Aligning Forces for Quality
Reducing Readmissions

April Quality Forum

April 19, 2011

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Heart Failure Readmissions: Predictors and Models

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April 19, 2011

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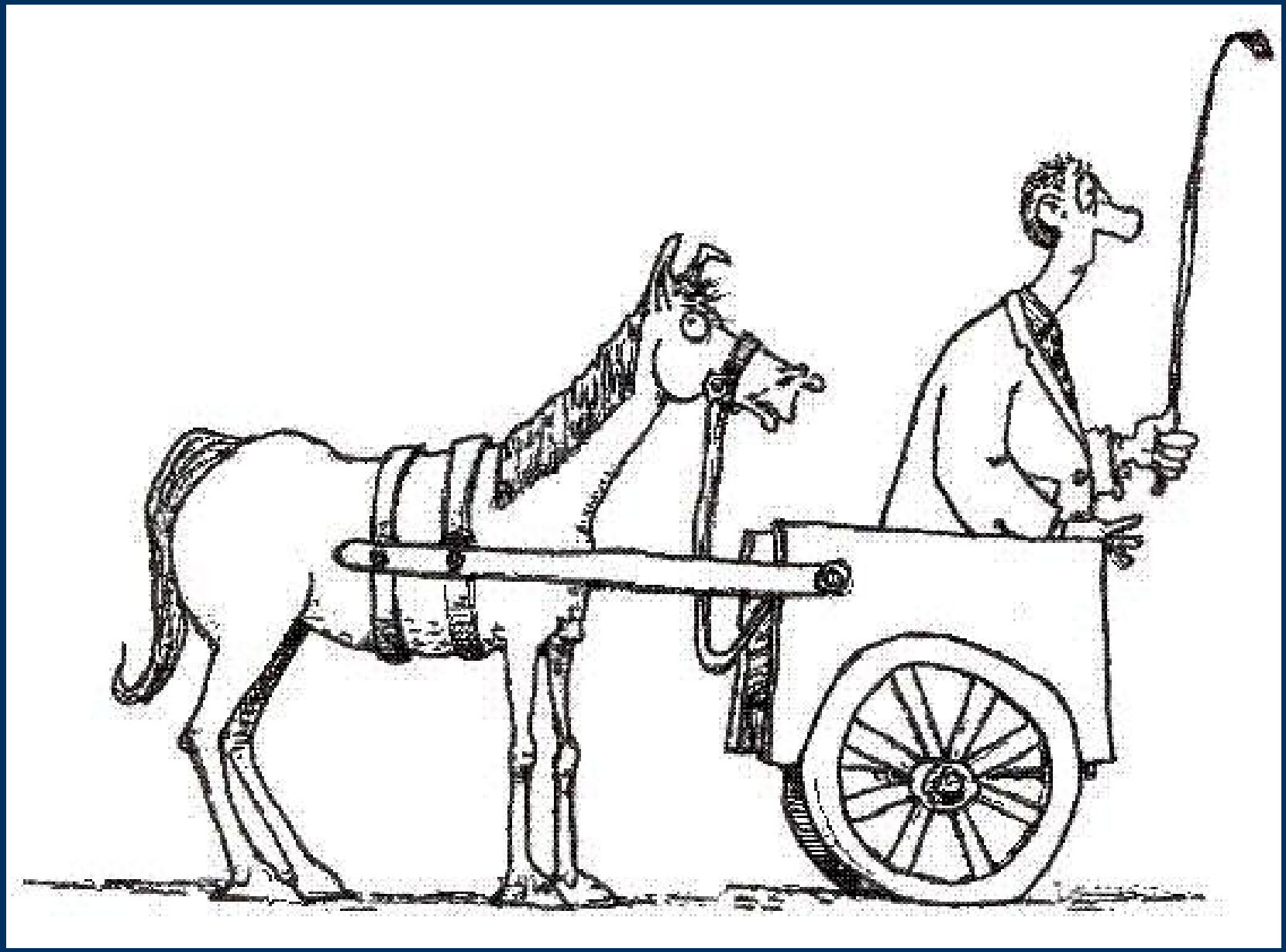
ANSCHUTZ MEDICAL CAMPUS

Colorado Cardiovascular Outcomes Research

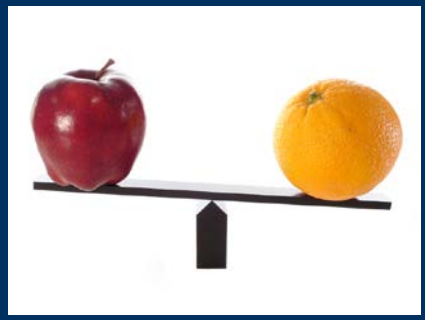
GOALS TODAY

- **Why and how to risk predict in HF**
- **Key factors associated with readmission**
- **Existing models**
  - **General**
  - **HF-specific**
- **Successes and challenges of risk tools used in HQN hospitals** (Part II)

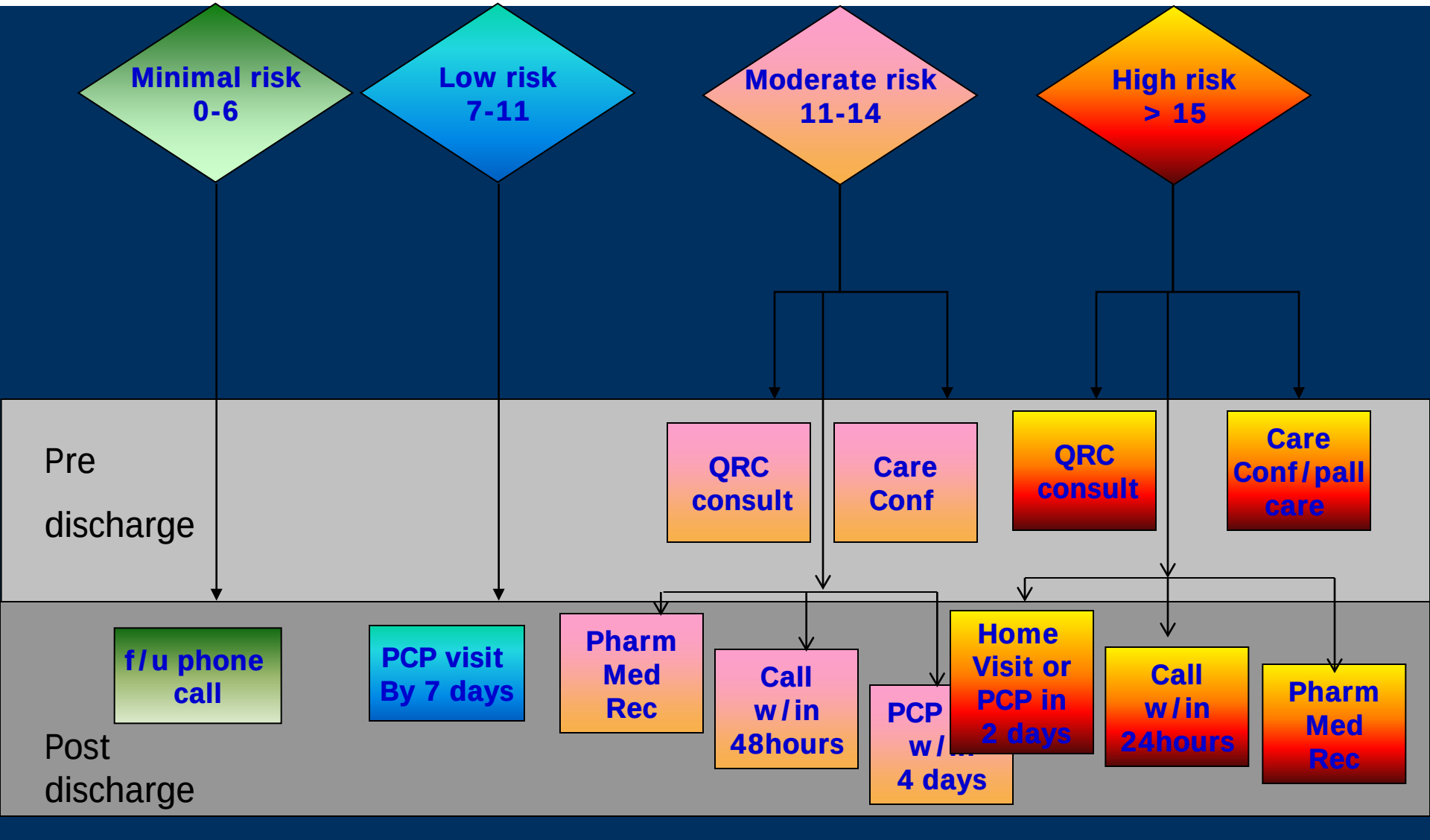


Relevance of Risk Prediction

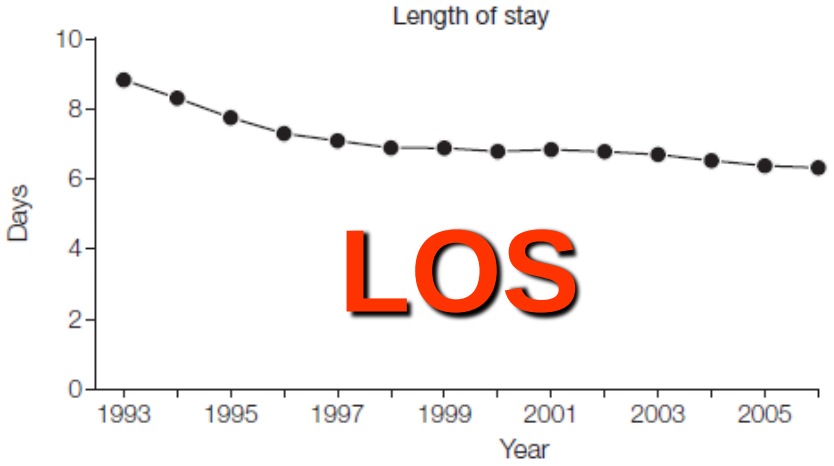
1. **Risk standardize to allow for fair comparisons**
   - Hospital to hospital
   - QI over time
2. **Risk stratify to target interventions**
   - Allocation of scarce resources
   - Efficient use of high intensity care
3. **Identify underlying causes of readmission**
   - Determine drivers of readmission
   - Novel targets for interventions

