


Palliating Congestive Heart Failure – 3 things you need to know

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Objectives

- ▶ To gain an understanding of what a CHF patient experiences at end of life
 - ▶ To employ a symptom-oriented approach to CHF
 - ▶ To understand why prognostication (& obtaining DNR) is difficult and to list strategies to help facilitate these discussions
 - ▶ To list services available for the palliation of CHF and how to access them
- 

Number 1.

Dying of Congestive Heart Failure is symptomatic and symptoms are often poorly controlled



Clinical Features



Shortness of breath



Swelling of feet & legs



Chronic lack of energy



Difficulty sleeping at night due to breathing problems



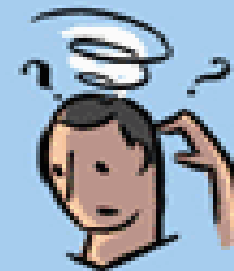
Swollen or tender abdomen with loss of appetite



Cough with frothy sputum



Increased urination at night



Confusion and/or impaired memory

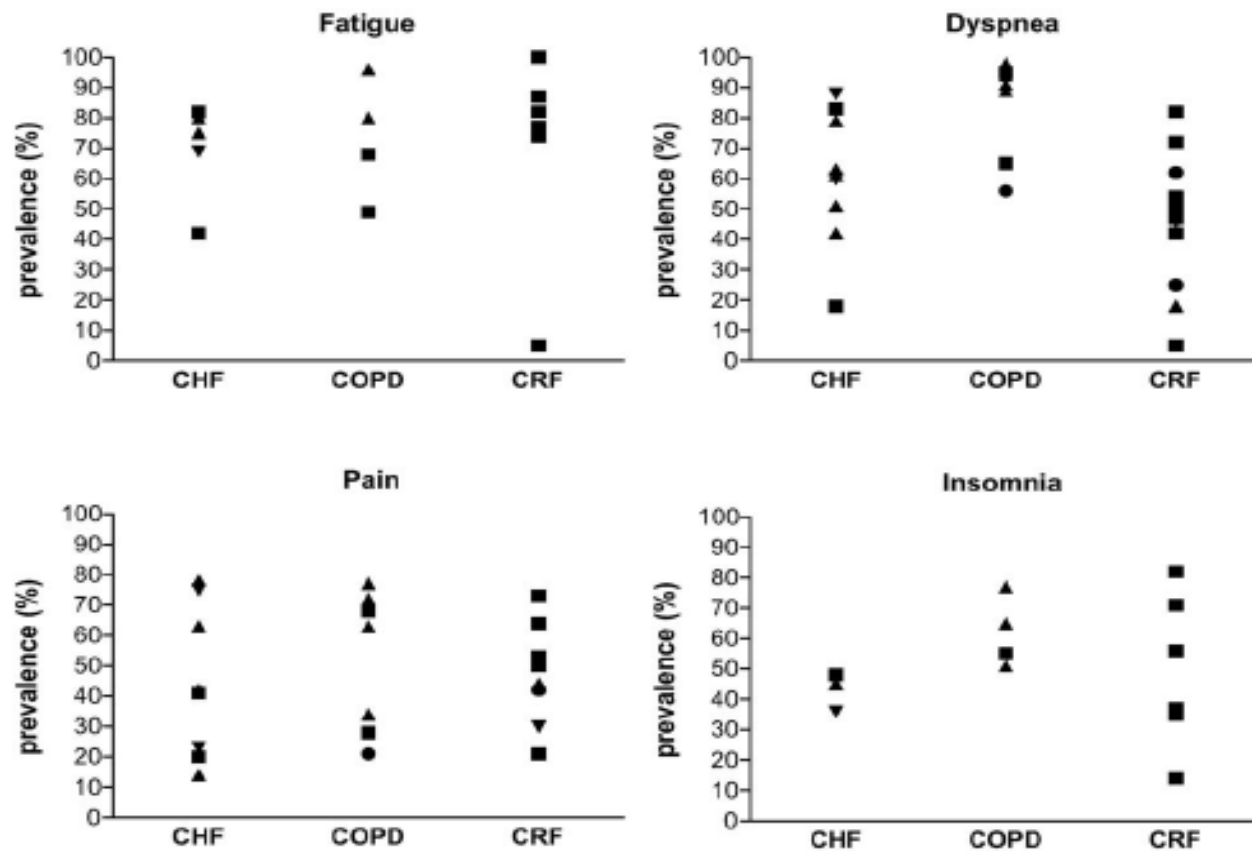


Figure 2 Study design and prevalence of the reported symptoms fatigue (left upper quadrant), dyspnoea (right upper quadrant), pain (left lower quadrant) and insomnia (right lower quadrant) in patients with end-stage congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD) or chronic renal failure (CRF). ■, prospective patient reporting; ▲, retrospective proxy reporting; ▼, chart review; •, mixed patient or proxy reporting and retrospective or prospective.

Terminal CHF

- ▶ Severe symptoms in last 48–72 hrs prior to death
- ▶ (SUPPORT study Krumholz, *Circulation* 1998)
 - Breathlessness 66%
 - Pain 41%
 - Severe confusion 15%
- ▶ Regional Study of Care of the Dying study (Addington, *Pall Med* 1995)
 - Dyspnea 50%
 - Pain 50%
 - Low mood 59%
 - Anxiety 45%



Experience of Patients

Lung Cancer

