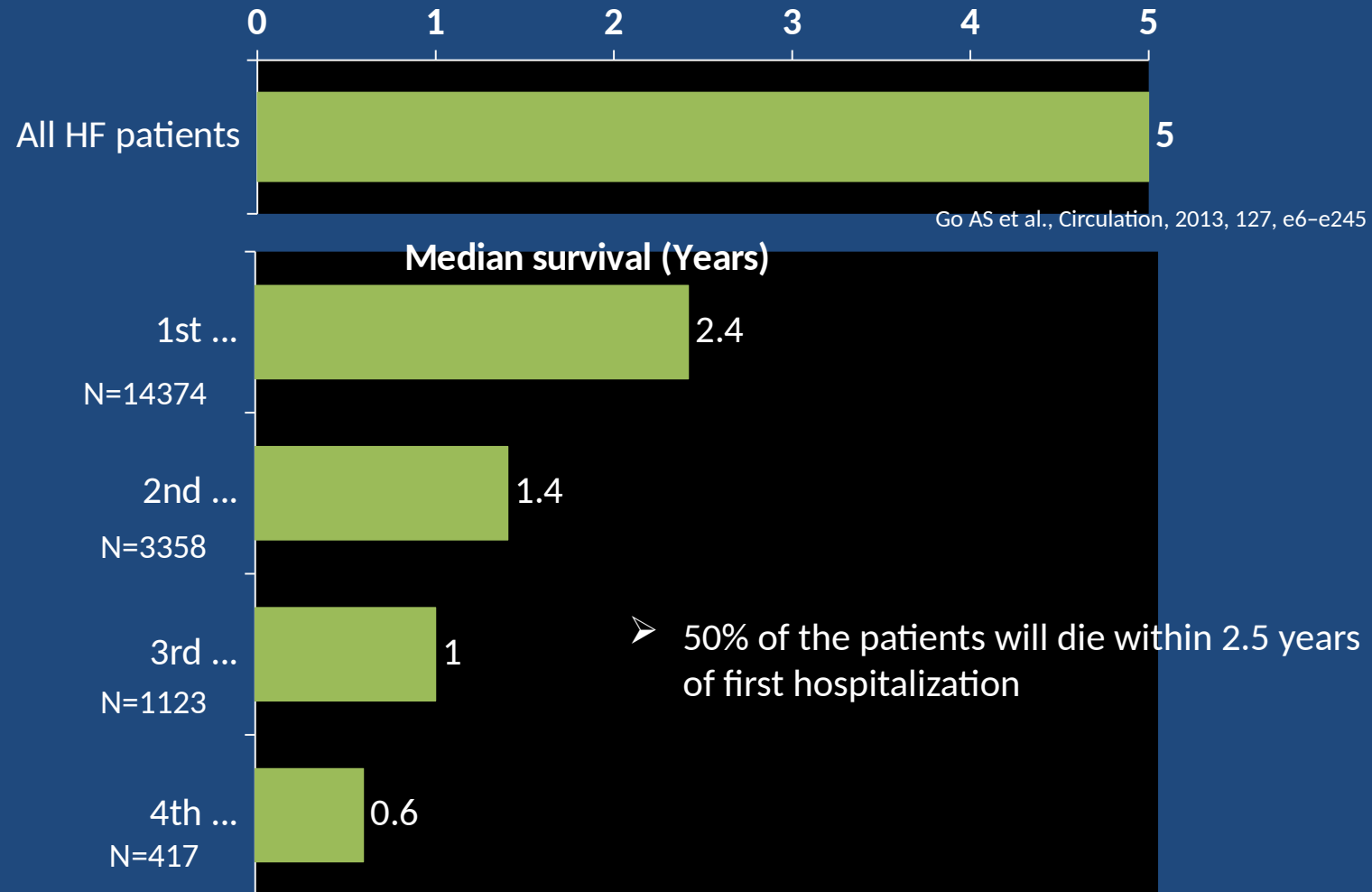


Influence of Nonfatal Hospitalization for Heart Failure on Subsequent Mortality in Patients With Chronic Heart Failure

by Scott D. Solomon, Joanna Dobson, Stuart Pocock, Hicham Skali, John J.V. McMurray, Christopher B. Granger, Salim Yusuf, Karl Swedberg, James B. Young, Eric L. Michelson, and Marc A. Pfeffer



Each hospitalization has a major impact on patient survival



RELIABILITY OF WEIGHT IN ASSESSING DECOMPENSATION

Weight changes have low sensitivity for decompensation

	Sensitivity	Specificity
2 kg weight gain over 48-72 hrs ¹	9%	97%
2% weight gain over 48-72 hrs ¹	17%	94%
3 lbs in 1 day or 5 lbs in 3 days ²	22.5%	

Lewin, 2005. N = 77¹

Abraham, 2011. N = 156²

Recommandation Canadienne

La gestion de la HF commence par un diagnostic précis

Traitement agressif de tous les facteurs de risque connus (par exemple hypertension, DM)

Le traitement nécessite une combinaison thérapeutique rationnelle

Les soins doivent être individualisés pour chaque patient en fonction:

- Symptômes

- Présentation clinique

- Gravité de la maladie

- Cause sous-jacente

L'éducation des patients et des aidants devrait être adaptée et répétée

Des interventions mécaniques (par ex. Revasc et dispositifs) devraient être disponibles

