

Chronic Disease Management in LTC – Heart Failure as an Exemplar of Key Episodes of Care

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RESEARCH

EDUCATION

PRACTICE

Enhancing the quality of life and care of
older adults through partnerships in
research, education and practice.

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Enhancing Life

Objectives

- Describe the steps of chronic disease management
- Understand how specialists could provide support to Long Term Care medical teams

What is chronic illness?

QUIZ: WHICH IS (ARE) AN ACUTE ILLNESS?

1. MYOCARDIAL INFARCTION
2. INFLUENZA
3. ALZHEIMER'S DISEASE
4. BREAST CANCER
5. DINOT



DIGITALLY-INDUCED NASO-ORBITAL TRAUMA

What do we need to consider when thinking about helping a person manage with chronic disease?

ACUTE VS. CHRONIC DISEASE

DISEASE TYPE	ACUTE	CHRONIC
ONSET	SUDDEN	PROGRESSIVE - LATENT SYMPTOM FREE PERIOD - SUDDEN “EXACERBATION”
COURSE	BRIEF	USUALLY LIFELONG, PROGRESSIVE
RESOLUTION	USUALLY COMPLETE MAY LEAVE PERMANENT CONSEQUENCES	USUALLY NONE REMISSIONS AND RELAPSES
CARE		
- GOAL	CURE	PROLONG LIFE MAINTAIN QUALITY OF LIFE MAINTAIN FUNCTION REHABILITATION END-OF-LIFE CARE
- DURATION	BRIEF	LIFELONG
- COST	USUALLY MINIMAL	HIGH

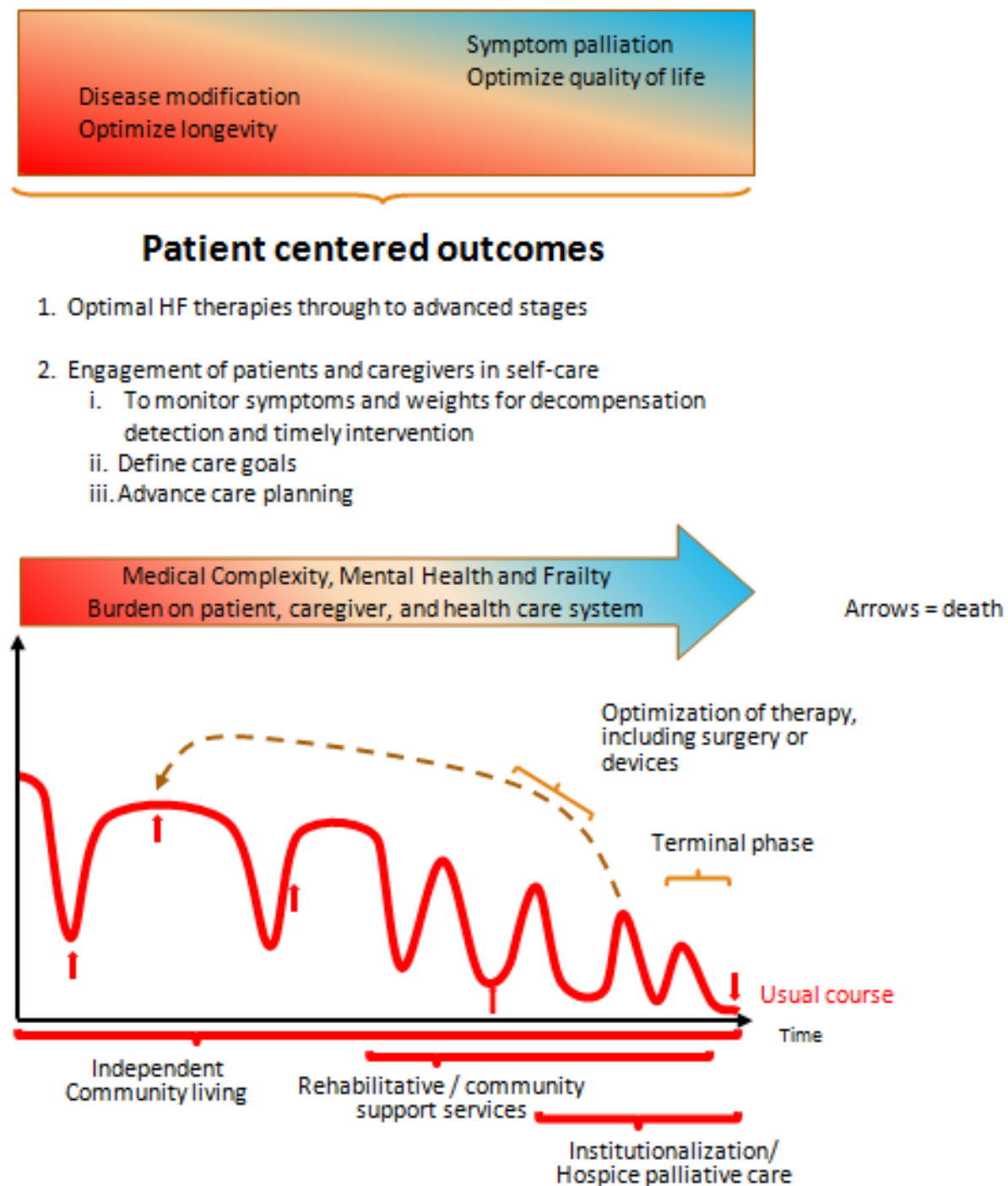
Chronic disease is usually lifelong

- Day-to-day management
 - Medications
 - Non-pharmacological treatments
 - Prevent complications and exacerbations
- Day-to-day living
 - Functional
 - Psychosocial
 - Economic
 - Caregiving
- With ageing: add
 - Comorbidities (usually chronic)
 - Geriatric syndromes (usually chronic)
- ***Wishes and goals***

So, how should we organize care?