- Clear trajectory
- Feel well; told ill
- Understand diagnosis/ prognosis
- Relatives anxious
- Swing between hope/ despair



Cardiac Failure

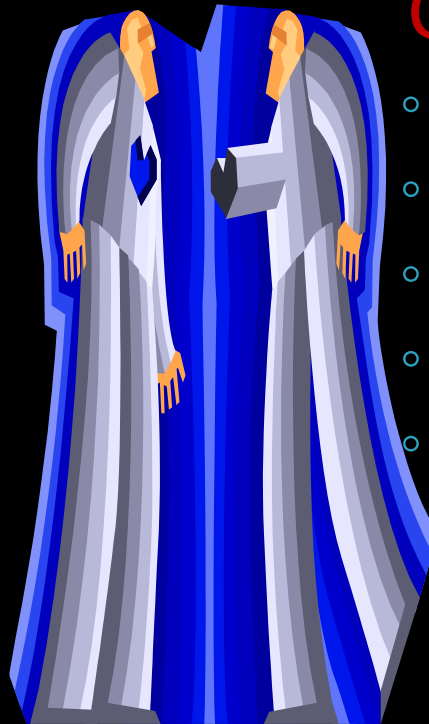
- Unclear trajectory
- Feel ill; told well
- Don't understand diagnosis/ prognosis
- Relatives isolated/exhausted
- Daily hopelessness

(Murray, BMJ 2002)

Experience of Patients

Lung Cancer

- Cancer/tx takes over
- Feel worse on tx
- Financial benefits
- Services available
- Care prioritized as “cancer” or “terminal”



Cardiac Failure

- Shrinking social world
- Feel better on tx
- Less benefits
- Services less available
- Less priority as “chronic illness”

(Murray, *BMJ* 2002)

Case Study 1.

▶ Mrs. G. M.

- 87 y.o. referred with inoperable critical aortic stenosis
- PMHx: DM, OA, MI, Previous angio with 2 stents placed, previous CABG x3 10 years ago.
- Experiences R sided chest pressure every few days
- Takes NTG 0.4mg – If no response calls 911
- Pressure at rest & on exertion – not predictable
- Dyspnea on mild exertion & feels faint if stands quickly
- In ER weekly

- ▶ O/E: hr 60, bp 140/110. S1 soft, Normal S2. 6/6 SEM best at base with rad to carotids
- ▶ Mild bilat periph edema
- ▶ ++ Crackles half way up lung fields bilat. JVP 5 cm ASA.

- ▶ Meds:
 - Ramipril 10mg po od, Furosemide 40mg bid, Slow K, Insulin Lantis and Novo-rapid, Tylenol #3, NTP 0.8mg/hr in day, NTG 0.4 mg SL prn, Hydralazine 5 mg po od, Simvastatin 20 mg od.

Goals of consult?

- ▶ 1) Establish code status and care desired by patient
- ▶ 2) Decrease emergency room visits
 - Devise pall care plan to be implemented at home
 - Must include counselling, and control symptoms

Do we stop or can we further optimize cardio meds?
Can we add in medications aimed at symptom control?