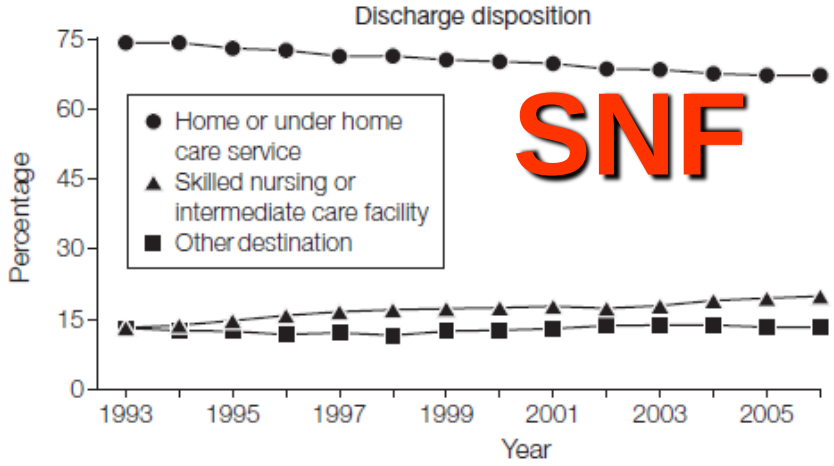


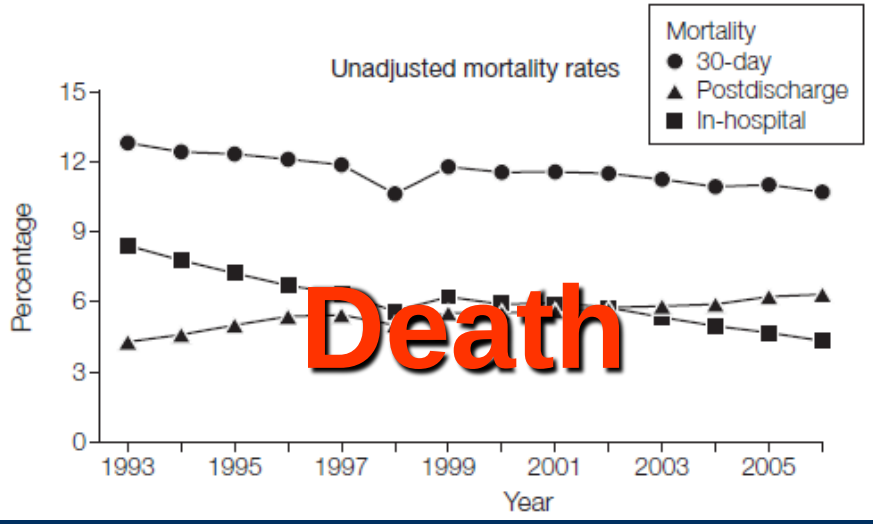
EXAMPLE = Calculated readmission score is automated in EMR, updates daily, is prominently displayed in record, and is available for all hospitalized patients

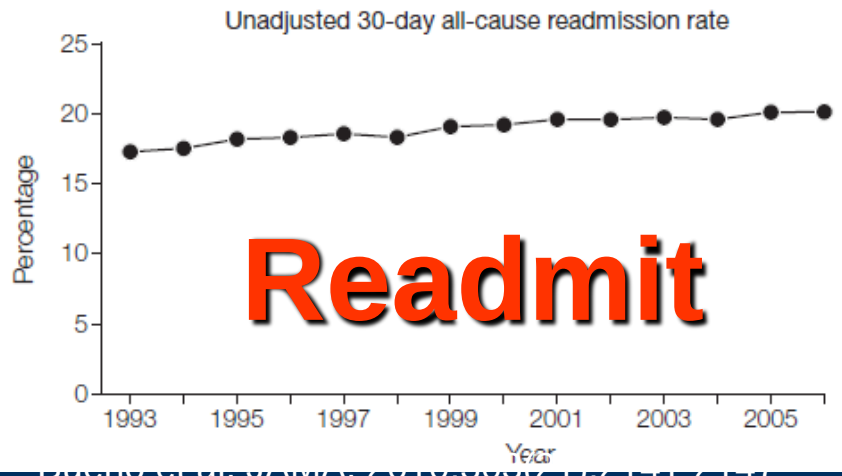


What Endpoint?









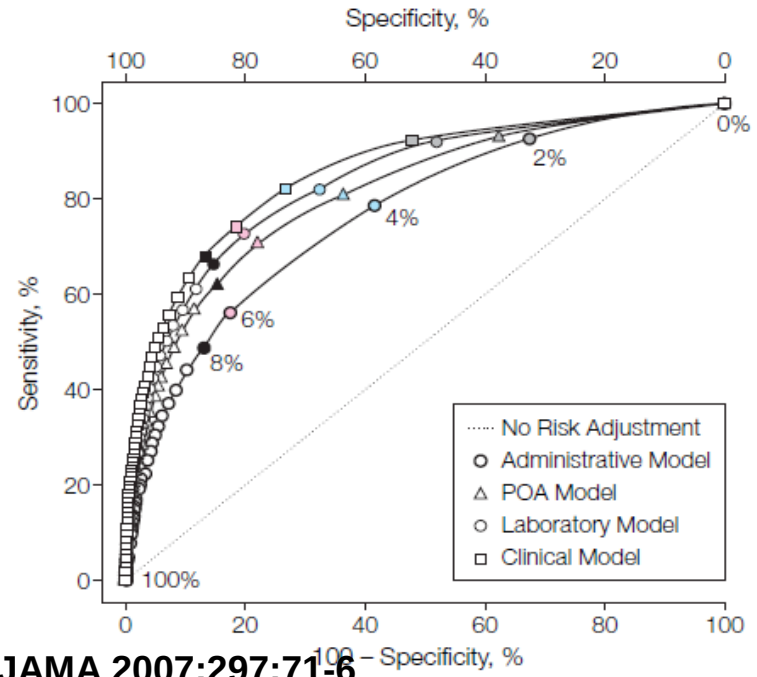
Bueno et al. JAMA. 2010;303(21):2141-2147

What Data?

- Balance automation with clinical detail

CLAIMS DATA FOR IMPROVING RISK-ADJUSTED HOSPITAL MORTALITY

Figure. Receiver Operating Characteristic Curves for the Models



Pine M et al. JAMA 2007;297:71-6

What Types of Factors?

- Patient level – almost always yes
- Provider / system – usually no
  - Do not want to adjust for in a quality metric
  - For many clinical decisions just want absolute risk

- Not so clear
  - Race?
  - Socioeconomic status?
  - Patient behaviors?
  - Discharge disposition?

When To Assess Factors?

- Admission?
- Discharge?
- Ongoing post-discharge?

How Well Does My Model Perform?

- **Association**
  - Simple (Unadjusted)
  - Independent (Adjusted)
- **Discrimination**
  - Distinguish readmitted from non-readmitted patient (C-index / AUC)
- **Calibration**
  - Absolute estimate of risk
- **Reclassification**
  - Does new factor / new model appropriately put people in the right category

** **Validation** in different datasets

Performance or Simplicity?

- How many predictors to include?
  - Example: Val-HeFT 1 year mortality

    "Clinical model"
    - Age, gender, NYHA class, SBP, cholesterol, BUN, Hb, uric acid, EF: c statistic = 0.69
    - Add NT-proBNP: c statistic = 0.73

    NT-proBNP alone: c statistic = 0.68
- How many models to build?
  - Diagnosis-specific model v. general model
  - Site-specific model v. national model

How Good is Good Enough?