Heart Failure:

An archetype



CDPM: Chronic disease prevention and management model

Wagner 1996; Scott 2008

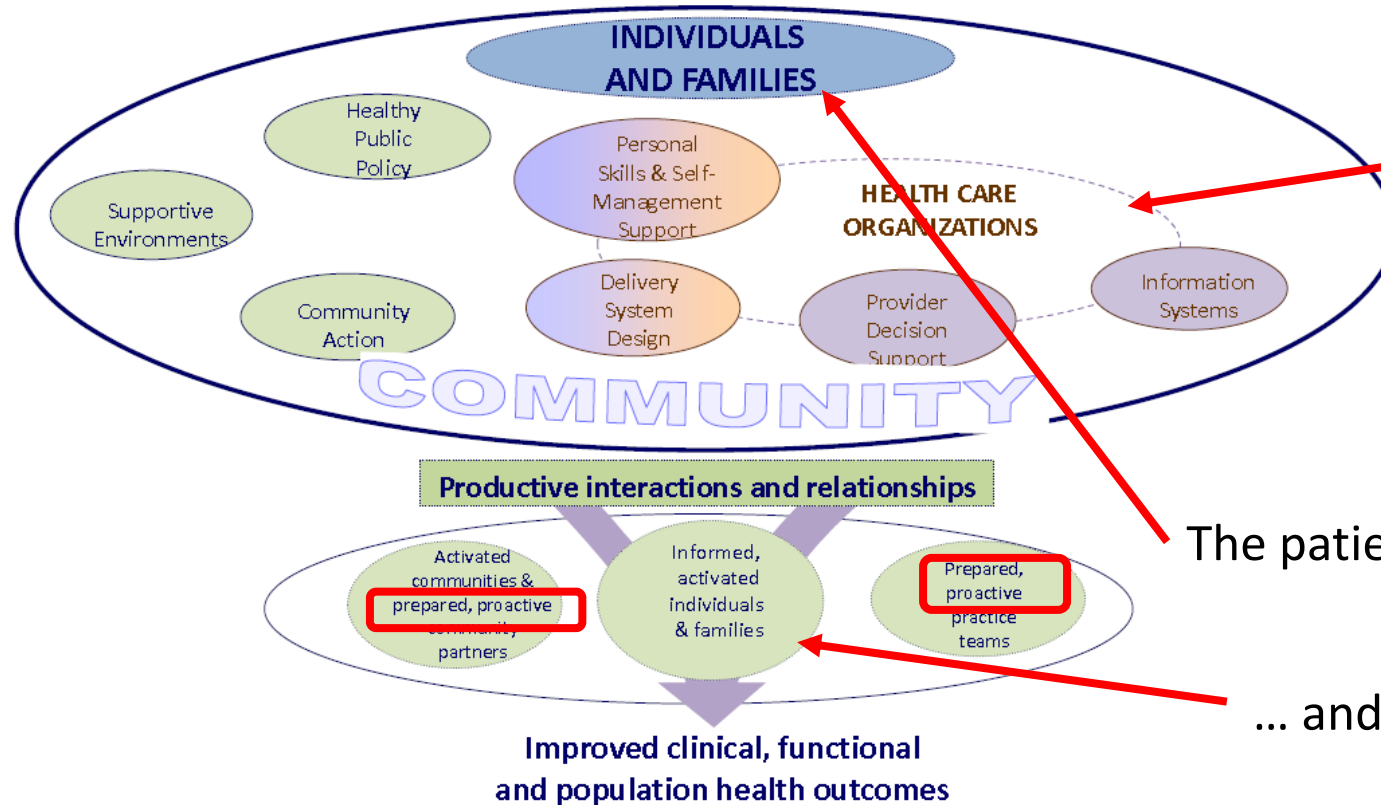
- Multidisciplinary care to optimize care and prevent acute care use
- Self-care – enhancing ability of patients and informal caregivers to manage their chronic illness, learning to recognize and manage disease exacerbations and access the system early to avert acute care use
- Care integration and coordination across multiple conditions and care settings
- System redesign to improved access and funding of community-based and multidisciplinary resources
- Clinical information systems to facilitate patient education, follow-up, information sharing and quality assurance
- Provision of evidence-based decision support to patients, informal caregivers and providers

Benefits of the CDPM approach

Scott 2008

- Diabetes: better control, fewer ulcers, amputations
- COPD: fewer exacerbations / acute care use, better QofL
- HF: fewer admissions, lower mortality, lower costs

Ontario's CDPM Framework



- Nurses
- NPs
- PSWs
- Pharmacist
- Dietician
- Resp educator
- Mental health
- Social worker
- Docs...

The patient is here...