La collaboration est nécessaire entre les professionnels de la santé

L'accessibilité aux soins primaires, d'urgence et spécialisés doit être fluide

Insuffisance cardiaque

Évaluation clinique – Classification fonctionnelle de la New York Heart Association (NYHA)

Capacité fonctionnelle		Évaluation objective
CLASSE I	Cardiopathie ne limitant pas l'activité physique. L'activité physique normale ne cause pas de fatigue, de palpitation, de dyspnée ou de douleur angineuse.	A. Aucune preuve objective de maladie cardiovasculaire
CLASSE II	Cardiopathie limitant légèrement l'activité physique. Le patient ne ressent aucune gêne au repos, mais l'activité physique normale entraîne de la fatigue, des palpitations, une dyspnée ou des douleurs angineuses.	B. Preuve objective de maladie cardiovasculaire légère
CLASSE III	Cardiopathie limitant l'activité physique. Le patient ne ressent aucune gêne au repos, mais une activité inférieure à la normale cause de la fatigue, des palpitations, une dyspnée ou des douleurs angineuses.	C. Preuve objective de maladie cardiovasculaire modérément grave
CLASSE IV	Cardiopathie limitant la capacité de fournir un effort physique sans malaise. Le patient présente des symptômes d'insuffisance cardiaque ou de syndrome d'angine, même au repos. S'il doit fournir un effort physique, le malaise augmente.	D. Preuve objective de maladie cardiovasculaire grave

NYHA	Classe I	Classe II	Classe III	Classe IV
Grade clinique symptomatique*	–	Léger	Modéré	Grave

The Criteria Committee of the New York Heart Association. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Great Vessels. 9th ed. Boston, Mass: Little, Brown & Co;1994:253-256.

* Adaptation de NICE CHF Guidelines Draft June 2010. www.nice.org.uk.

Therapy in HFrEF

- Benefits of drugs and devices in HFrEF
 - ACEi/ARB
 - Beta blockers
 - Mineralocorticoid receptor inhibitors
 - Cardiac resynchronization therapy
 - Implanted cardioverter/defibrillator

However, 5 yr mortality remains ~50%

Medications in HF: Patients

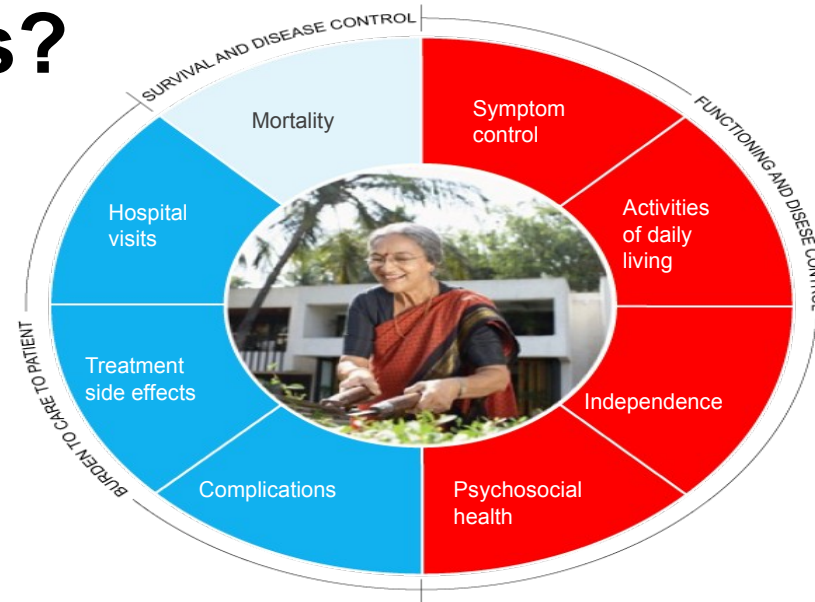
“Medications don’t work in patients who don’t take them”

- C. Everett Koop

What outcomes matter to HF patients?

“The outcomes that matter most to persons with heart failure”

ICHOM's mission is to unlock the potential of value-based health care by defining global Standard Sets of outcome measures that really matter to patients for the most relevant medical conditions and by driving adoption and reporting of these measures worldwide



- 1. Includes dyspnea, fatigue and tiredness, disturbed sleep, and peripheral edema. 2. Includes HRQOL, maximum physical exertion. 3. Includes depression and anxiety, confidence and self-esteem. 4. Includes admissions, appointments. International Consortium for Health Outcomes in Medicine (ICHOM) Standard Set for Heart Failure. www.ichom.org

Evolution de la mortalité en insuffisance cardiaque

EBM Therapies	Relative Risk Reduction	Mortality 2 year
ACE-I	↓ 23%	27%
B-Blockers	↓ 35%	12%
Aldosterone Antagonists	↓ 30%	19%
ICD	↓ 31%	8.5%

Most of the Patients Hospitalized are Already Diagnosed and Treated for HF

- 85% of the patients hospitalized for HF are already diagnosed and treated for HF and treated Gheorghiadu, JACC, 2013, 61, 391
- More than 70% of the patients had no change in the BB dose during hospitalization in the US in 2003-2004 (from the Optimize-HF registry)