Pharmacologic Management

Drug	NYHA 1	NYHA 2	NYHA 3	NYHA 4	Survival	Hospital Admits	Functional Status
Diuretic	X	√	√	√			
ACE-I	√	√	√	√	→	↓	↑
Spiro-lactone	X	X	√	√	↑	↓	↑
B-blocker	X	√	√	√	↑	↓	↑
Digoxin	X	√	√	√	↑	↓	↑
					→	↓	↑

(Doyle et al. *Oxford Textbook of Palliative Care* 2002)

Symptom Oriented Palliation in CHF

▶ Pain

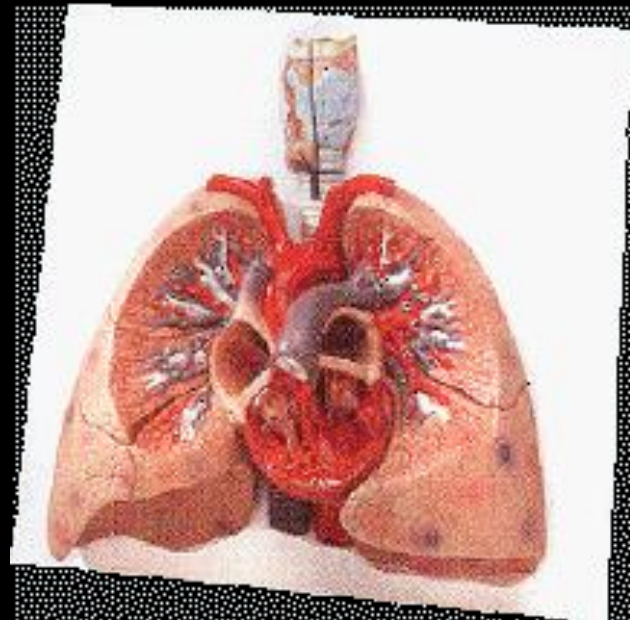
- Chest pain 29%
- Other pain 37%
- (Blinderman, *J Pain Symp Manage* 2006)
- Inadequately dealt 90%
- (Gibbs, *Heart* 2002)

- Management

- Anti-anginals
- Opioids
- Revascularization
- TENS, Spinal cord stimulators

▶ Dyspnea

- Management
 - Oxygen
 - CHF medications
 - Opioids
 - Other



Opioids in Heart Failure

- Used for pain and dyspnea
- **Morphine and Hydromorphone**
 - Metabolized by liver and excreted by kidneys
 - Both can build up toxic metabolites (HM safer)
- **Fentanyl**
 - Cleared through liver
 - Patches very strong – not for opioid naive
 - Given subling or intranasal:
 - quick onset
 - lasts about 1 hr
 - good for incident pain or dyspnea



Evidence for Opioids in CHF



- ▶ small (n=10), randomized, double-blind, crossover
- ▶ Morphine vs Placebo in NYHA Class III/IV
- ▶ 6/10 patients had improved breathlessness score

(Johnson *et al.* *Eur J Heart Failure* 2001)

- ▶ Cochrane review 2010 – lack of evidence in CHF
- ▶ All expert opinion papers recommend their use

Symptom Oriented Palliation

- ▶ Depression and Anxiety
 - Regular assessment
 - Exercise program
 - Relaxation exercises
 - Antidepressants
 - Consider nocturnal opioid +/- benzodiazepine



Case Study 1.

- Pt wants palliation/avoid ER
- Started:
 - HM 0.5mg qid and q1h prn (d/ced T#3)
 - Fentanyl 50 mcg subling q15 min x 3
- Furosemide dose doubled for 3 days (didn't want labs)
- **Care plan:**
 - If chest pain or dyspnea – nitro and fentanyl
 - Then call palliative care nurse for further advice
 - Continue to see her Family Dr. and Endocrinologist
 - **Will require follow up**