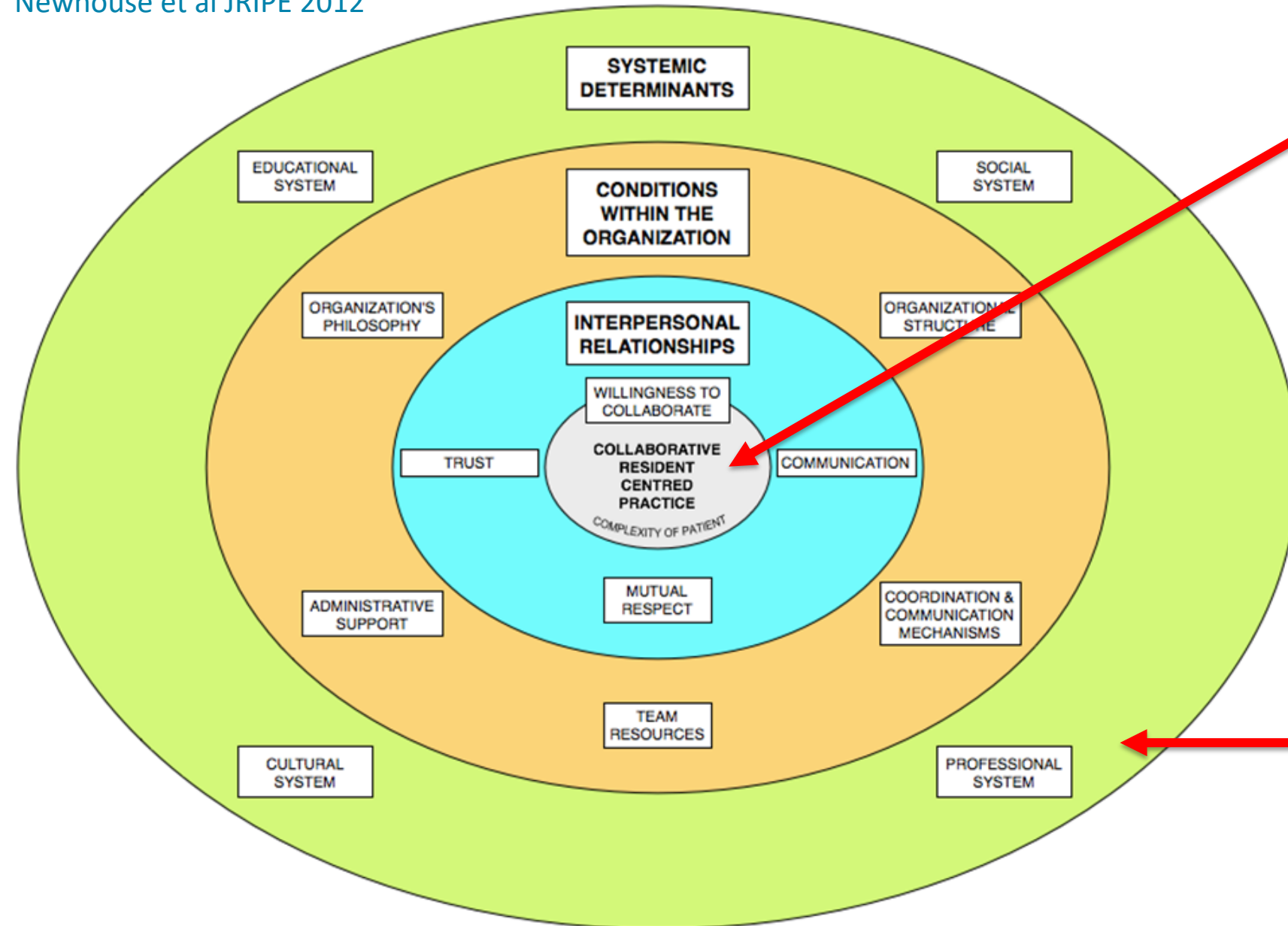
... and here too ...

Wagner EH.. A survey of leading chronic disease management programs: Are they consistent with the literature? *Managed Care Quarterly*. 1999;7(3):56-66. Bodenheimer T, Improving primary care for patients with chronic illness: the chronic care model, Part 2. *JAMA* 2002 Oct 16; 288(15):1909-14. Wagner EH, Improving chronic illness care: translating evidence into action. *Health Aff (Millwood)*. 2001 Nov-Dec;20(6):64-78.

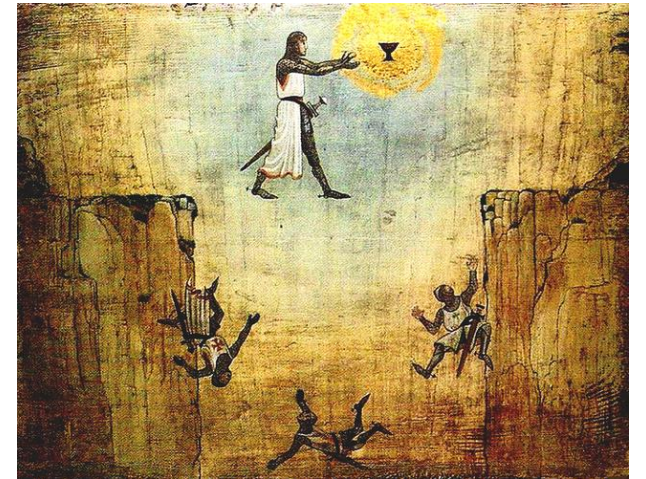
Who does what??
To whom??