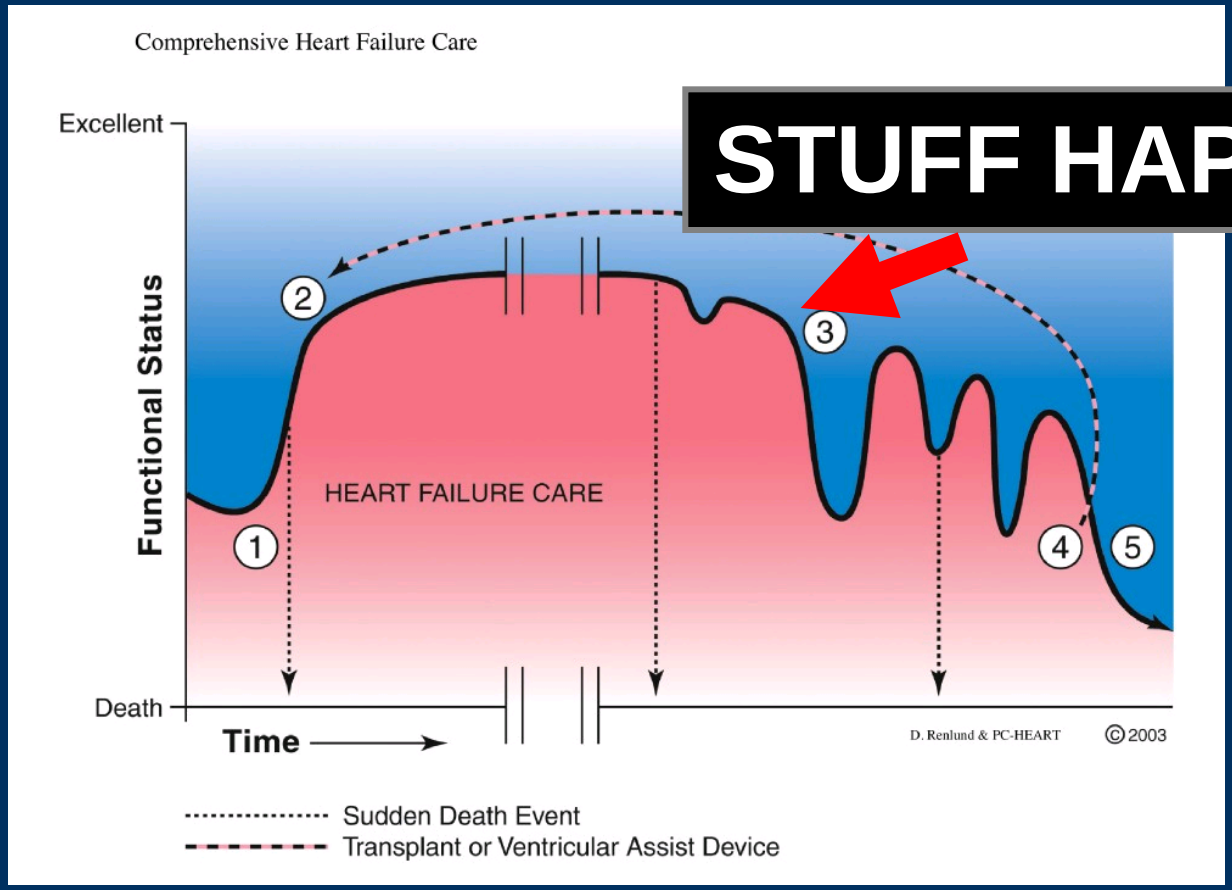
- Depends…
  - Schedule clinic f/u in 1 week or 2?
  - Determine cost-effectiveness of post-discharge intervention?
  - Decide whether hospital X is financially viable?

"Perfect is the enemy of good" vs.

"Misinformation is worse than no information"

How Good Can We Get?

Stochastic nature of chronic diseases

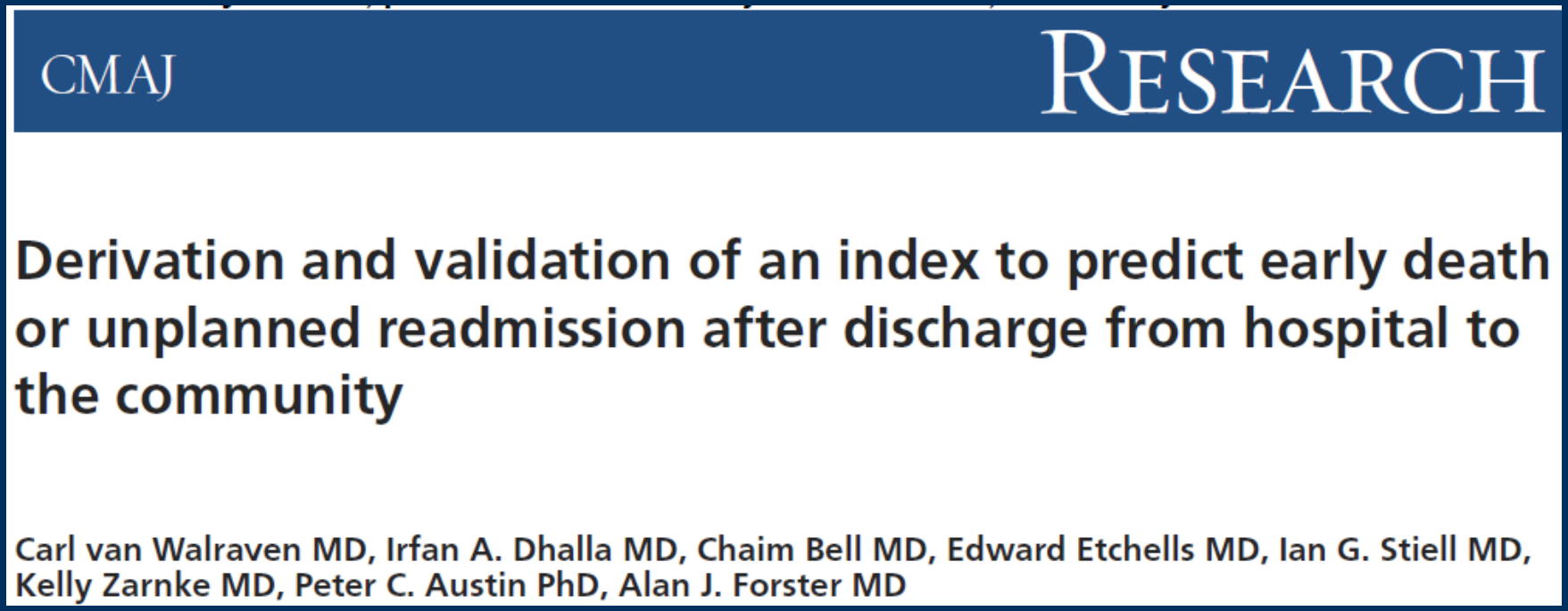


Existing Models

General Readmission Models

- Advantages
  - Easy to apply hospital-wide
  - The majority of HF readmissions are not for HF
  - Many of the interventions are not specific to HF

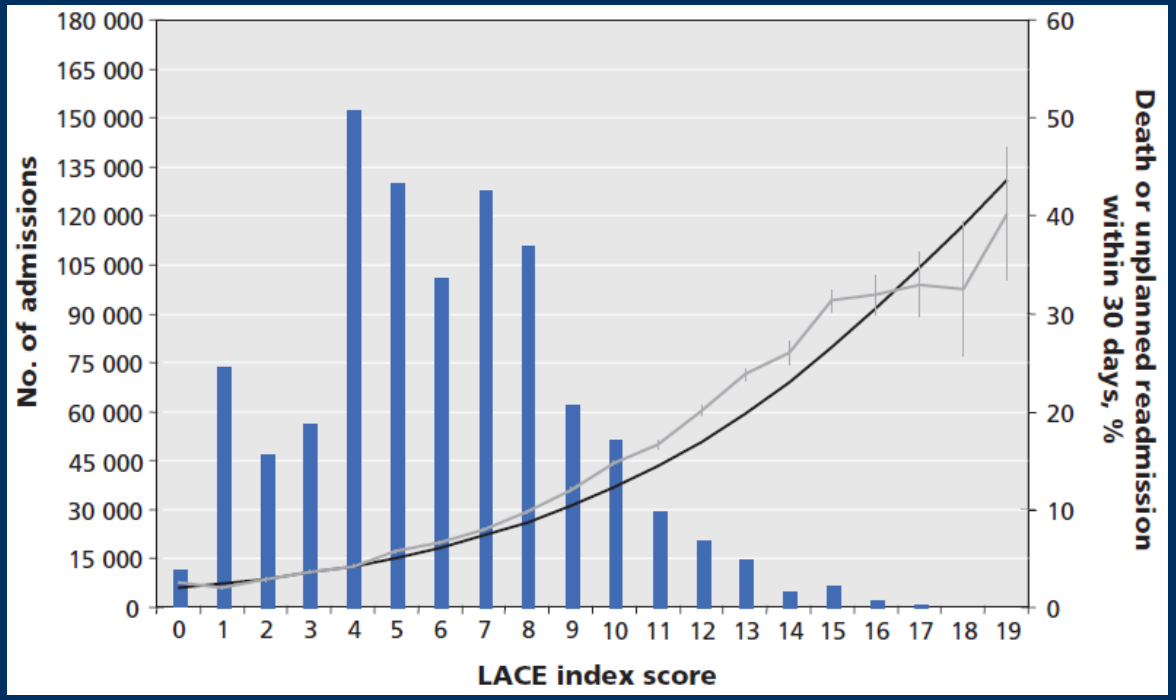
LACE



- L = Length of Stay = days in hospital
- A = Acuity of the admission = emergent
- C = Comorbidity = Charlson comorbidity index score
- E = ED use = number visits in the last 6 months

LACE Index

- LACE score (LOS, Acuity, Comorb, ED 6 mo)
  - Derivation 4812 Canadian med/surg discharges
  - 8.0 % died or readmitted in 30 days
  - 2-44% expected risk; c-stat 0.684 in validation