Doses changes in β -blocker therapy during hospitalization

β -Blocker Therapy	Dose Changes During Hospitalization		
	Reduced	Unchanged	Increased
Carvedilol (n = 1,162)	13.1%	70.3%	16.6%
Sustained-release metoprolol succinate (n = 422)	8.8%	76.5%	14.7%
Immediate-release metoprolol tartrate (n = 232)	10.6%	77.2%	12.2%
Atenolol (n = 91)	14.1%	74.6%	11.3%

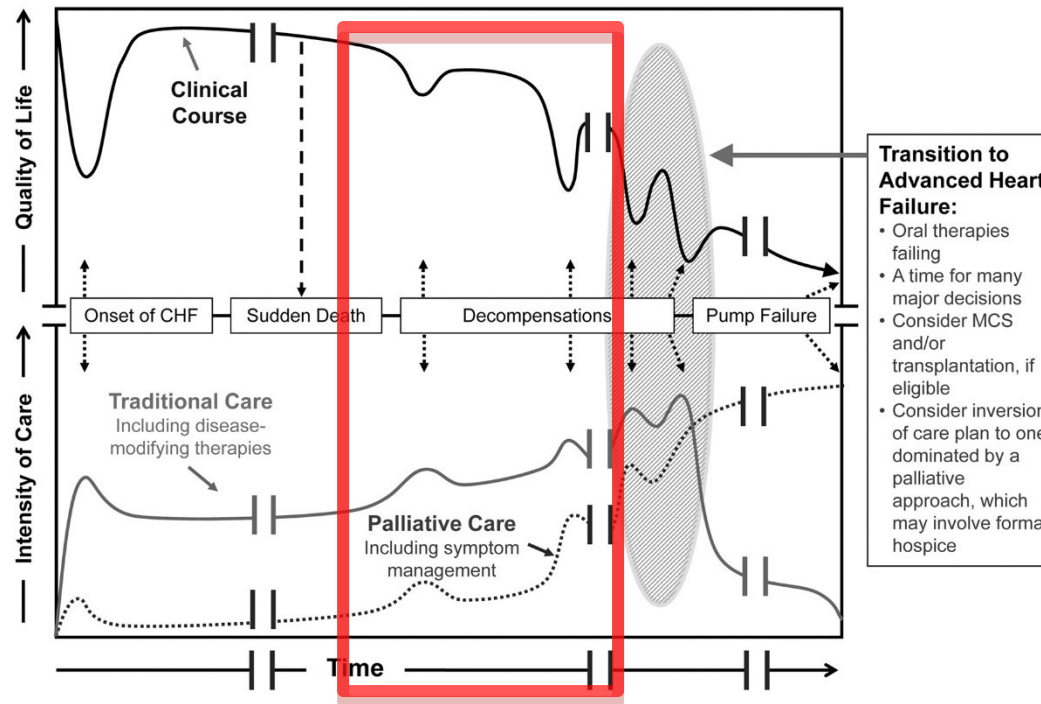
Fonarow, AJC, 2008, 102, 1524

Discharge Use of EBMT in ASCEND- HF

	Asia / Pacific (n=1416)	Central Europe (n=581)	Latin America (n=324)	North America (n=1838)	Western Europe (n=181)	P value
Loop Diuretics	1200/1401 (85.7%)	503/562 (89.5%)	283/323 (87.6%)	1665/1821 (91.4%)	169/180 (93.9%)	<0.001
Total daily loop diuretic dose, mg	40 (40, 80)	40 (40, 120)	40 (40, 80)	80 (40, 160)	60 (8, 125)	<0.001 NP
ACE Inhibitor/ARB	68.5%	74.9%	71.3%	<u>1150/1837</u> (62.6%)	75.1%	<0.001
Aldosterone antagonist [‡]	624/1320 (47.3%)	335/466 (71.9%)	168/265 (63.4%)	<u>601/1799</u> (33.4%)	97/172 (56.4%)	<0.001
Beta blocker	52.3%	73.1%	52.2%	<u>1333/1837</u> (72.6%)	72.4%	<0.001
Digoxin	47.7%	34.6%	39.8%	508/1837 (27.7%)	24.9%	<0.001
Hydralazine	1.8%	0.3%	6.2%	16.5%	0	<0.001
Anticoagulant	8.2%	34.9%	18.8%	31.7%	40.3%	<0.001
Oral/Topical Nitrates	32.6%	12.9%	12.3%	23.2%	14.9%	<0.001
Implantable cardioverter Defibrillator	6/1321 (0.5%)	24/466 (5.2%)	4/265 (1.5%)	<u>413/1799</u> (23.0%)	18/172 (10.5%)	<0.001

Howlett et al, Circulation: Cardiovascular Quality and Outcomes. 2013;6:534-542 <https://doi.org/10.1161/CIRCOUTCOMES.113.000119>

Time Frame Opportunity!



Access to HF Clinics

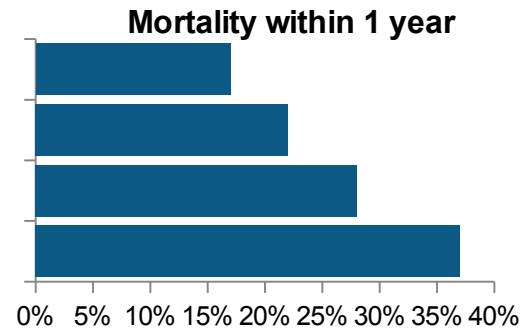
- One year follow up > 2000 hosp, Canadian metro hospitals
 - 13% seen in DM or HF Clinic
 - Cohort seen were younger, lower risk, more likely to see Cardiology and visit other disease clinics
- **THIS = RISK TREATMENT MISMATCH**

Gravely S, Can J Cardiol 2012;28:483-9.