Determinants of care quality in LTC Homes

Newhouse et al JRIPE 2012

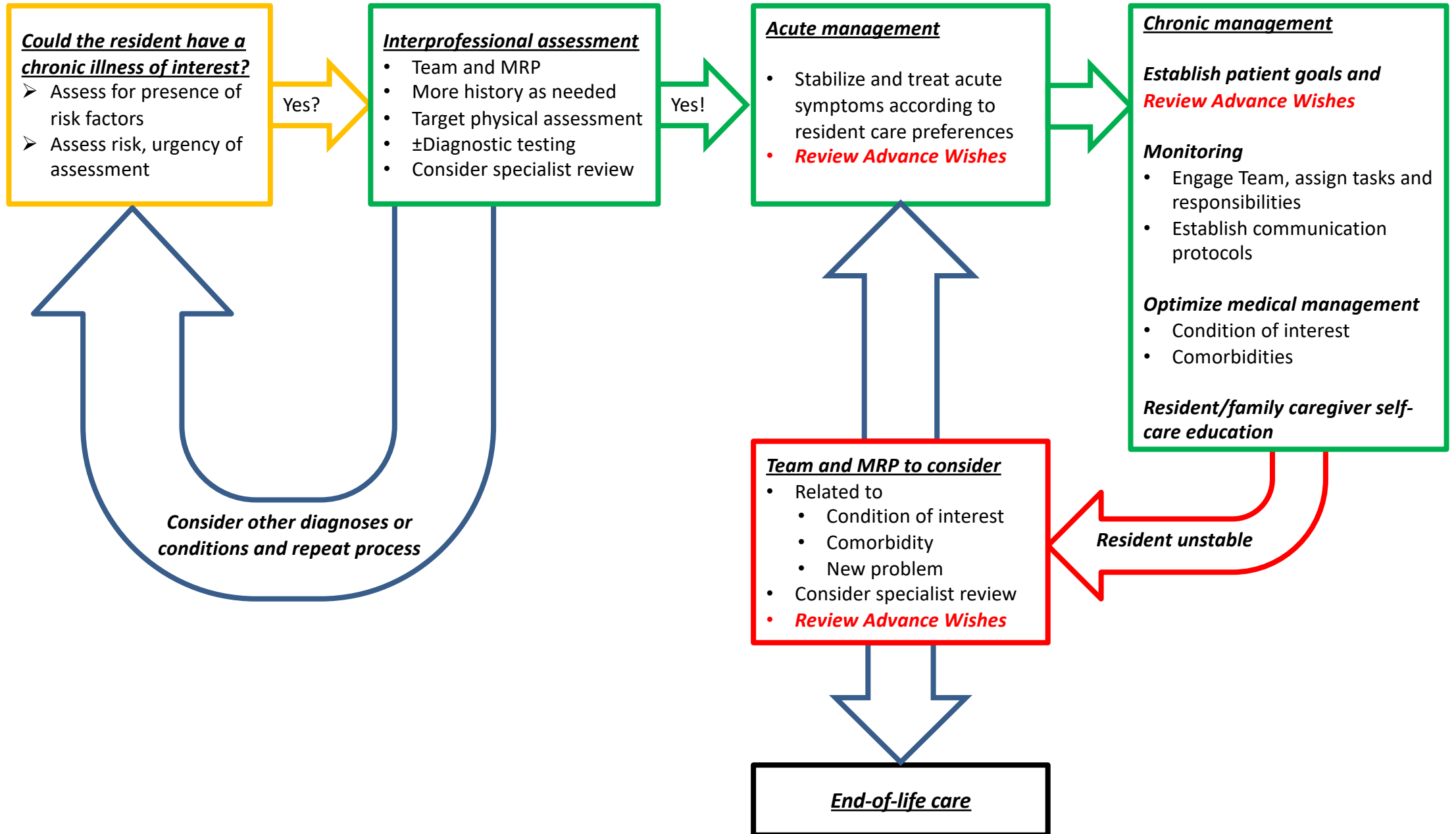


The resident is here...



Geriatricians and internists are mainly here...

Let's look at how to approach a chronic condition...



Could the resident have a chronic illness of interest?

- Assess for presence of risk factors
- Assess risk, urgency of assessment

This **CAN** and
SHOULD BE
proactive

- Are there suspicious symptoms?
- **RECALL:** Frail seniors present atypically
 - E.g. agitation AT NIGHT could be heart failure
- Are there risk factors?
 - Previous heart disease could indicate heart failure
 - Previous fractures suggest osteoporosis
- Do we need to act sooner than later?
 - Is the resident acutely unwell?
- Do we need specialized input?

Risk stratification in LTC

90 day outcomes: Long Term Care (new admission)		
CHESS	Hospitalization (survived)	Death
0	9.3%	4.2%
1-2	11.3% to 12.7%	9% to 14.5%
3-4	12.5% to 11.9%	21.4% to 33.7%
4-5	4.5%	74.5%

Personal Severity Index		
Score	%mortality @ 3 months	%mortality @ 6 months
0	1.7	3.8
1-2	3.1 - 4.0	6.6 - 8.6
3-4	5.0 - 7.1	10.4 - 13.9
5-7	9.4 - 10.5	17.1 - 19.1
8	15.4	25.7
9	22.7	35.8
10-12	>32.8	>48.6

1)) Hébert et al. Regional variations of care in home care and long-term care: a retrospective cohort study. CMAJ Open. 2019;7:E341-E350. doi: 10.9778/cmajo.20180086. 2) Hirdes et al. Use of the interRAI CHESS scale to predict mortality among persons with neurological conditions in three care settings. PLoS One. 2014;9:e99066. doi:10.1371/journal.pone.0099066. 3) Data reflects US LTC home data, courtesy of Margaret Bryan and John Morris, Senior Hebrew Life; 4) <https://www.iadvanceseniorcare.com/bringing-more-definition-to-end-of-life-decisions/>

Fracture Risk Scale

- Consider anti-resortive therapy for scores of 4 or above

FRS Score	Yearly hip fracture risk	FRS Score	Yearly hip fracture risk
1	0.6%	5	5.0%
2	1.8%	6	6.8%
3	2.5%	7	7.8%
4	3.1%	8	12.6%

Ioannidis et al. Development and validation of the Fracture Risk Scale (FRS) that predicts fracture over a 1-year time period in institutionalised frail older people living in Canada: an electronic record-linked longitudinal cohort study. *BMJ Open*. 2017;7:e016477. doi: 10.1136/bmjopen-2017-016477.