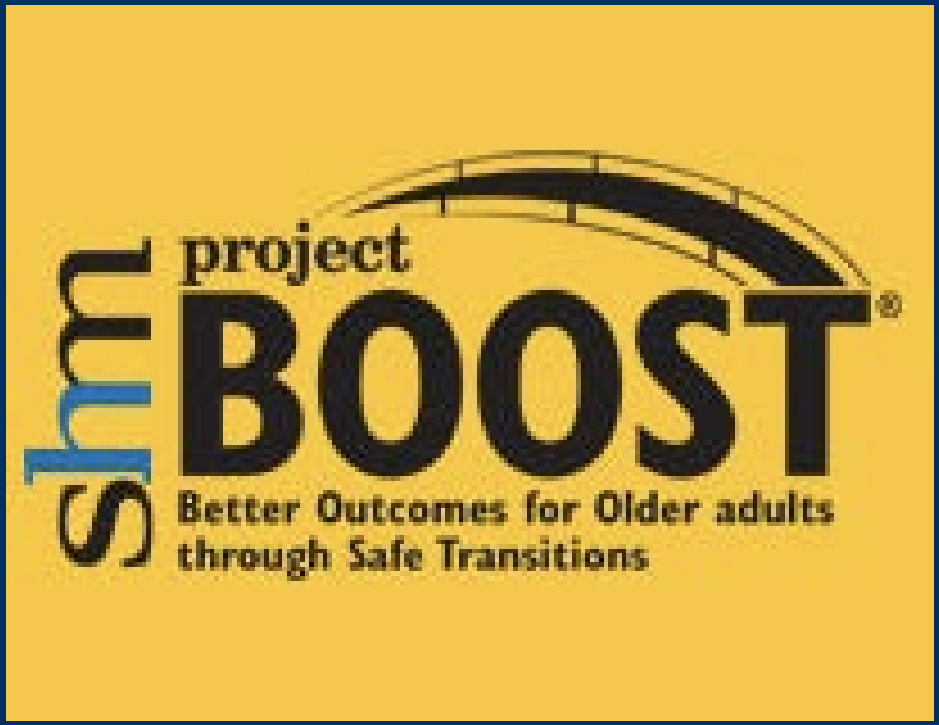


LACE score	Expected probability, %	Observed probability, % (95% CI) Derivation group *n* = 2393	Validation group *n* = 2419
0	2.0	0.0 (0.0–61.5)	0.0 (0.0–46.1)
1	2.5	1.4 (0.2–5.1)	3.0 (0.8–7.6)
2	3.0	2.6 (0.5–7.5)	2.7 (0.5–7.8)
3	3.5	5.6 (2.2–11.4)	2.5 (0.5–7.2)
4	4.3	3.9 (2.0–6.9)	2.3 (0.9–4.8)
5	5.1	4.4 (2.2–7.9)	6.7 (3.9–10.8)
6	6.1	4.7 (2.3–8.7)	4.5 (2.0–8.5)
7	7.3	7.6 (4.9–11.4)	8.5 (5.8–12.0)
8	8.7	6.3 (3.8–9.8)	8.0 (4.9–12.2)
9	10.3	11.7 (6.8–18.8)	8.7 (5.0–14.2)
10	12.2	14.5 (9.4–21.3)	13.6 (8.7–20.2)
11	14.4	18.6 (11.5–28.4)	18.1 (10.9–28.3)
12	17.0	20.8 (11.7–34.4)	10.4 (4.5–20.5)
13	19.8	17.3 (7.9–32.9)	17.4 (7.5–34.3)
14	23.0	28.6 (12.3–56.3)	36.4 (15.7–71.7)
15	26.6	8.3 (0.2–46.4)	18.8 (3.9–54.8)
16	30.4	50.0 (18.3–100)	29.4 (9.6– 68.6)
17	34.6	33.3 (6.9–97.4)	42.9 (8.8–100)
18	39.1	100.0 (12.1–100)	–
19	43.7	0.0	–

Van Walraven C, et al. CMAJ 2010; early release ePub March 1

BOOST

- TARGET: Tool for Adjusting Risk – A Geriatric Evaluation for Transitions
- 7P Risk Scale
  - Prior hospitalization
  - Problem medication
  - Punk (Depression)
  - Principal Diagnosis
  - Polypharmacy
  - Poor health literacy
  - Patient support



Heart Failure Specific Models

- Advantages
  - More specific to HF
  - Improved performance

Statistical Models and Patient Predictors of Readmission for Heart Failure

A Systematic Review

Joseph S. Ross, MD, MHS; Gregory K. Mulvey, BA; Brett Stauffer, MD; Vishnu Patlolla, MD, MPH; Susannah M. Bernheim, MD, MHS; Patricia S. Keenan, PhD; Harlan M. Krumholz, MD, SM

- Pre-2007
  - N=112: patient factors associated with readmit
  - N=5: models to predict patient risk of readmit
  - N=0: models to compare admit rates b/t hospitals

Table 1. Characteristics of Identified Publications Developing Models or Risk Scores to Predict Patient Readmission Risk After Heart Failure (HF) Hospitalization (Second Objective of Our Systematic Review)

Source	Study Type	Data Source (Study Period)	Study Location	No. of Hospitals/No. of Patients	Study Outcome	Follow-up Period	Analytic Model	Derivation or Validation	C Statistic
Chin and Goldman,[27] 1997	Prospective cohort	Medical record review (1993-1994)	Boston, Massachusetts	1/257	All-cause readmission or death	60 d	Cox proportional hazards regression	Derivation only	Not provided
Philbin and DiSalvo,[23] 1999	Retrospective cohort	SPARCS, from the New York State Department of Health (1995)	New York State	236/42 731[a]	HF-specific readmission	1 y	Multivariate logistic regression	Derivation and validation	0.60
Krumholz et al,[20] 2000	Retrospective cohort	MEDPAR file from HCFA and medical record review (1994-1995)	Connecticut	18/1129 in derivation cohort and 1047 in validation cohort	All-cause readmission	6 mo	Cox proportional hazards regression	Derivation and validation	Not provided
Felker et al,[28] 2004	RCT cohort	Collected during RCT (1997-1999)	United States	78/949	All-cause readmission or death	60 d	Multivariate logistic regression	Derivation only	0.69
Yamokoski et al,[29] 2007	RCT cohort	Collected during RCT (study period given)	United States and Canada	26/373	All-cause readmission	6 mo	Multivariate logistic regression	Derivation only	0.60

Abbreviations: HCFA, Health Care Financing Administration; MEDPAR, Medicare Provider Analysis and Review; RCT, randomized controlled trial; SPARCS, Statewide Planning and Research Cooperative System.

[a] Patients were randomly assigned to the derivation and validation cohorts; exact numbers in each cohort were not presented.

Ross JS et al. Arch Intern Med 2008;168:1371-1386

Candidate Variable	No. (%)		
	Studies Examining the Candidate Variable	Studies Reporting a Statistical Association Between the Candidate Variable and Readmission[a]	Studies for Which the Statistical Association Between the Candidate Variable and Readmission Was Significant
Sociodemographic Variables			
Age	91 (81.3)	60 (65.9)	11 (18.3)[b]
Sex	80 (71.4)	55 (68.8)	9 (16.4)[c]
Race/ethnicity	39 (34.8)	23 (59.0)	6 (26.1)[d]
Living status	13 (11.6)	9 (69.2)	3 (33.3)[e]
Married	8 (7.1)	7 (87.5)	0
Insurance	7 (6.3)	4 (57.1)	2 (50.0)
Education	6 (5.4)	5 (83.3)	0
Income	5 (4.5)	4 (80.0)	1 (25.0)
Comorbid Conditions			
Diabetes mellitus	52 (46.4)	37 (71.2)	6 (16.2)
Hypertension	46 (41.1)	32 (69.6)	4 (12.5)
Coronary artery disease	38 (33.9)	23 (60.5)	1 (4.3)
HF	30 (26.8)	18 (60.0)	7 (38.9)
Atrial fibrillation or flutter	30 (26.8)	18 (60.0)	3 (16.7)
Chronic obstructive pulmonary disease	28 (25.0)	17 (60.7)	5 (29.4)
Myocardial infarction	25 (22.3)	16 (64.0)	2 (12.5)
Renal disease	16 (14.3)	12 (75.0)	4 (33.3)
Cerebrovascular disease or stroke	16 (14.3)	9 (56.3)	4 (44.4)
Previous coronary artery bypass graft surgery	16 (14.4)	10 (62.5)	2 (20.0)
Previous percutaneous transluminal coronary angioplasty	11 (9.8)	8 (72.7)	3 (37.5)
Markers of HF Severity			
Left ventricular ejection fraction	63 (56.3)	55 (87.3)	9 (16.4)
New York Heart Association class	39 (34.8)	34 (87.2)	6 (17.6)
Serum Markers			
Blood urea nitrogen or creatinine	50 (44.6)	33 (66.0)	13 (39.4)
Sodium	28 (25.0)	20 (71.4)	7 (35.0)
B-type natriuretic peptide	24 (21.4)	22 (91.7)	17 (77.3)
Hematocrit or hemoglobin	21 (18.8)	17 (80.9)	6 (35.3)
Troponin	7 (6.3)	6 (85.7)	6 (100.0)

Ross et al

Conclusions: Our systematic review identified no model designed to compare hospital rates of readmission, while models designed to predict patients' readmission risk used heterogeneous approaches and found substantial inconsistencies regarding which patient characteristics were predictive. Clinically, patient risk stratification is challenging. From a policy perspective, a validated risk-standardized statistical model to accurately profile hospitals using readmission rates is unavailable in the published English-language literature to date.