57% of the Patients Will Not See a Specialist After an HF Hospitalization

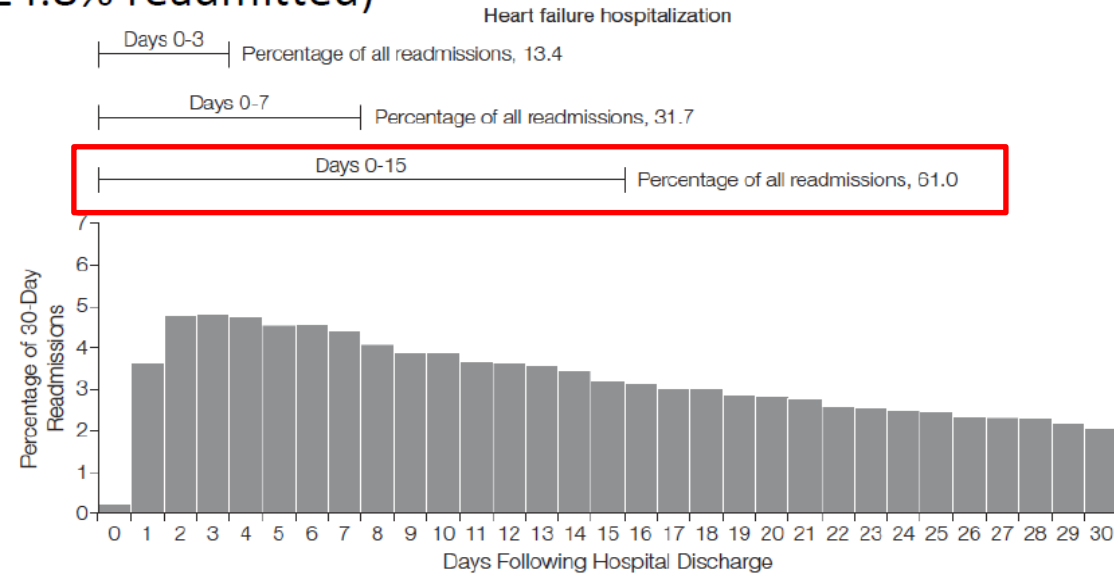
For patients discharged from a HF hospitalization, within 1 year

- 42% will see a specialist and a GP
- 1% will only see a specialist
- 24% will only see a GP
- 34% won't see any physicians



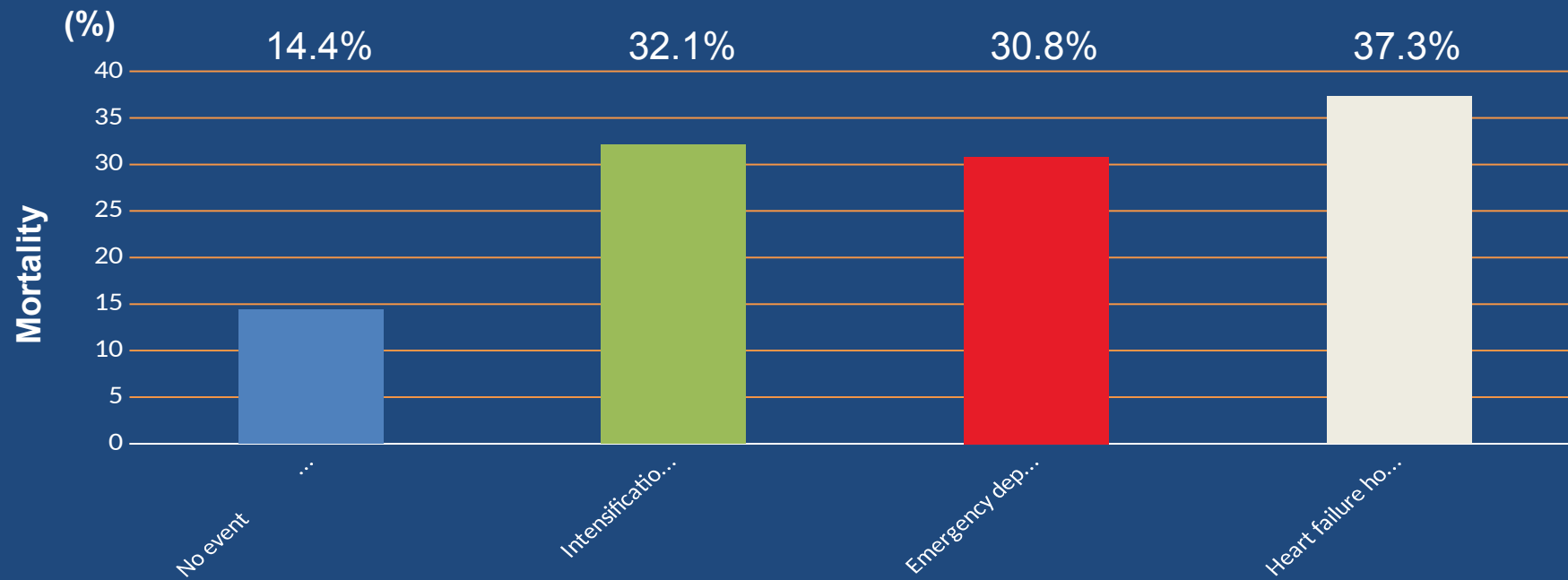
Is 7 days soon enough?