Interprofessional assessment

- Team and MRP
- More history as needed
- Target physical assessment
- ±Diagnostic testing
- Consider specialist review

- The team includes PSWs, kinesiologists, custodial staff, family (by phone), etc...
- AND RESIDENT!
- PSWs = >80% of care time
 - Failure to train and engage is not an option
- Implies increased reliance on observations as testing not always readily available
- CAUTION: all that coughs and can't breathe is not only COVID

Acute management

- Stabilize and treat acute symptoms according to resident care preferences
- ***Review Advance Care Plan***

- Recall: chronic diseases can be decompensated
- Does the resident need immediate treatment to stabilize an exacerbation?
- Virtual assessment tips:
 - Lie flat to witness orthopnea
 - WhatsApp in the neck is excellent for JVPs
 - Pitting edema: remember the sacrum!
- If so, review care goals and wishes before, if possible, and certainly after.

Chronic management

*Establish patient goals and
Review Advance Care Plan*

Monitoring

- Engage Team, assign tasks and responsibilities
- Establish communication protocols

Optimize medical management

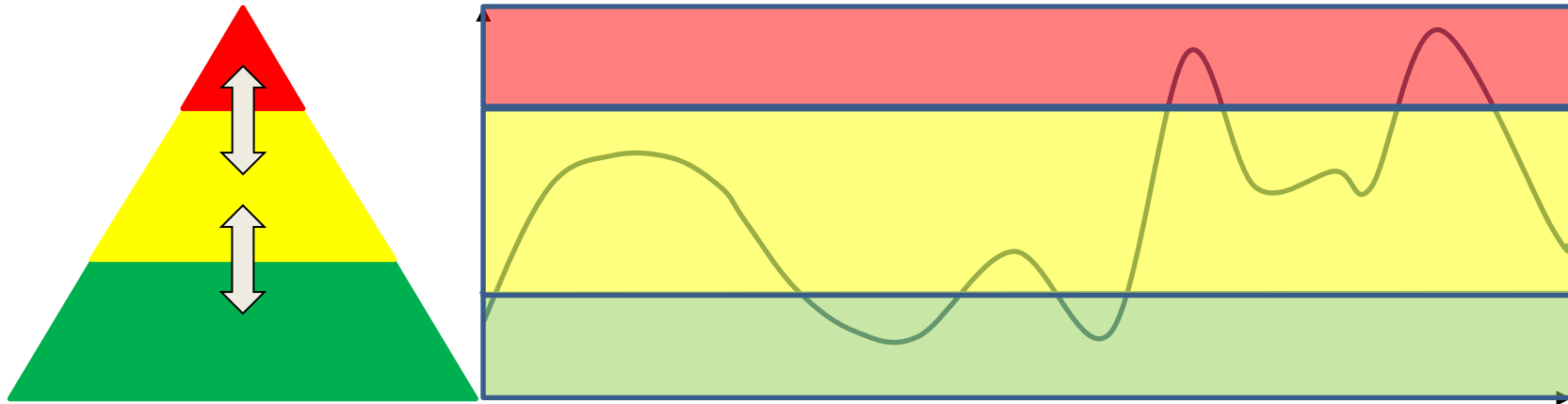
- Condition of interest
- Comorbidities

Resident/family caregiver self-care education

- This is where the real action should be!
- Monitoring: a disease exacerbation is the rule, not the exception
 - Team engagement is crucial
- Medications
 - Less is more? (e.g. diabetes)
 - More is more? (e.g. heart failure)
 - Depends

ANTICIPATE!

- Risk fluctuates over time and exacerbations happen on their own schedule and NOT by appointment!
- Default SHOULD NOT BE “CALL 9-1-1”!
- The team needs to be aware, proactive, observant and must communicate



Mobilizing internal resources, care processes
and capacity building

Adapting the CSS Recommendations on HF for LTC: A consensus with stakeholder input

- Funded July 2009 – June 2012, Heart and Stroke Foundation of Ontario
- Develop HF care processes for LTC
 - based on the CCS HF guidelines
 - that optimally utilize skill sets of all LTC staff roles
 - Are minimally disruptive to work routines
 - focus on achieving outcomes relevant to LTC residents
- Consultative process to identify barriers and formulate solutions

Overarching Themes

Strachan 2014; Heckman 2014; Newhouse 2012; Marcella 2012; Kaasalainen 2013

- **Communication Gaps**

- Interprofessional within LTC home
- With residents / families
- External agencies

- **Knowledge Gaps**

- Basic physiology
- Clinical skills: Recognition, diagnosis
- Procedural skills: Management

- **Health system factors**

- Workload issues
- Communication between LTC and other providers
- Limited resources: Specialists, Diagnostics

LTC Care episodes where communication is critical

- New resident
- Physician rounds
- Shift change
- Monitoring weights
- A resident is noted to be unwell