Arch Intern Med. 2008;168(13):1371-1386

CMS Approach

- Hospital-level all-cause risk-standardized readmission
- Disease specific
- Administrative billing data

CMS Hospital Compare Algorithm

- Approved by the National Quality Forum
- Based on 2004 CMS FFS 1° d/c dx HF
  - 428.xx
  - 402.01/11/91 (HTN)
  - 404.01/03/11/13/91 (renal)
    (does not include 425.xx CM)
- Outcome = readmission
  - All cause
  - 30 days from discharge
  - Attributable to original hospital of presentation

Keenan et al. Circ Qual Care Outcomes 2008;1:29

CMS HF Model

- 37 coding variables

Table 2. Heart Failure Readmission Administrative Logistic Regression Model (Based on 2004 Derivation Sample)

Variable	Mean (SD) or Percent	Estimate	SE	Odds Ratio	95% CI	
Intercept	. . .	−1.89	0.02	. . .	. . .	. . .
Age 65 (years >65, continuous)	14.9 (7.8)	0.00	0.00	1.00	1.00	1.00
Male	42.21	0.01	0.01	1.01	0.99	1.03
History of coronary artery bypass graft surgery	13.45	−0.07	0.01	0.93	0.91	0.96
Congestive heart failure (CC 80)	75.59	0.09	0.01	1.09	1.07	1.12
Acute coronary syndrome (CC 81, 82)	20.85	0.12	0.01	1.12	1.10	1.15
Arrhythmias (CC 92, 93)	59.65	0.06	0.01	1.06	1.04	1.08
Cardiorespiratory failure and shock (CC 79)	18.54	0.08	0.01	1.08	1.06	1.11
Valvular and rheumatic heart disease (CC 86)	47.05	0.08	0.01	1.08	1.06	1.10
Vascular or circulatory disease (CC 104–106)	45.39	0.07	0.01	1.07	1.05	1.09
Chronic atherosclerosis (CC 83, 84)	73.71	0.08	0.01	1.09	1.06	1.11
Other and unspecified heart disease (CC 94)	35.71	0.05	0.01	1.05	1.03	1.08
Hemiplegia, paraplegia, paralysis, functional disability (CC 67–69, 100–102, 177, 178)	6.69	0.04	0.02	1.04	1.01	1.08
Stroke (CC 95, 96)	10.66	0.03	0.01	1.03	1.00	1.07
Renal failure (CC 131)	26.15	0.14	0.01	1.15	1.13	1.18
Chronic obstructive pulmonary disease (CC 108)	46.87	0.15	0.01	1.17	1.14	1.19
Diabetes and diabetes mellitus complications (CC 15–20, 119, 120)	49.40	0.08	0.01	1.08	1.06	1.11
Disorders of fluid/electrolyte/acid-base (CC 22, 23)	36.28	0.11	0.01	1.12	1.09	1.14
Other urinary tract disorders (CC 136)	40.61	0.12	0.01	1.12	1.10	1.15
Decubitus ulcer or chronic skin ulcer (CC 148, 149)	11.86	0.10	0.01	1.10	1.07	1.13
Other gastrointestinal disorders (CC 36)	51.12	0.06	0.01	1.06	1.04	1.08
Peptic ulcer, hemorrhage, other specified gastrointestinal disorders (CC 34)	15.94	0.07	0.01	1.07	1.05	1.10
Severe hematologic disorders (CC 44)	3.28	0.14	0.02	1.15	1.10	1.21
Nephritis (CC 132)	3.88	0.07	0.02	1.08	1.03	1.12
Dementia and senility (CC 49, 50)	18.94	0.01	0.01	1.01	0.99	1.03
Metastatic cancer and acute leukemia (CC 7)	2.13	0.13	0.03	1.14	1.07	1.21
Cancer (nonmetastatic) (CC 8–12)	19.58	0.01	0.01	1.01	0.99	1.03
Liver and biliary disease (CC 25–30)	7.64	0.06	0.02	1.06	1.02	1.09
End-stage renal disease or dialysis (CC 129, 130)	2.98	0.15	0.03	1.16	1.11	1.22
Asthma (CC 110)	8.15	0.06	0.02	1.06	1.03	1.10
Iron deficiency and other/unspecified anemias and blood disease (CC 47)	45.43	0.08	0.01	1.09	1.06	1.11
Pneumonia (CC 111–113)	37.49	0.09	0.01	1.09	1.07	1.11
Drug/alcohol abuse/dependence/psychosis (CC 51–53)	8.68	0.07	0.02	1.07	1.04	1.10
Major psychiatric disorders (CC 54–56)	8.48	0.02	0.02	1.02	0.99	1.06
Depression (CC 58)	13.03	0.02	0.01	1.02	0.99	1.05
Other psychiatric disorders (CC 60)	9.31	0.08	0.02	1.08	1.05	1.12
Fibrosis of lung and other chronic lung disorders (CC 109)	13.03	0.05	0.01	1.05	1.02	1.08
Protein-calorie malnutrition (CC 21)	4.52	0.05	0.02	1.05	1.01	1.09

Limited Model Performance

Table 3. Heart Failure Readmission Administrative Logistic Regression Model Performance

Model	n	Overfitting Indices (Intercept, Slope)	Discrimination		
			Adjusted R^{2}*	Predictive Ability† (Lowest Decile, Highest Decile)	AUC
Derivation sample					
2004	283 19	(0, 1)	0.03	0.15–0.37	0.60
Validation sample					
2004	283 528	(0.02, 1.01)	0.04	0.15–0.37	0.60
2003	561 763	(0.09, 1.05)	0.04	0.15–0.38	0.61

- May be reasonable to profile hospital performance (if N is adequate)
- Unreasonable to guide medical decisions in specific patients

An Automated Model to Identify Heart Failure Patients at Risk for 30-Day Readmission or Death Using Electronic Medical Record Data

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(*Med Care* 2010;48: 981–988)

- UTSW Jan 2007 - Aug 2008
- 1372 index HF admissions (included 425.xx)
- 331 HF readmits and 43 deaths at 30 days
- EMR (Epic based)

TABLE 3. Multivariate Predictors of 30-Day Readmission for Heart Failure for Electronic Readmissions Model, N = 1372

Variables	Odds Ratio (95% CI)	*P*
Clinical		
History of depression or anxiety	1.44 (1.00–2.07)	0.05
Demographic		
Single	1.47 (1.08–2.01)	0.02
Male	1.37 (1.02–1.84)	0.03
Number of home address changes	1.13 (1.07–1.19)	<0.001
Medicare	1.59 (1.17–2.17)	0.004
Residence census tract in lowest socioeconomic quintile	1.30 (0.98–1.74)	0.08
Health behavior		
History of cocaine use	1.78 (1.17–2.72)	0.01
History of missed clinic visit	1.35 (0.99–1.83)	0.06
Used a health system pharmacy	0.72 (0.51–1.02)	0.08
Utilization patterns		
No. prior inpatient admissions	1.17 (1.07–1.27)	<0.001
Presented to emergency department 6 AM–6 PM for index admission	1.38 (1.05–1.81)	0.02

Amarasingham et al. Med Care 2010;48:981-988

UTSW Example

Model	30-Day Readmission (N = 1341)†	
	C Statistic (95% CI)	IDI‡ (95% CI)
ADHERE mortality model	0.56 (0.54–0.59)	—
CMS risk adjustment models§	0.66 (0.63–0.68)	0.014 (0.005–0.023)
Tabak mortality model	0.61 (0.59–0.64)	0.017 (0.008–0.025)
Electronic readmissions model¶	0.72 (0.70–0.75)	0.115 (0.094–0.136)

Amarasingham et al. Med Care 2010;48:981-988

Time to Rethink Our Approach?

A drunk loses the keys to his house and is looking for them under a lamppost. A policeman comes over and asks what he's doing.

"I'm looking for my keys" he says. "I lost them over there".

The policeman looks puzzled. "Then why are you looking for them all the way over here?"

"Because the light is so much better".

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LACE Tool

Identifying patients at risk for readmission and mortality within 30 days of a hospital

Janet McCollor, RN, Project Leader

Redington-Fairview General Hospital

April 19, 2011

Aligning Forces for Quality | Improving Health & Health Care in Communities Across America

What does LACE stand for?

- Study published in the Canadian Medical Association Journal (CMAJ) April 6, 2010.
- Evidenced-based.
- L = length of stay.
- A= acute admission.
- C= comorbidities (Charlson Scale).
- E= emergencies room visits.

Attribute	Value	Points	*Total @ ADM*	Total @ DISC
Length of Stay (L)	1	0		
	1	1		
	2	2		
	3	3		
	4-6	4		
	7-13	5		
	≥ 14	7		
Acute (emergent) Admit – (A)	Yes	3		
Comorbidity (Charlson comorbidity index score – (C)	0	0		
	1	1		
	2	2		
	3	3		
	≥ 4	5		
Visits to the Emergency Room in the past 6 months – (E)	0	0		
	1	1		
	2	2		
	3	3		
	≥ 4	4		
Total LACE Score	*	*		

*A patient's final LACE score is calculated by summing the points of the attributes that apply to the patient.

The **Charlson comorbidity index** score is calculated using **1 point** for history of myocardial infarction, peripheral vascular disease, cerebrovascular disease or diabetes without complications; **2 points** for congestive heart failure, chronic obstructive pulmonary disease, mild liver disease or cancer; **3 points** for dementia or connective tissue disease; **4 points** for moderate to severe liver disease or HIV infection; and **6 points** for metastatic cancer.