From 2007 through 2009, 329,308 30-day readmissions after 1,330,157 Medicare HF hospitalizations (24.8% readmitted)

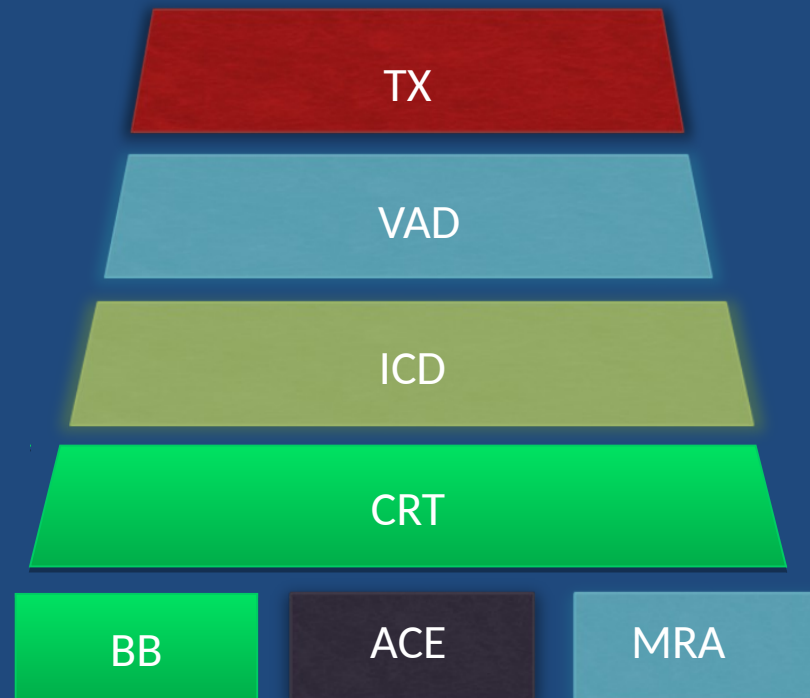


Dharmarajan K, *et al.* *JAMA* 2013;309:355-63.

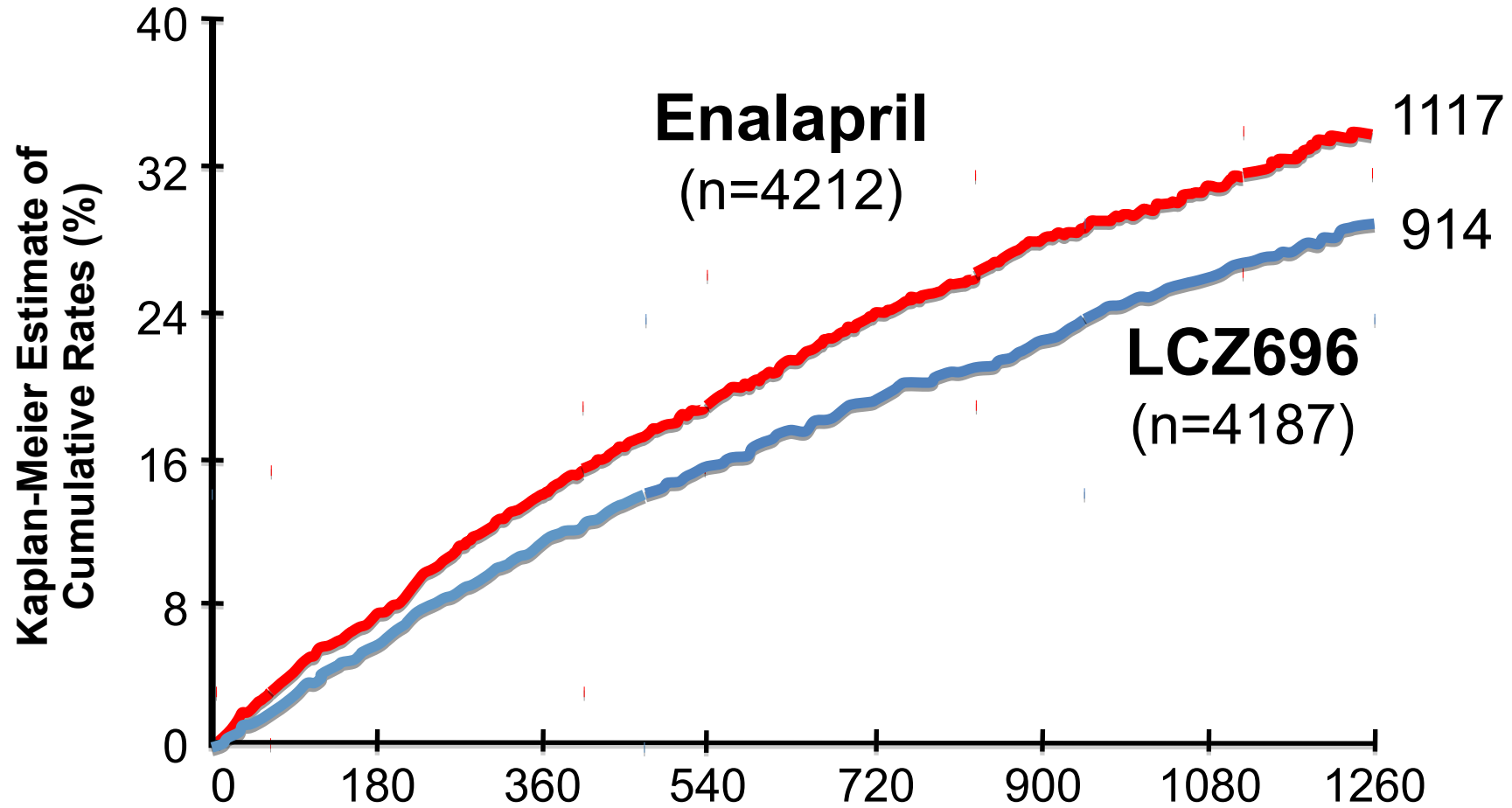
La mortalité toutes causes (%) après un premier événement (ou chez les patients sans événement)