1. *New Resident*: Targeting and Diagnosis

Heckman et al, Can Geriatr J 2013

- A “history of HF” elicited from the resident / caregiver is the most useful indicator of a prior diagnosis
- History of orthopnea, PND or severe dyspnea are specific, but absence does not rule out HF history
- Presence of edema and auscultatory rales has modest specificity and poor-modest sensitivity
 - i.e. Not very useful

Clinical Characteristic	Full Model		Reduced Model				
	AOR (95% CI)	p value	AOR (95% CI)	p value	c-statistic	IDI	p value
Admission assessment history of:							
HF	11.65 (4.55, 29.83)		13.66 (6.61, 28.24)	<0.0001	0.910	0.02	0.0682
Fluid on the lungs	1.96 (0.83, 4.65)	0.1254	2.01 (1.04, 3.89)	0.0373			
Peripheral edema	0.87 (0.30, 2.57)	0.8042					
Orthopnea	1.72 (0.69, 4.27)	0.2443	1.76 (0.93, 3.33)	0.0834			
PND	1.03 (0.36, 2.92)	0.9599					
Dyspnea on moderate activity	0.62 (0.21, 1.84)	0.3920					
Dyspnea compared to peers	0.26 (0.07, 0.90)	0.0337					
Dyspnea walking on the level	3.17 (1.01, 9.90)	0.0475					
Dyspnea with ADLs	3.15 (1.07, 9.31)	0.0377					
Dyspnea at rest	0.72 (0.26, 2.02)	0.5336					
Cardiovascular comorbidities:							
Coronary Artery Disease	2.83 (1.12, 7.15)	0.0282	2.83 (1.42, 5.64)	0.0216			
Atrial Fibrillation	1.20 (0.50, 2.91)	0.6809					
Hypertension	0.85 (0.27, 2.66)	0.7752					
Diabetes mellitus	0.83 (0.33, 2.09)	0.6979					
Physical findings: ^a							
Rales on auscultation	0.88 (0.46, 1.69)	0.6988					
Peripheral edema	1.00 (0.54, 1.85)	0.9989					
Third heart sounds	1.19 (0.20, 7.01)	0.8445					
Jugular venous elevation	0.76 (0.08, 7.31)	0.8116					
Admission HF medications:							
Furosemide	3.70 (1.52, 9.02)	0.0040	2.11 (1.12, 3.98)	0.0216			
ACE inhibitor	1.20 (0.54, 2.64)	0.6575					
β -blocker	2.60 (1.15, 5.85)	0.0216	2.09 (1.10, 3.94)	0.0234			
Digoxin	1.41 (0.43, 4.59)	0.5716					