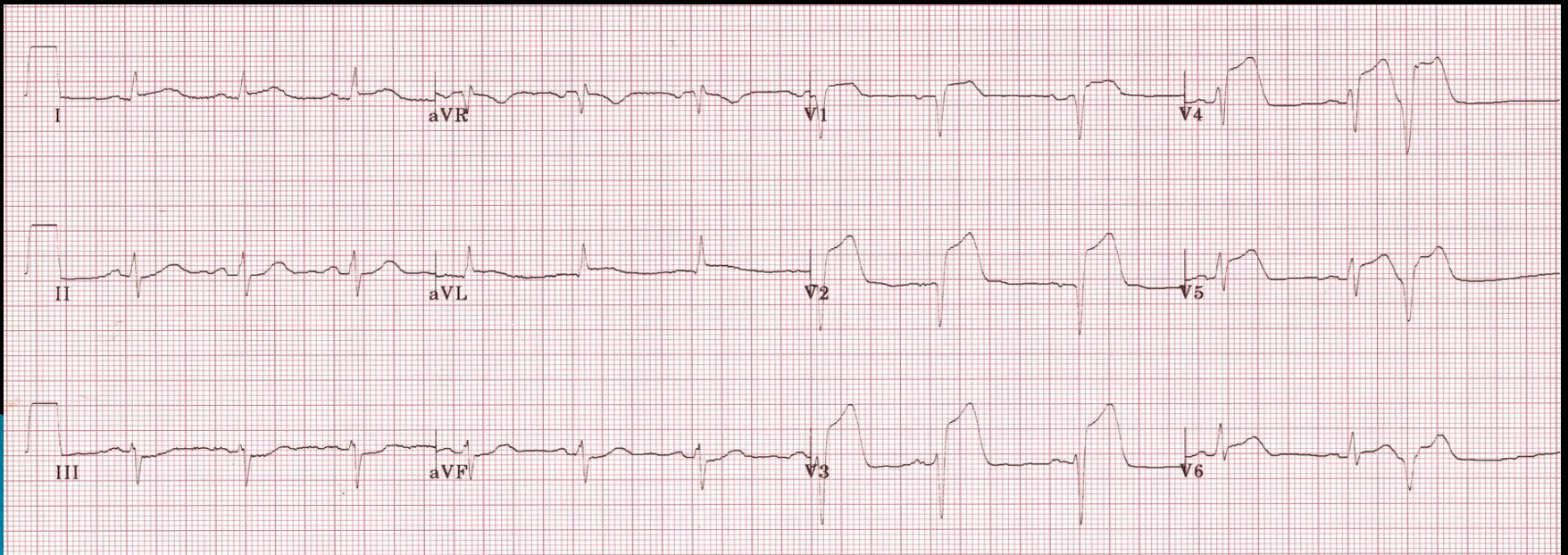
Number 2.

Prognostication is very difficult in congestive heart failure – discuss goals of care early



Case Study 2.

- ▶ Mr. C.D. 76 y.o. Male. No prior MI, CHF, TIA/stroke
- ▶ Extensive Anterior Wall STEMI and acute onset CHF
 - What is the likelihood he will die in hospital?
 - Be dead at 6 months?



Hospital Case–Fatality Rates According to Development of Heart Failure in Setting of ACS

Group	HF (+)	HF (-)
All patients	12.0%	2.9%
STEMI	16.5%	4.1%
Non-STEMI	10.3%	3.0%
Unstable angina	6.7%	1.6%

(Steg, *Circulation* 2004)

Factors Associated With An Increased Risk of Post-Discharge Death

Characteristic	STEMI		Non-STEMI	
	HR	95% CI	HR	95% CI
<i>Age (yrs)</i>				
65-74	3.48	2.00-6.06	2.17	1.27-3.72
≥75	8.95	5.28-15.20	5.30	3.19-8.80
<i>Medical history</i>				
HF	2.21	1.61-3.04	2.20	1.71-2.84
MI	1.69	1.28-2.22		
TIA/Stroke			1.37	1.03-1.84
<i>Hospital complications</i>				
Cardiogenic shock	1.94	1.20-3.15		
HF	2.16	1.65-2.83	1.91	1.49-2.44
Stroke	2.51	1.32-4.78		

(Goldberg, Am J Cardiol ,2004)