HF-REF



PARADIGM-HF: Cardiovascular Death or Heart Failure Hospitalization (Primary Endpoint)



Patients at Risk

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

Effect of Ivabradine on Outcomes

- Rational for using HR cut-off value
- HR value in indication

Primary endpoints

CV death or hospital admission for worsening HF

Mortality endpoints

All-cause mortality

Cardiovascular mortality

Death from HF

Other endpoints

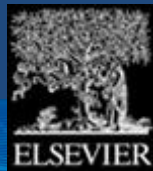
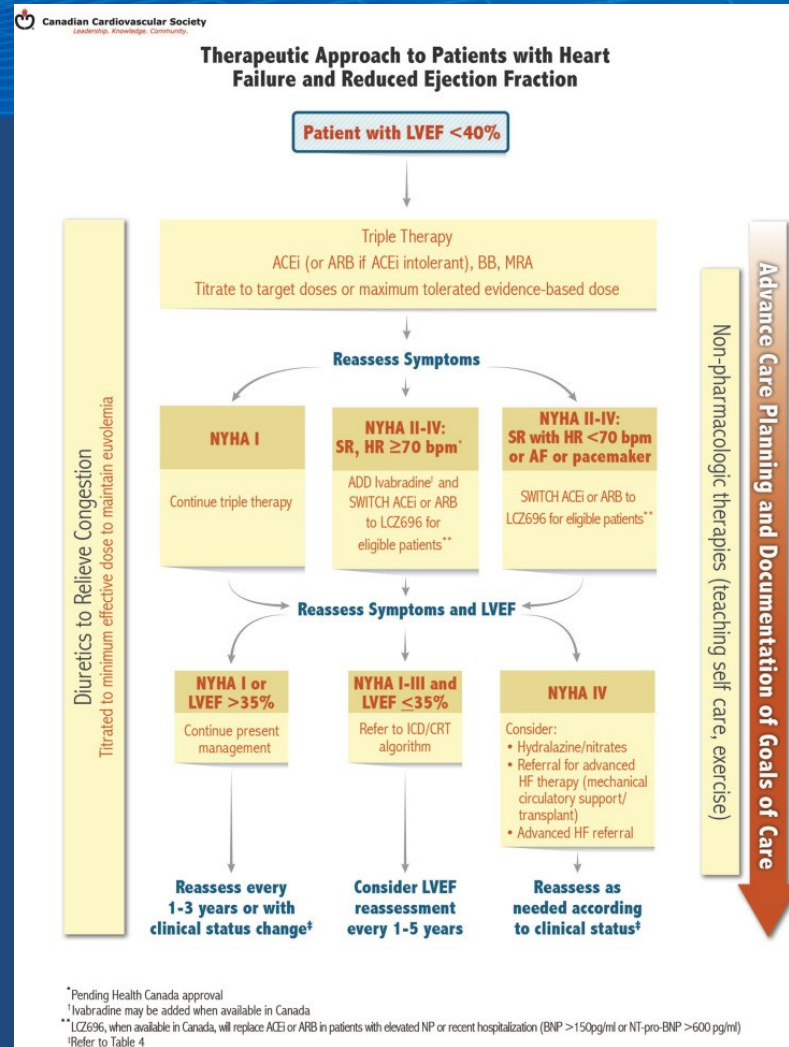
All-cause hospital admission