Hx of HF

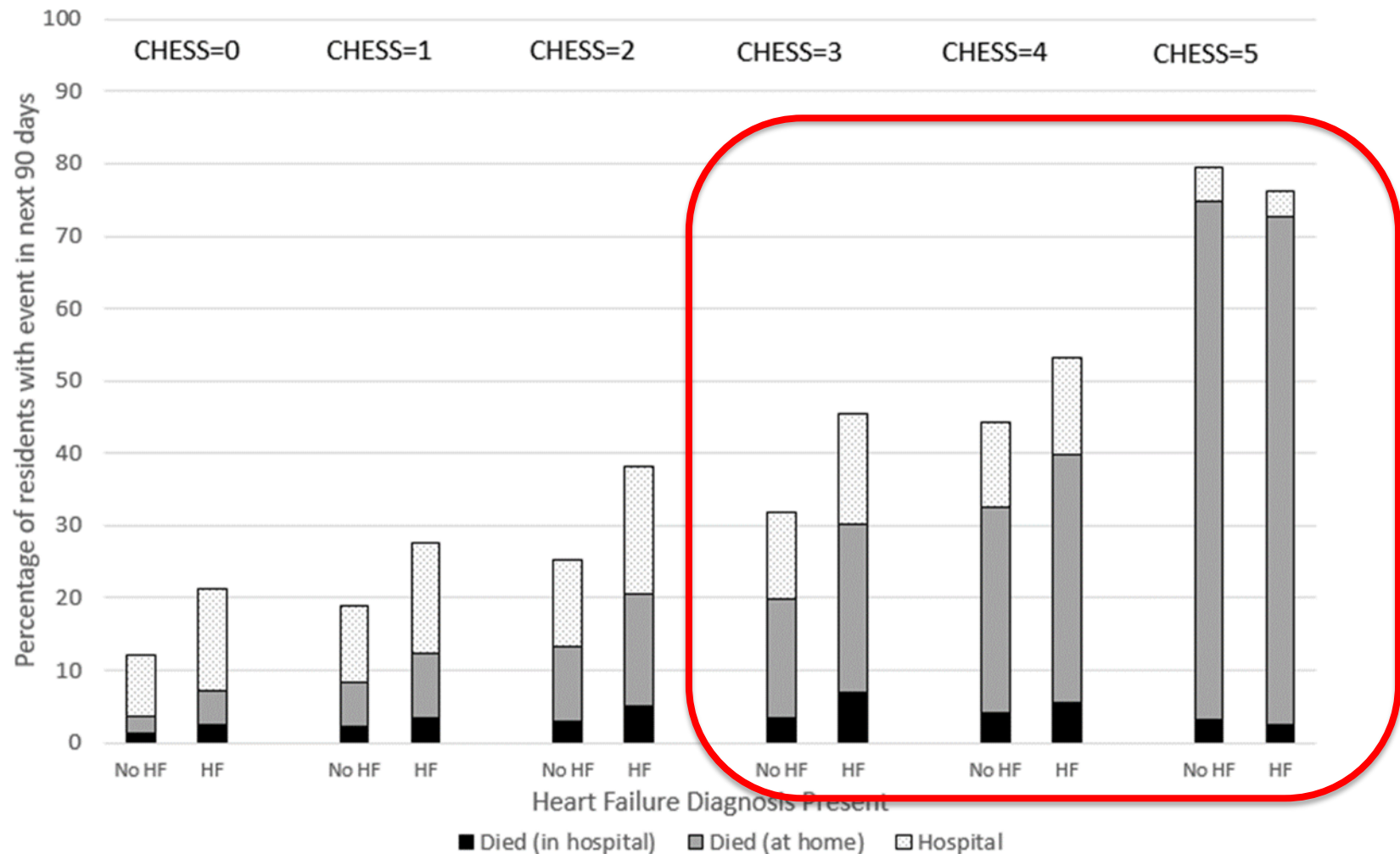
Fluid on the lungs

Coronary artery disease

Furosemide

β -blocker

Outcomes of nursing home residents who died (in nursing home or hospital) or were admitted to hospital within 90 days of admission assessment, by CHES score at admission, Ontario, Alberta and BC



Boston Criteria

- Boston criteria
 - *"definite"* = 8 to 12
 - *"possible"* = 5 to 7
 - *"unlikely"* <5

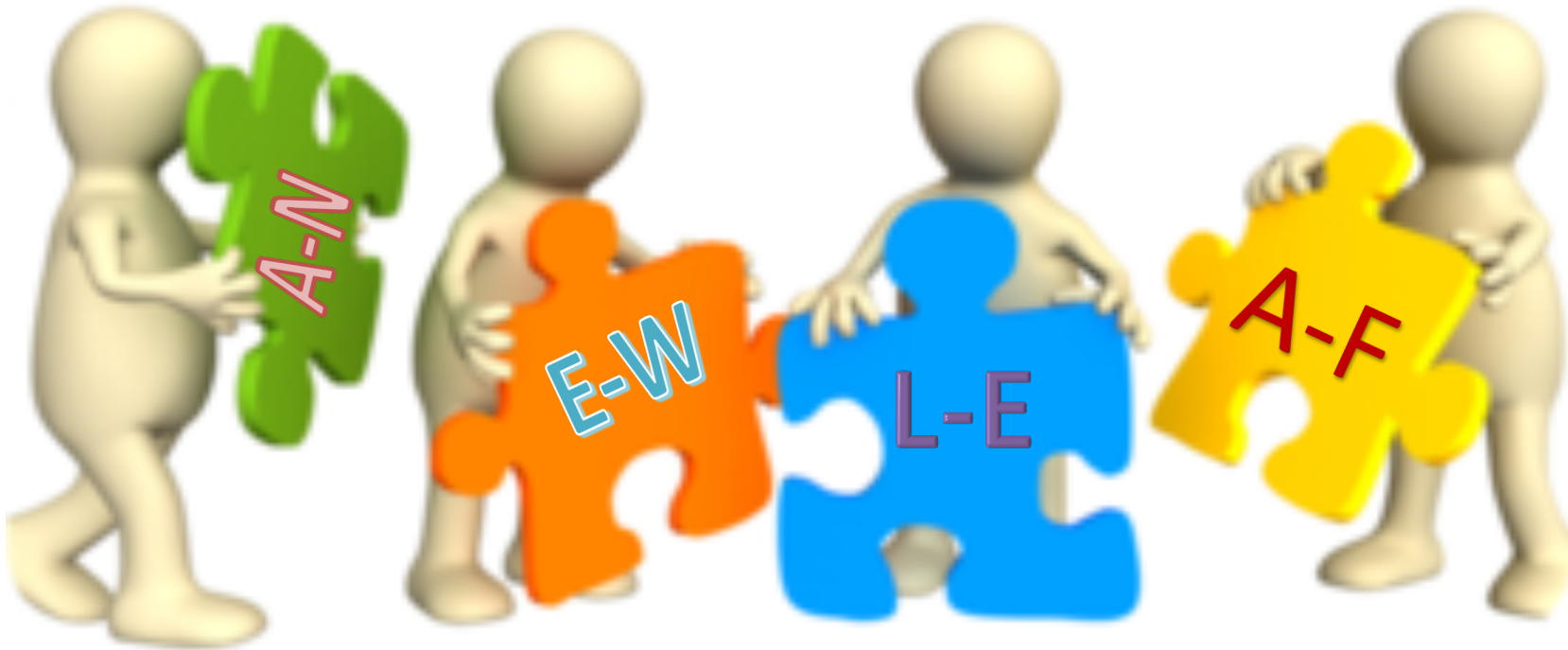
History	Dyspnea at rest	4
	DOE on level ground	2
	DOE on climbing	1
	Orthopnea	4
	PND	3
Physical exam	HR > 110	2
	JVP >6 cmH2O	2
	JVP >6 cmH2O +HM or LEE	3
	Crackles – basilar	1
	Crackles - > basilar	2
	Wheeze	3
	S3	3
CXR	alveolar pulmonary edema	4
	Interstitial pulmonary edema	3
	Bilateral pleural effusions	3
	Incr CMW >0.5	3
	Incr upper flow redistribution	2