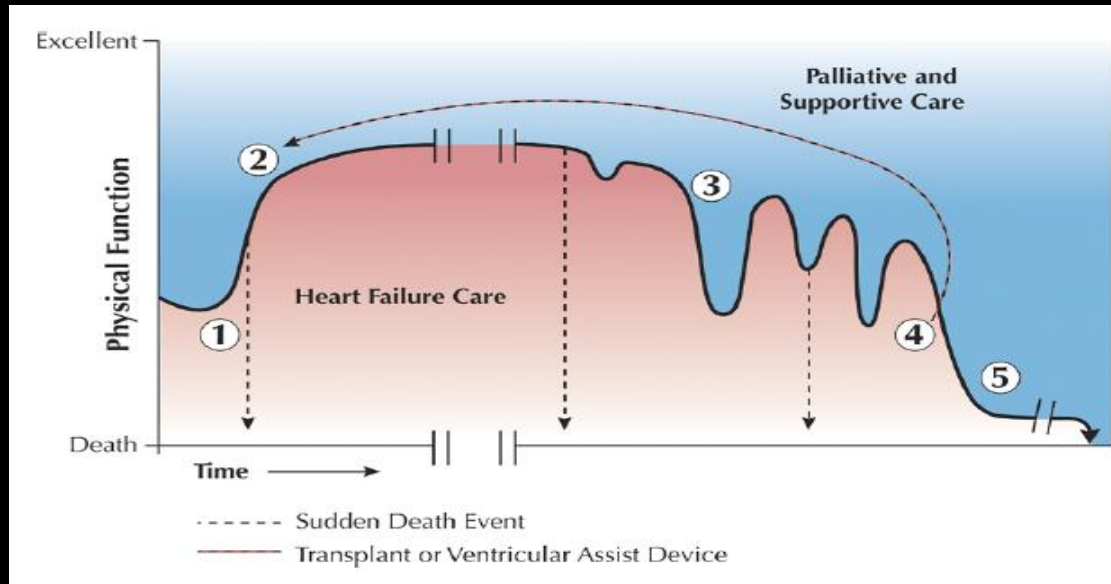
At Six-Month Follow-Up*

	STEMI	NSTEMI	UA
Death	5% (480/9414)	6% (496/7977)	4% (349/9357)
Stroke	1% (110/9173)	1% (103/7749)	1% (79/9176)
Rehospitalized	18% (1619/9147)	19% (1501/7721)	19% (1761/9150)

*Excluding events that occurred in hospital

(Goldberg *Am J Cardiol* 2004)

Terminal Trajectory



Phase 1 – initial symptoms,

Phase 2 – plateau after initial management

Phase 3 – declining functional status, exacerbations respond to rescue

Phase 4 – Stage D HF

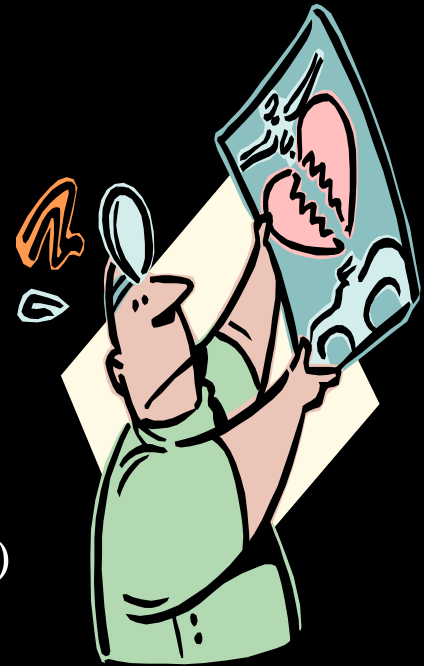
Phase 5 – End of Life

(Goodlin, *J Am Coll Cardiol* 2009)

Prognostication

- ▶ Very difficult to prognosticate
- ▶ Markers of poor prognosis (< 6 months)
 - Liver failure, renal failure, delirium
 - Unable to tolerate ACE-I due to bp
 - NYHA Class 4
 - EF < 20%
 - Frequent hospitalizations
 - Cachexia

(Hauptman, *Arch Intern Med* 2005; Ward, *Heart* 2002)