Hospital admission for worsening of HF

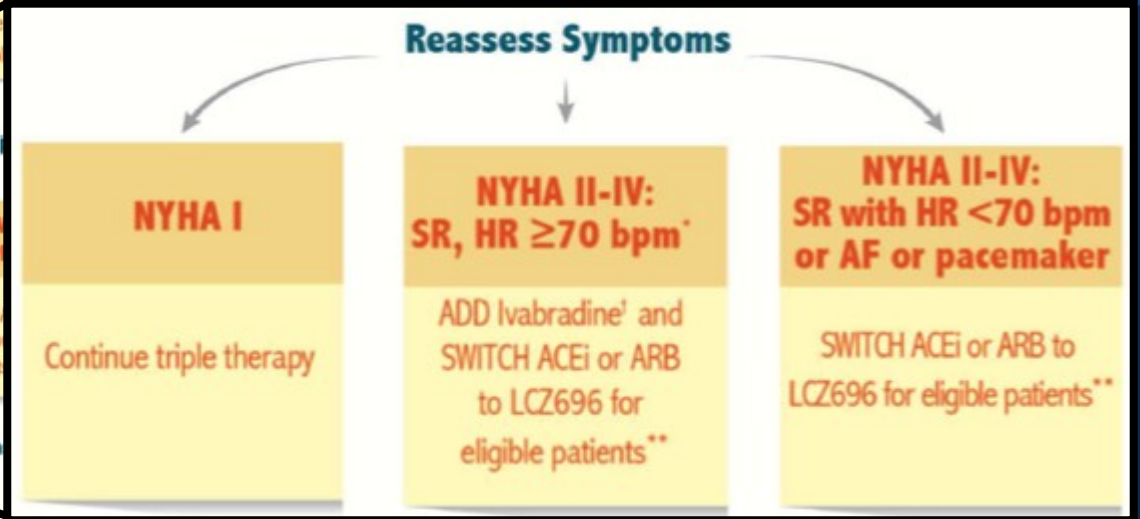
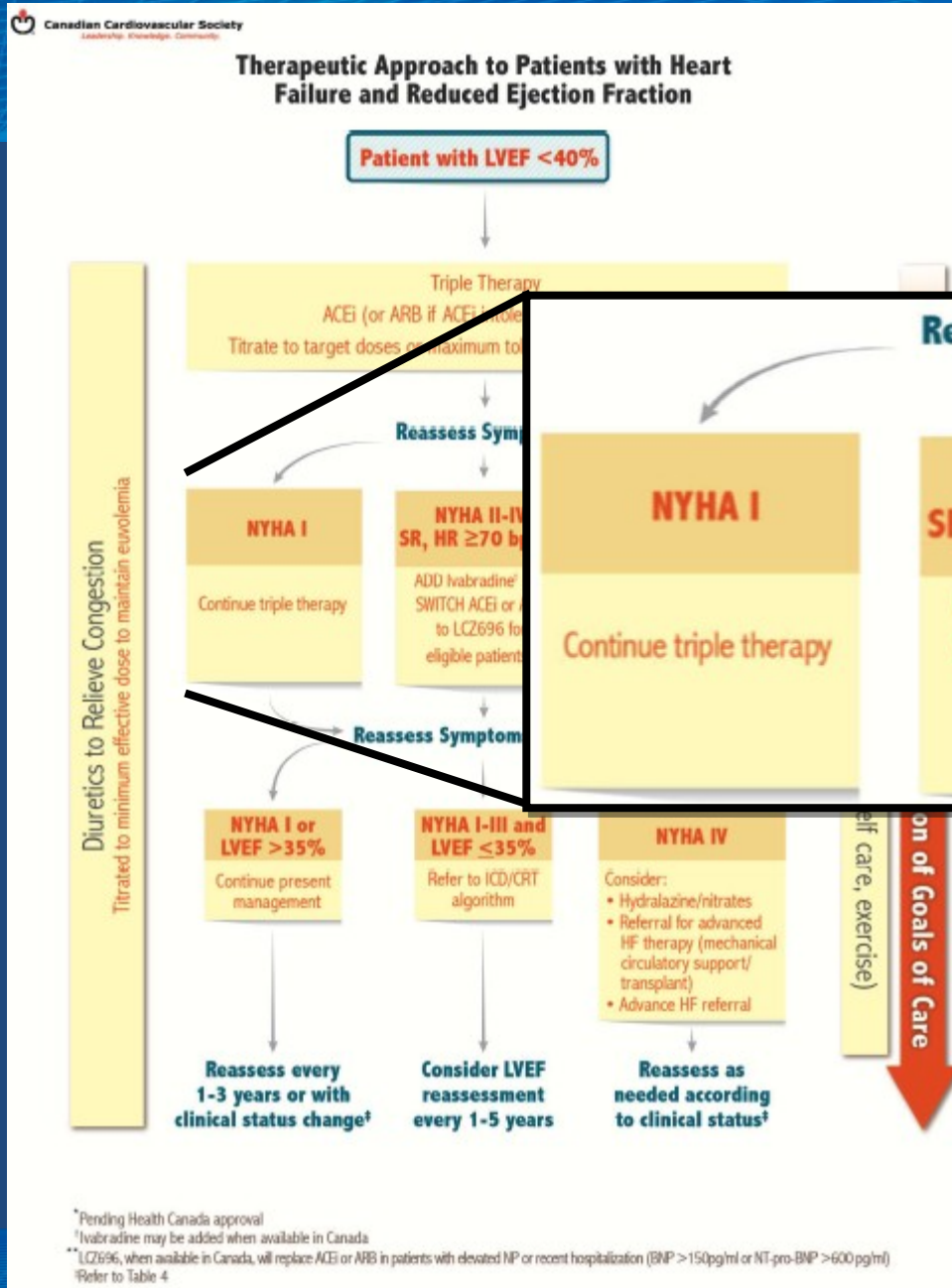
Any CV hospital admission