LACE Score	% Expected Probability of readmission or death within 30 days after discharge
0	2.0
1	2.5
2	3.0
3	3.5
4	4.3
5	5.1
6	6.1
7	7.3
8	8.7
9	10.3
10	12.2
11	14.4
12	17.0
13	19.8
14	23.0
15	26.6
16	30.4
17	34.6
18	39.1
19	43.7

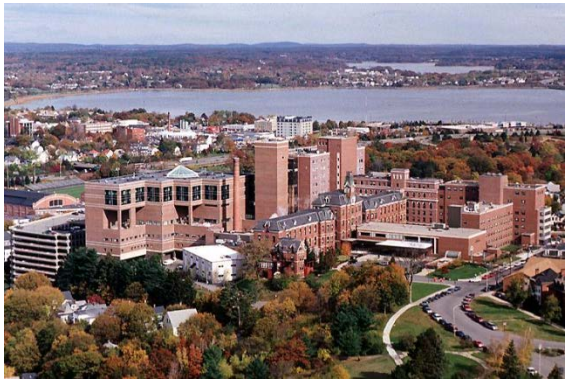
References: Van Walraven MD, Carl, Irfan A. Dhalla MD, Chaim Bell MD, Edward Etchells MD, Ian G. Stiell MD, Kelly Zarnke MD, Peter C. Austin PhD, and Alan J. Forster MD. "Derivation and Validation of an Index to Predict Early Death or Unplanned Readmission after Discharge from Hospital to the Community." Canadian Medical Association Journal 06 Apr. 2010: 551-57. Canadian Medical Association Journal. Web. 06 Jan. 2011. <http://www.cmaj.ca>.

Trial

- Care Transitions Nurse performed a six week trial of the tool on a Med-Surg floor.
- Information collected on admission and reevaluate at discharge.
- LACE score was determined.
- Determination of a LACE score that activates an additional risk screening tool.
- Discharge planning (begins at admission)

Lessons Learned

- Lace tool is an effective marker for high risk patients regarding readmissions and mortality within 30 days of discharge.
- Trial needed to be minimum of 14 weeks.
- Activate in depth risk screening tool if LACE score > 8 on admission for CHF patients.



AF4Q at Maine Medical Center
Assessing Risk of Readmission

Dr. Joel Botler, Medical Director, Adult Inpatient Medicine

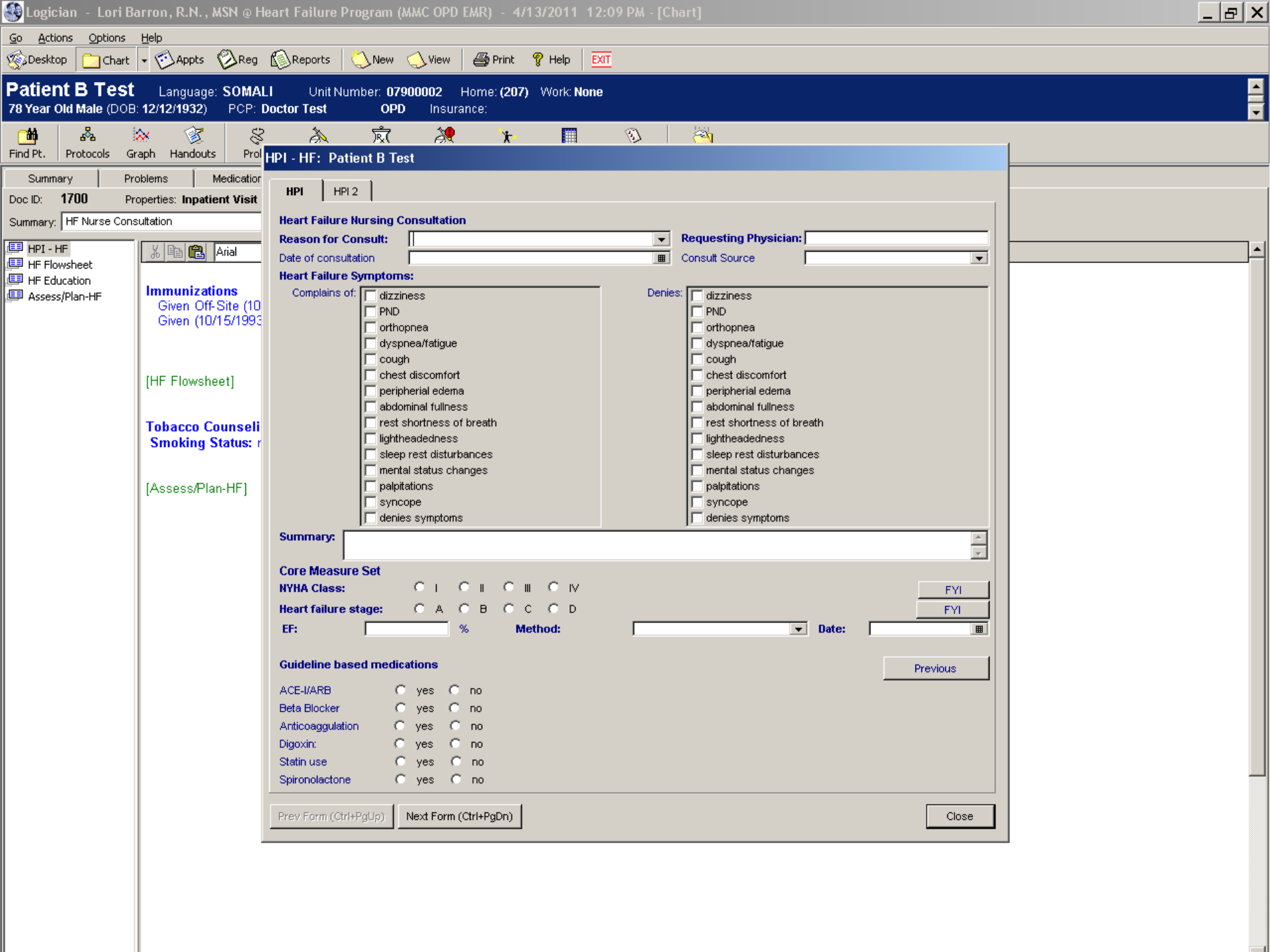
Lori Barron RN, Clinical Nurse Specialist, Advanced Heart Failure

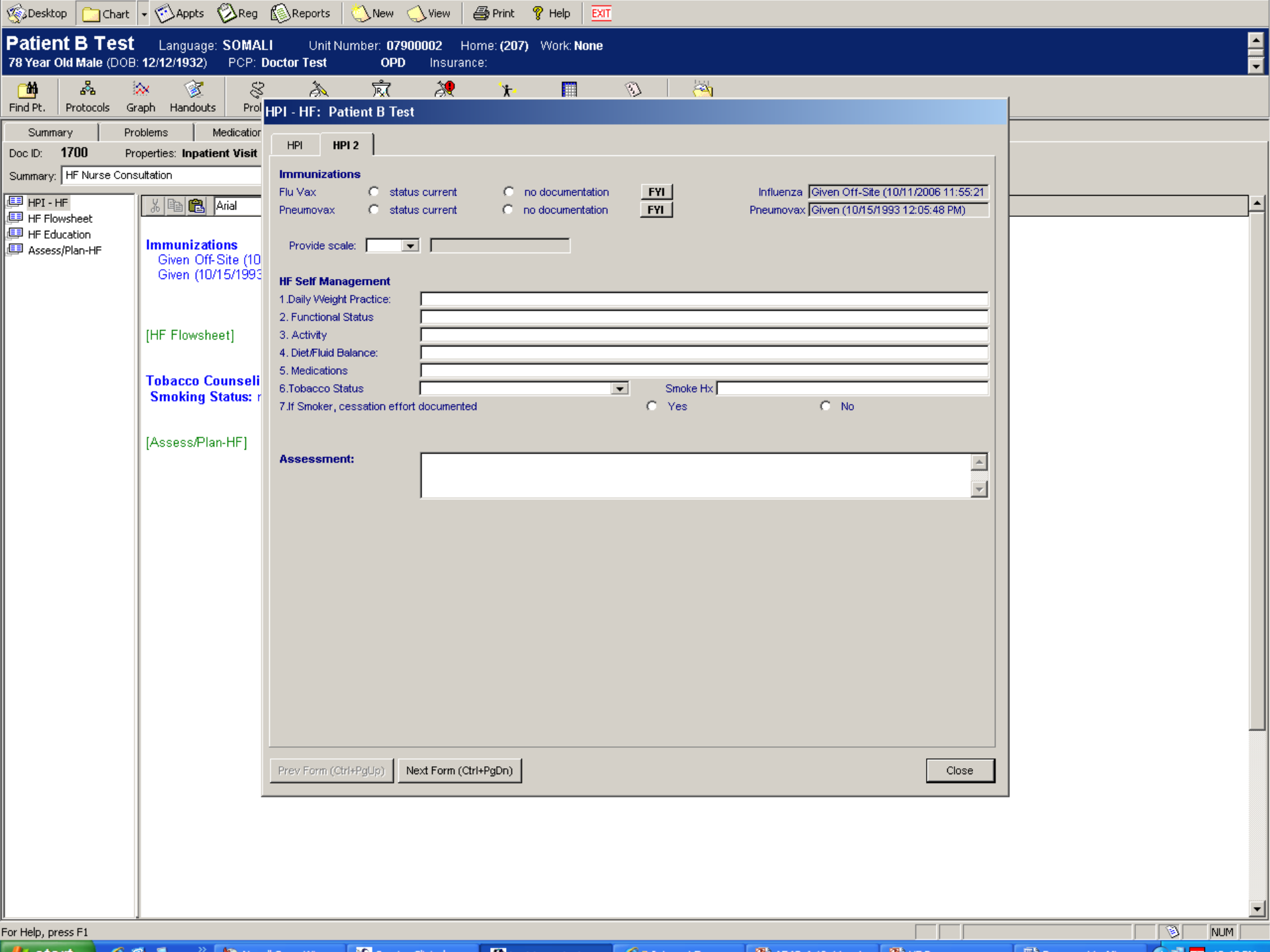
Patient Identification

- All inpatients on units housing HF patients are screened M-F by the HF Nurses (2) and a list is developed:
  - Midas software generates daily list of all previously admitted HF patients and is dropped in our inboxes
  - Flag “high yield” diagnoses (based on a previous review)
  - Access to clinical documentation nurse’s coding software in real time during the patient’s admission
  - Cross reference patients known to the program
  - Daily huddles with charge nurses (2 specific HF units at MMC)
- 95% accuracy identifying the patients that will be discharged with a primary diagnosis of heart failure