CCORT Risk Assessment Model

Table 4. Heart Failure Risk Scoring System*

Variable	No. of Points	
	30-Day Score†	1-Year Score‡
Age, y	+Age (in years)	+Age (in years)
Respiratory rate, min (minimal 20; maximum 45)§	+Rate (in breaths/min)	+Rate (in breaths/min)
Systolic blood pressure, mm Hg		
≥180	-60	-50
160-179	-55	-45
140-159	-50	-40
120-139	-45	-35
100-119	-40	-30
90-99	-35	-25
<90	-30	-20
Urea nitrogen (maximum, 60 mg/dL)§¶	+Level (in mg/dL)	+Level (in mg/dL)
Sodium concentration <136 mEq/L	+10	+10
Cerebrovascular disease	+10	+10
Dementia	+20	+15
Chronic obstructive pulmonary disease	+10	+10
Hepatic cirrhosis	+25	+35
Cancer	+15	+15
Hemoglobin <10.0 g/dL (<100 g/L)	NA	+10

Abbreviation: NA, not applicable to 30-day model.

*An electronic version of the risk scoring system is available at: <http://www.ccort.ca/CHFriskmodel.asp>.

†Calculated as age + respiratory rate + systolic blood pressure + urea nitrogen + sodium points + cerebrovascular disease points + dementia points + chronic obstructive pulmonary disease points + hepatic cirrhosis points + cancer points.

‡Calculated as age + respiratory rate + systolic blood pressure + urea nitrogen + sodium points + cerebrovascular disease points + dementia points + chronic obstructive pulmonary disease points + hepatic cirrhosis points + cancer points + hemoglobin points.

§Values higher than maximum or lower than minimum are assigned the listed maximum or minimum values.

||Increases were protective in both mortality models. Points are subtracted for higher blood pressure measurements.

¶Maximum value is equivalent to 21 mmol/L. Score calculated using value in mg/dL.

Seattle Heart Failure Model

	Baseline			Post-intervention		
	1 year	2 year	5 year	1 year	2 year	5 year
Survival	80 %	64 %	33 %	84 %	69 %	75 %
Mortality	20 %	36 %	67 %	16 %	11 %	25 %
Mean life expectancy	4.1 years			9.7 years		

Baseline Characteristics

Clinical
 Age: 65
 Gender: Male
 NYHA Class: 3
 Weight (kg): 80
 EF: 20
 Syst BP: 120
 Ischemic

Medications
 ACE-I
 Beta-blocker
 ARB
 Statin
 Allopurinol
 Aldosterone blocker

Diuretics
 Lasix: 40
 Bumex: 0
 Demadex: 0
 Metolazone: 0
 HCTZ: 0

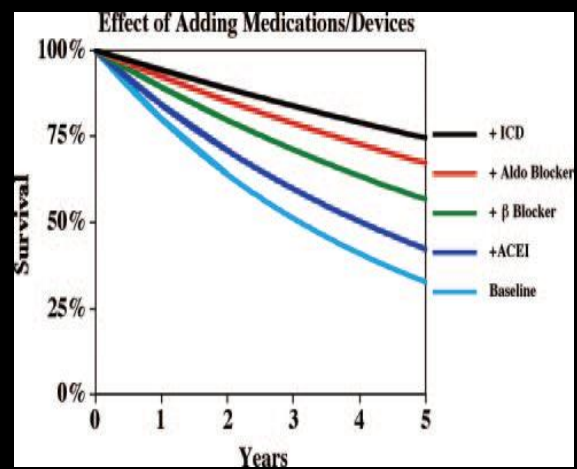
Lab Data
 Hgb: 13.4
 Lymphocytes: 24
 Uric Acid: 7
 Total Chol: 190
 Sodium: 137
 QRS > 120 msec