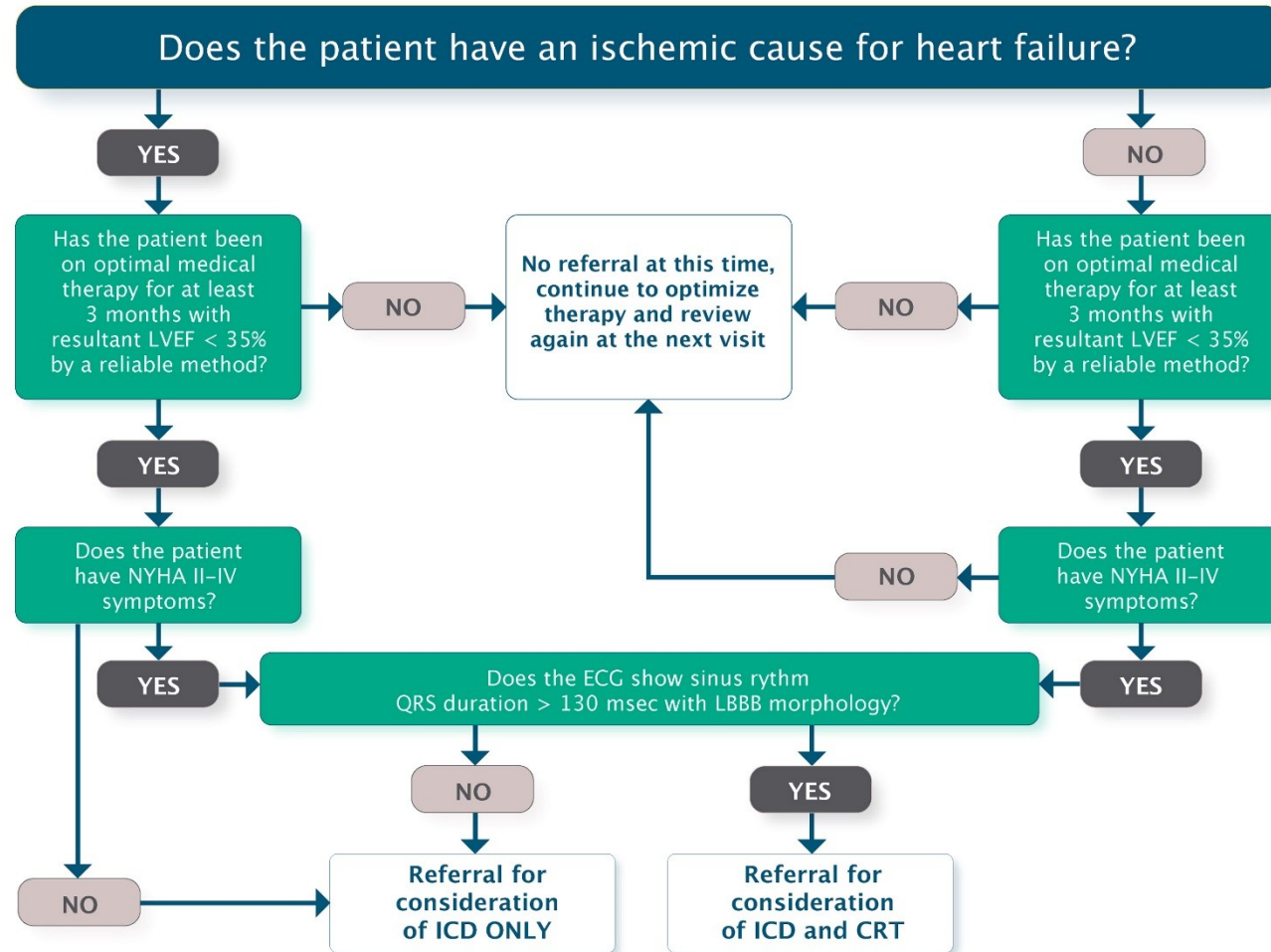
	Significant reduction p value		
	SHiFT (full)	Sub-group	
	≥ 70 bpm N=6,505	≥ 75 bpm N=4,150	≥ 77 bpm N=3,357
	USA	EMA request Europe	Median value Australia
CV death or hospital admission for worsening HF	18% p<0.0001	24% p<0.0001	25% p<0.0001
All-cause mortality	-	17% p=0.0109	19% p=0.0074
Cardiovascular mortality	-	17% p=0.0166	19% p=0.0137
Death from HF	26% p=0.014	39% p=0.0006	39% p=0.0017
All-cause hospital admission	11% p=0.003	18% p<0.0001	18% p=0.0002
Hospital admission for worsening of HF	26% p<0.0001	30% p<0.0001	31% p<0.0001
Any CV hospital admission	15% p=0.0002	21% p<0.0001	21% p<0.0001

Figure 2



New CCS algorithm treatment for systolic HF patients





En résumé

- Éviter inertie médical
 - Optimiser les traitements de tous les patients symptomatiques
 - Augmenter la fréquences des visites
 - Protocoles de soins
 - Titration forcée
 - Équipe
 - Infirmières
 - Pharmaciens
 - Pharmaciens communautaires ?
 - GMF?
- Merci
- Q/A

Questions



SAVE THE DATE



HEART FAILURE UPDATE 2019

Montreal, May 10-11

LE CENTRE SHERATON MONTREAL

TO PRE-REGISTER VISIT HFupdate.ca



Presented by: **CHFS SCIC**

Canadian Heart Failure Society
Société canadienne d'insuffisance cardiaque