Assessment Tool

- Multiple attempts to use standardized tools
- Conducted extensive literature search and developed trial scoring systems—these proved onerous and inaccurate
- Too many factors that must be weighted from the physical to psychosocial
- End result: use experience, intuition, and “expert” nursing assessment to assess risk


Logician - Lori Barron, R.N., MSN @ Heart Failure Program (MMC OPD EMR) - 4/13/2011 12:09 PM - [Chart]
Go Actions Options Help
Desktop Chart Appts Reg Reports New View Print Help EXIT
Patient B Test Language: SOMALI Unit Number: 07900002 Home: (207) Work: None
78 Year Old Male (DOB: 12/12/1932) PCP: Doctor Test OPD Insurance:
Find Pt. Protocols Graph Handouts
Summary Problems Medication
Doc ID: 1700 Properties: Inpatient Visit
Summary: HF Nurse Consultation
HPI - HF
HF Flowsheet
HF Education
Assess/Plan-HF
Arial
Immunizations
Given Off-Site (10
Given (10/15/1993
[HF Flowsheet]
Tobacco Counseli
Smoking Status:
[Assess/Plan-HF]
HPI - HF: Patient B Test
HPI
HPI 2
Heart Failure Nursing Consultation
Reason for Consult:
Requesting Physician:
Date of consultation
Consult Source
Heart Failure Symptoms:
Complains of:
dizziness
PND
orthopnea
dyspnea/fatigue
cough
chest discomfort
peripherial edema
abdominal fullness
rest shortness of breath
lightheadedness
sleep rest disturbances
mental status changes
palpitations
syncope
denies symptoms
Denies:
dizziness
PND
orthopnea
dyspnea/fatigue
cough
chest discomfort
peripherial edema
abdominal fullness
rest shortness of breath
lightheadedness
sleep rest disturbances
mental status changes
palpitations
syncope
denies symptoms
Summary:
Core Measure Set
NYHA Class: I II III IV
FYI
Heart failure stage: A B C D
FYI
EF: %
Method:
Date:
Guideline based medications
Previous
ACE-I/ARB yes no
Beta Blocker yes no
Anticoaggulation yes no
Digoxin: yes no
Statin use yes no
Spironolactone yes no
Prev Form (Ctrl+PgUp)
Next Form (Ctrl+PgDn)
Close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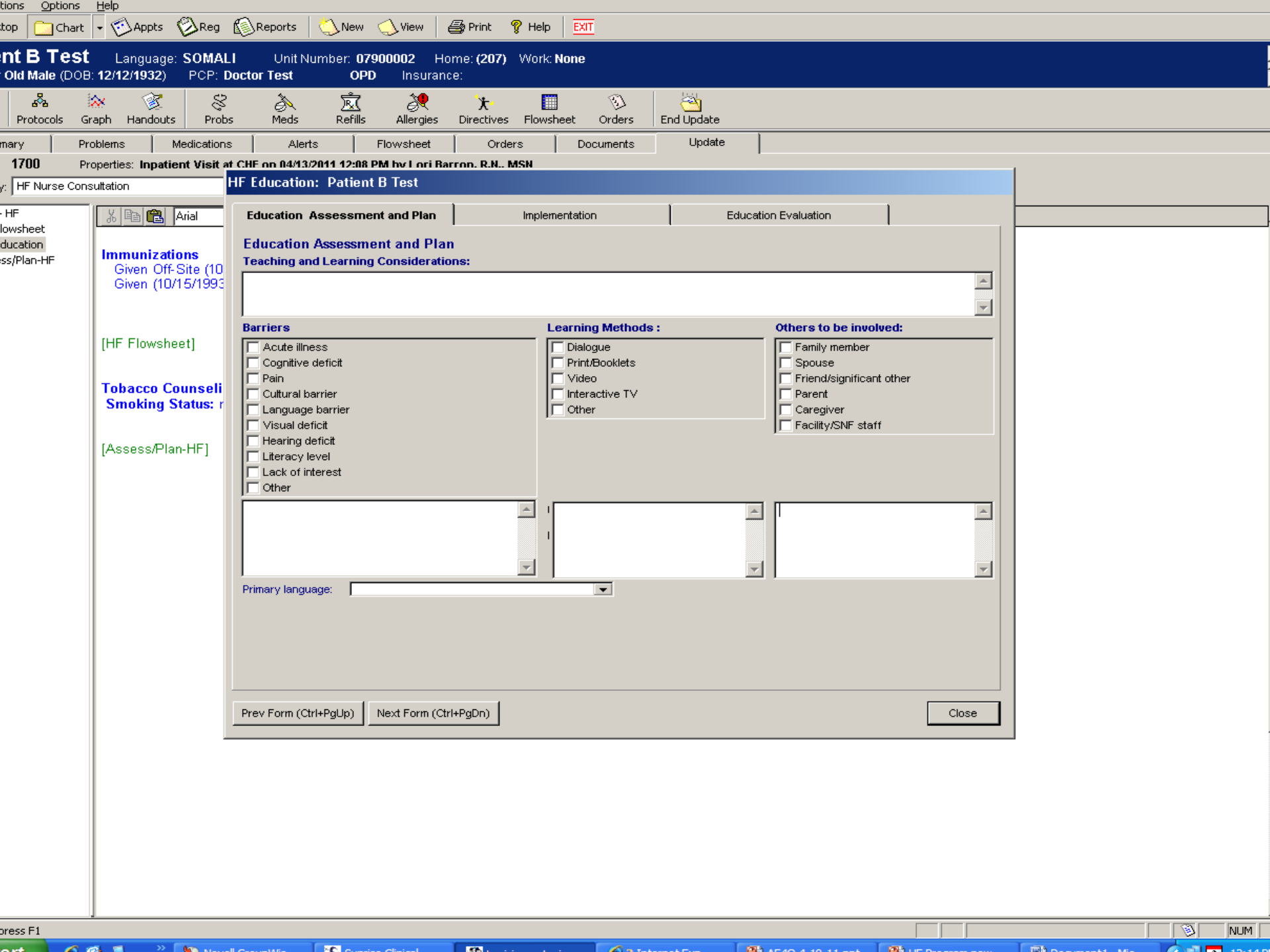
Help
EXIT
Patient B Test Language: SOMALI Unit Number: 07900002 Home: (207) Work: None
78 Year Old Male (DOB: 12/12/1932) PCP: Doctor Test OPD Insurance:
Find Pt.
Protocols
Graph
Handouts
Summary
Problems
Medicatior
Doc ID: 1700 Properties: Inpatient Visit
Summary: HF Nurse Consultation
HPI - HF
HF Flowsheet
HF Education
Assess/Plan-HF
Arial
Immunizations
Given Off-Site (10
Given (10/15/1993
[HF Flowsheet]
Tobacco Counseli
Smoking Status:
[Assess/Plan-HF]
HPI - HF: Patient B Test
HPI
HPI 2
Immunizations
Flu Vax
status current
no documentation
FYI
Influenza
Given Off-Site (10/11/2006 11:55:21
Pneumovax
status current
no documentation
FYI
Pneumovax
Given (10/15/1993 12:05:48 PM)
Provide scale:
HF Self Management
1.Daily Weight Practice:
2. Functional Status
3. Activity
4. Diet/Fluid Balance:
5. Medications
6.Tobacco Status
Smoke Hx
7.If Smoker, cessation effort documented
Yes
No
Assessment:
Prev Form (Ctrl+PgUp)
Next Form (Ctrl+PgDn)
Close
For Help, press F1
NUM


Options
Help
Chart
Appts
Reg
Reports
New
View
Print
Help
EXIT
Language: SOMALI
Unit Number: 07900002
Home: (207)
Work: None
Old Male (DOB: 12/12/1932)
PCP: Doctor Test
OPD
Insurance:
Protocols
Graph
Handouts
Probs
Meds
Refills
Allergies
Directives
Flowsheet
Orders
End Update
Problems
Medications
Alerts
Flowsheet
Orders
Documents
Update
Properties: Inpatient Visit at CHF on 04/13/2011 12:08 PM by Lori Barron, R.N., MSN
HF Nurse Consultation
Arial
Immunizations
Given Off-Site (10
Given (10/15/1993
[HF Flowsheet]
Tobacco Counseli
Smoking Status:
[Assess/Plan-HF]
HF Education: Patient B Test
Education Assessment and Plan
Implementation
Education Evaluation
Education Assessment and Plan
Teaching and Learning Considerations:
Barriers
Acute illness
Cognitive deficit
Pain
Cultural barrier
Language barrier
Visual deficit
Hearing deficit
Literacy level
Lack of interest
Other
Learning Methods :
Dialogue
Print/Booklets
Video
Interactive TV
Other
Others to be involved:
Family member
Spouse
Friend/significant other
Parent
Caregiver
Facility/SNF staff
Primary language:
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Next Form (Ctrl+PgDn)
Close
press F1
NUM

Assigning Risk and Level of Intervention

This is a qualitative process!