Devices
 None
 BiV Pacer
 ICD
 BiV ICD

Interventions
 ACE-I
 ARB
 Beta-blocker
 Statin
 Aldosterone Blocker

Devices (Interventions)
 None
 BiV Pacer
 BiV ICD
 ICD
 LVAD

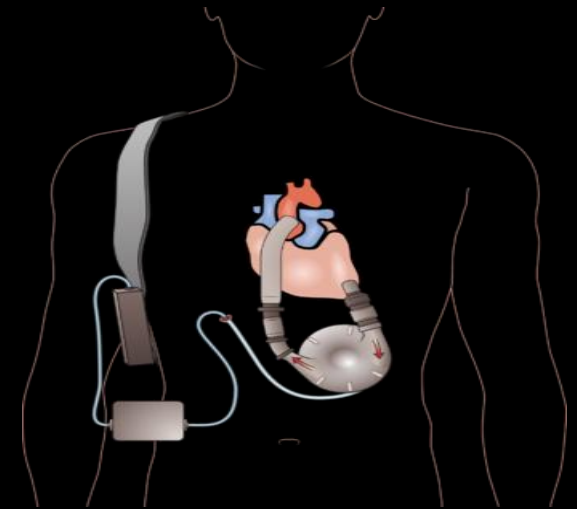
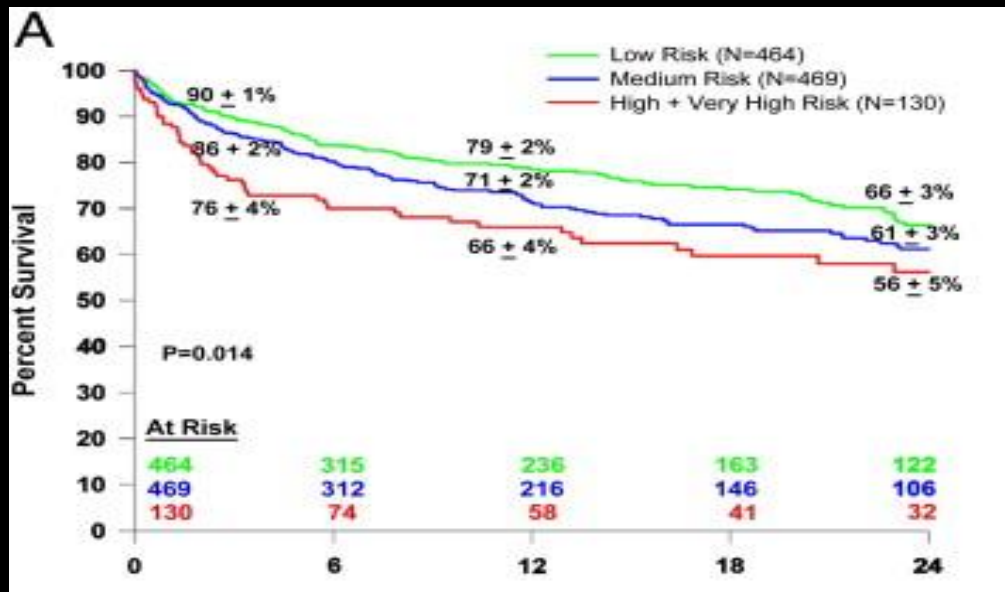
Copyright 2004–2005 Wayne Levy & David Linker



The predicted effects of adding medications and an ICD for a heart failure patient with an annual mortality of 20% and a mean survival of 4.1 years at baseline. Adding the above meds increases the mean survival by 5.6 years

Estimates 1,2 and 5 year survivals

Left Ventricular Assist Device as Destination Therapy

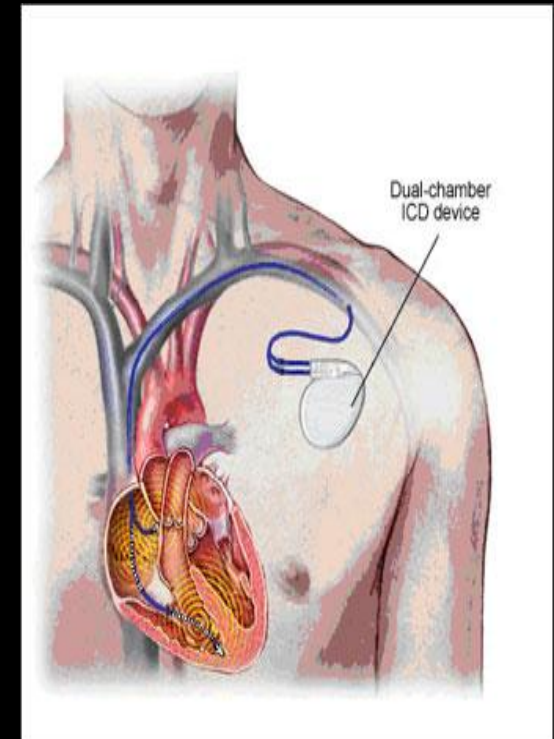


Rematch study: Improved survival and quality of life in NYHA Class 4 patients ineligible for transplant (NEJM 2001)

Newer studies show a **50-60% survival at 2 years** with new devices, better surgical techniques and a multidisciplinary approach (JACC 2012)

Implantable Cardioverter Defibrillators and Pacemakers

- ▶ Leave Pacemakers intact
- ▶ Turn off/disable ICD's
 - 73% – no discussion about turning off prior to last hours
 - 8% – receive shocks minutes before death
 - **Inform Funeral Home**
 - **Plan ahead !**



(Goldstein, *Ann Intern Med* 2004)

Communication – When?