Levels of Follow up

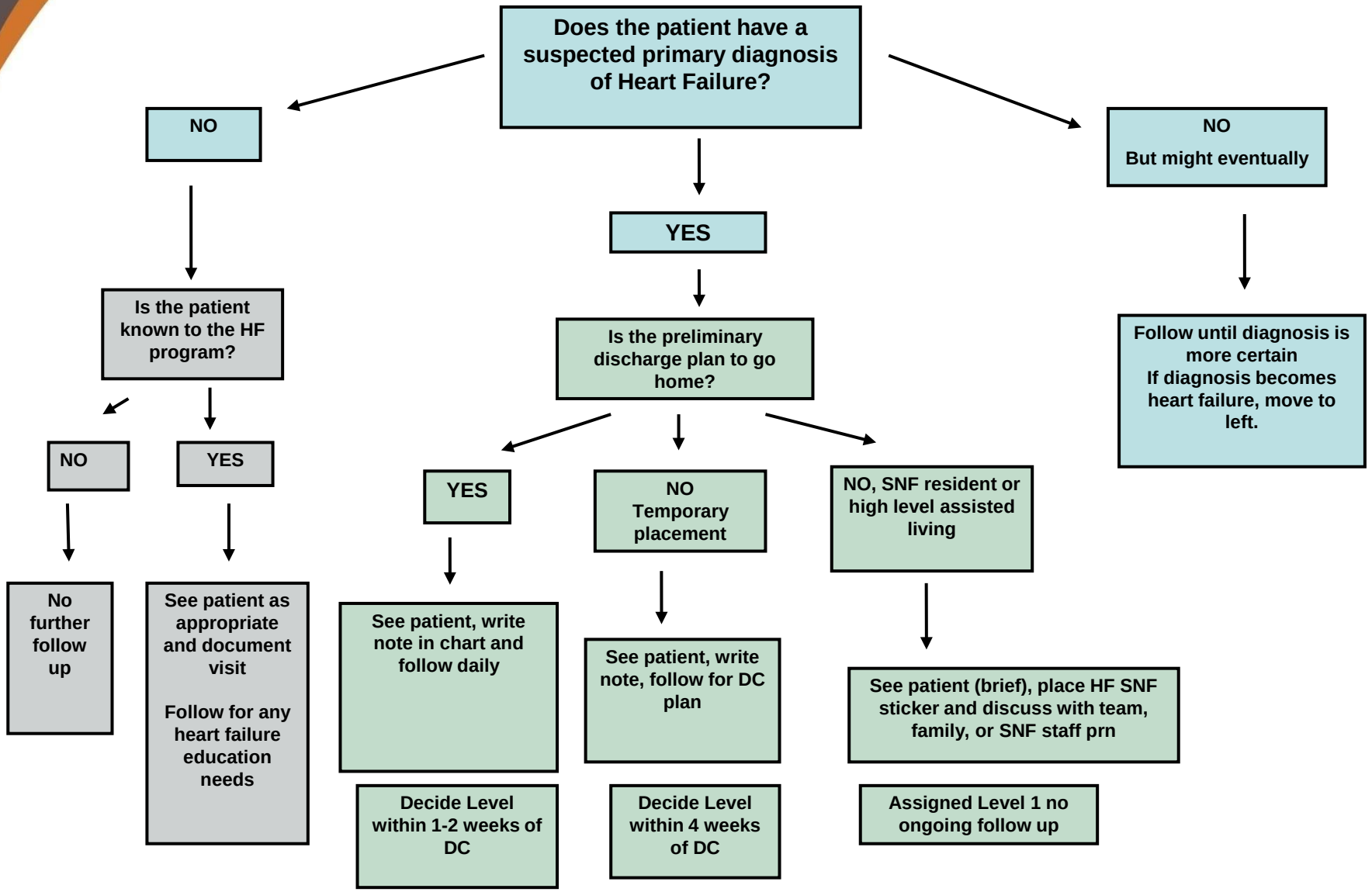
- **Level I:** Low risk and/or intensive discharge services in place (including SNF). The patient may receive no calls or up to 3 calls post discharge by the HF nurse. Call within 2 weeks of discharge.
  - Example: patient with care transitions coach, PHO care manager, and telehealth in place at discharge

- **Level II:** Moderate risk. The patient will be followed for approximately 6-8 weeks by the HF nurse with calls based upon patient need, 1-2 calls per week.
  - Example: patient unable to teach back information, declined home health services, and no scheduled physician appointment at discharge

- **Level III:** High risk. The patient will be followed for up to six months by the HF nurse. Calls based on patient status. All Advanced HF patients are considered high risk.
  - Example: Patients in HF clinic being considered for advanced therapies or who need ongoing diuretic or other med titrations etc

Putting it Together

Process for assessment, assigning risk, and intervention intensity



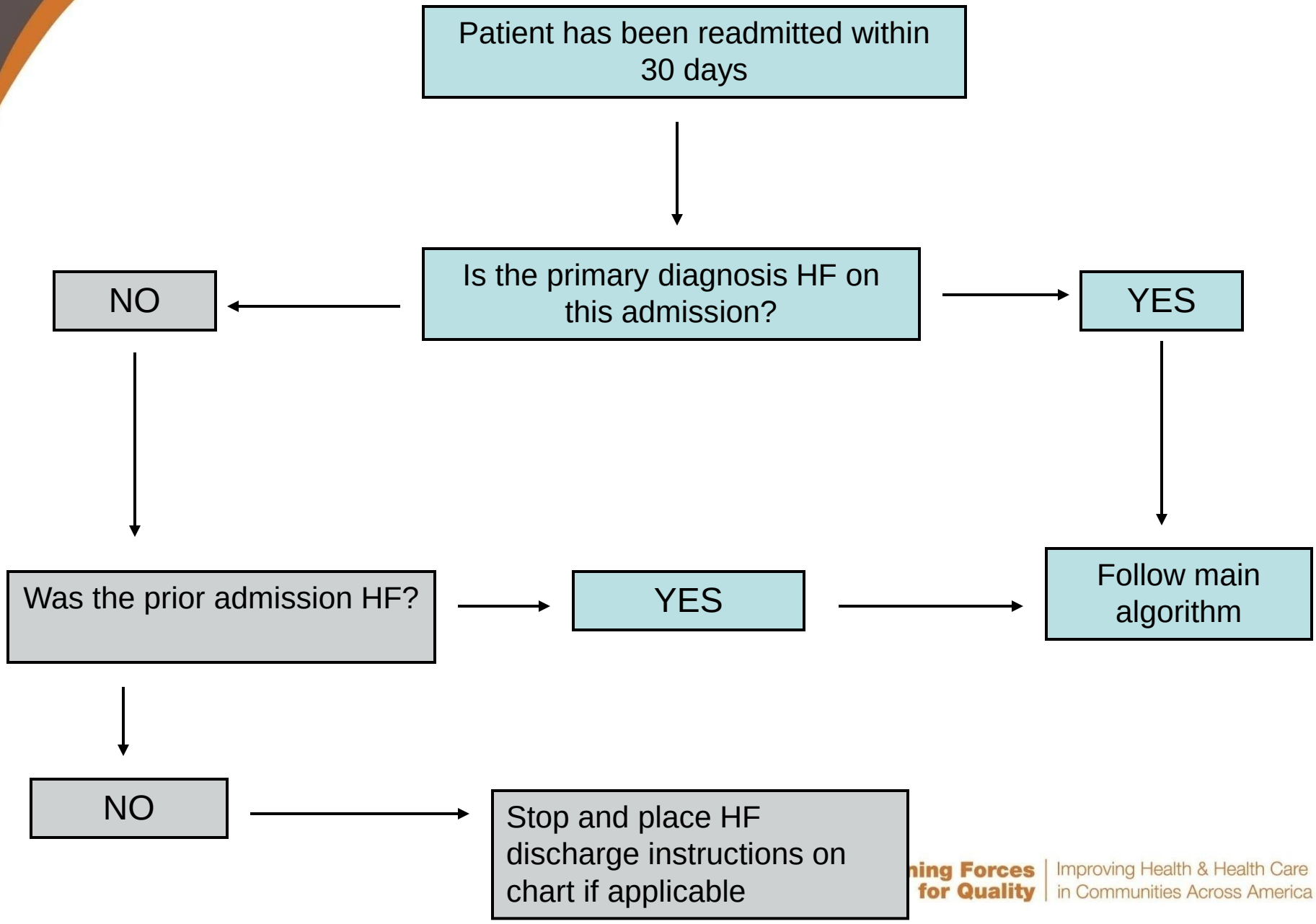
Heart Failure Program Main Decision Tree

This patient has been identified as having Heart Failure.

HF is a high risk diagnosis and is frequently associated with preventable readmissions. The patient may be discharged to a skilled nursing/rehabilitation facility. To improve this transition of care, the Heart Failure Program has provided written education materials to the patient's caregivers at this facility. To further reduce the risk of readmission, please ensure your transfer summary contains the following elements:

- Daily weight monitoring
- Low sodium diet and fluid restriction, if applicable
- Warning signs of heart failure
- When and who to call if symptoms worsen, or for weight gain
- 5 lbs in one week

Thank you for providing the highest quality care for our patients!


Patient has been readmitted within 30 days
Is the primary diagnosis HF on this admission?
NO
YES
Was the prior admission HF?
YES
Follow main algorithm
NO
Stop and place HF discharge instructions on chart if applicable