- Initiating medical treatment
- 3–4 months into any treatment
- When medical condition deteriorates
 - Acute medical or surgical crisis
 - Decrease QOL or increase symptom burden
- When patient initiates
- When any member of the multidisciplinary team feels they wouldn't be surprised if the patient died within a year

Communication Starters

- ▶ Many people think about what they might experience as things change and their heart disease progresses. (Normalize)
- ▶ Have you thought about this?
- ▶ Do you want me to talk about what changes are likely to happen?
- ▶ Talking early allows patients to make own decisions

Number 3.

Palliative Care services are available & often underutilized for cardiac deaths



Issues in Palliative Care

- ▶ Lack support networks & communication
- ▶ Prognostication difficult
- ▶ DNR difficult issue
 - Written on 5% (47% in Ca, 52% in AIDS)
 - Wanted by pt in 23– 25%
 - Incorrectly Perceived by 25% of physicians
 - 40% rescind
- ▶ Only 4% of CHF on palliative care programs

(Gibbs, *Heart* 2002 & Krumholz, *Circulation* 1998)

WRHA Cardiology Palliative Care Collaboration

- ▶ Group meets every 6 weeks to discuss palliative cardiology patients
- ▶ Team consists of cardio and pall care MD's and CNS's
- ▶ Discuss referrals for end of life care, and symptom management

When Should I Palliate?

- ▶ Prognosis poor (<6 mo)
- ▶ Difficulty controlling symptoms
- ▶ Actively dying
- ▶ Patient requests
- ▶ Call anytime with questions



www.virtualhospice.ca

The Canadian Virtual Hospice provides support and personalized information about palliative and end-of-life care to patients, family members and health care providers.



Aboriginal

Advanced care planning / Decision making

Assessment tools

Clinical practice guidelines

Communication

Complementary therapies

Culture

Diseases

Cancer

Chronic Obstructive Pulmonary Disease (COPD)

Congestive Heart Failure (CHF)

Canadian Cardiovascular Society consensus conference recommendations on heart failure 2006: Diagnosis and management.

This clinical practice guideline provides recommendations for the management of CHF including symptom management at end-of-life. **read more...**

Congestive Heart Failure

This 30-minute powerpoint presentation provides an overview of the etiology, diagnosis and pharmacological management of... **read more...**

Heart Failure Care

This clinical practice guideline reviews clinical evidence and provides recommendations for the management of heart failure... **read more...**

Palliative Care for Non-Cancer Patients

Comprehensive coverage on the current knowledge of the needs of, and appropriate care for, people dying from causes other... **read more...**

How can I support my husband who's been diagnosed with cancer and is waiting for test results?

The Exchange

We're building a place for leading experts to share the latest advances in palliative care.



Contribute to the Exchange

Share your research and clinical expertise. Submit an article for consideration.

PallNet

Enjoy free online networking at PallNet! Find out how to start your own PallNet community.



Programs and Services

Click on a province or territory to find out about palliative care associations, drug/benefit programs, home care programs, residential hospices and other programs and services.

The listings include programs and services offered in both French and English, to offer you the broadest possible range of available information.

If we're missing a resource or need to update some information, please suggest a program or service below.

Search Programs and Services

[Suggest a Program or Service](#)

Provincial

National



Meet the Team

Meet the experts who answer your questions at Ask a Professional.



Asked and Answered

What can I do to support my wife who's dying and let her know she won't be forgotten?

How long can someone live without food and water?

What can be expected as brain cancer progresses?

How can I support my husband who's been diagnosed with cancer and is waiting for test results?

Resources

Books, Links, and More

- [Programs and Services](#)



Most Popular Articles

When Death is Near - Learn more about changes people may experience in the final days of life.

Health Care Directives - Having a health care directive can ensure treatment decisions

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