A-N-E-W-L-E-A-F: For Personal Support Workers

Adapted from Harrington 2005

- **A**: Agitation, anxiety (especially if new)
- **N**: Nights are bad: trouble breathing, urinating more
- **E**: Edema (swelling you can leave fingerprints in)
- **W**: Weight gain (from water retention)
- **L**: Light-headed, dizzy
- **E**: Extreme trouble breathing lying flat
- **A**: Abdomen – belly bloated, pain, not hungry
- **F**: Fatigue, tired

Diagnosing HF is like assembling a puzzle



2. Physician Rounds

- SBAR
- Situation
- Background
- Assessment
- Recommendations

SITUATION What is the problem	
Resident/Family concerns? Team observations?	Possible signs and symptoms of heart failure
	A An increase in agitation and anxiety
	N Difficulty sleeping at night (difficulty breathing, urinating more)
	E Edema in legs and/or sacrum
	W Weight gain >2lb (1kg) in 1 day or >5lb (2.5kg) in 1 week
	L Light headed and/or dizzy sitting/standing
	E Extreme difficulty breathing lying down
	A A swollen, painful abdomen
	A Poor appetite
	F More fatigue than usual (e.g., stopped participating in favourite activity)

3. SHIFT CHANGE

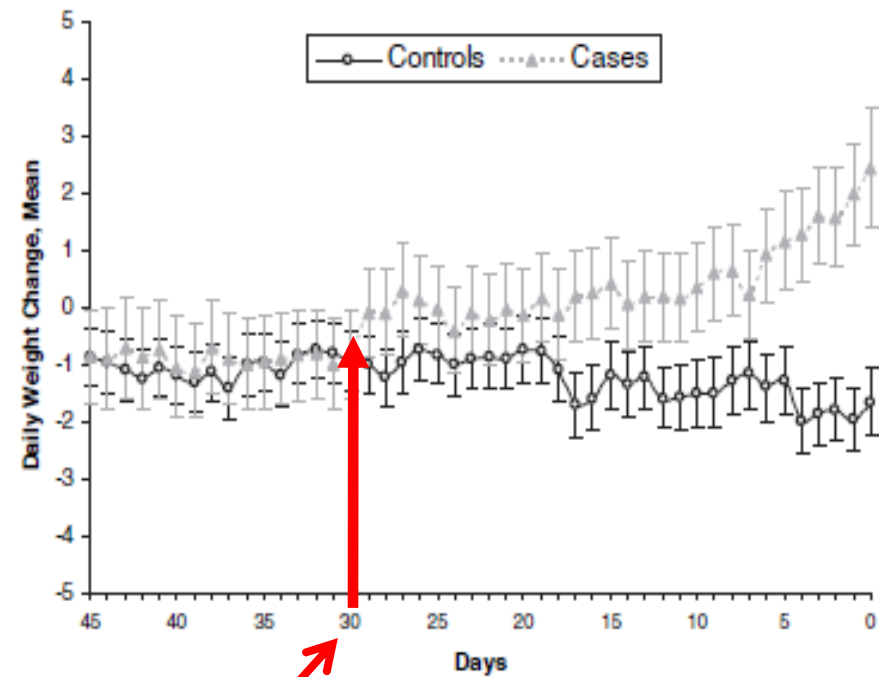
- Communication is critical, especially after night shift
- PSW input is critical
- ANEWLEAF

Zone	Description of Symptoms	What you should do
GREEN	ALL CLEAR - This zone is your goal Nothing is out of the ordinary for the resident. They are doing well as ever since you have known them • No weight gain of more than 2lbs (~1kg) in a day or 5lb (~2.5kg) in a week • No (or minimal) swelling of the feet or ankles • No (or stable) chest pain	Keep doing what you are doing! • The resident's symptoms are under control
YELLOW	CAUTION - This zone is a warning The resident isn't themselves today. Something is 'off.' A Agitation, anxiety (especially if new) • Resident is feeling uneasy or agitated – they know that something is wrong N Nights are bad • Dry 'hacking' cough at night E Edema • Feet/ankles are more swollen than usual (socks/shoes too tight) W Weight gain from water retention • More than 2lbs (~1kg) in a day or 5lb (~2.5kg) in a week L Light-headed, dizzy • Resident reports feeling more light-headed or dizzy than usual E Extreme trouble breathing lying flat • More shortness of breath, harder to breathe lying down, needs to sleep in wheelchair A Abdomen swollen • Abdomen is more swollen than usual (pants/belt are too tight) F Fatigue, tired • Resident feels more tired, very low energy	Something needs to happen today! • Talk to the RPN/RN in your neighbourhood • Trigger a heart failure huddle today
RED	EMERGENCY- Immediate assistance required The resident is a lot worse today. They need immediate help. • Chest pain at rest • Worsening condition (i.e., delirium) • Struggling to breath, unrelieved shortness of breath while sitting still	Something needs to happen <u>right now</u>! • Talk to the RN, RPN, NP or MD

4. Monitoring Weights

Chaudry Circ 2007

- Case control study of HF patients in telemonitoring program
 - 134 with HF hospitalization, 135 without
 - Weights diverge 30 days prior to admission ($p < 0.001$)



30 days!!!

How to monitor weights

Robinson & Weber JAMDA 2004

- Need to know dry weight: ***Find the sweet spot***
- Resident may be volume depleted if
 - orthostatic hypotension develops
 - BUN/creatinine ratio starts to rise
 - may occur if GI bleed or decompensated HF
 - edema is reduced
 - incompletely if right heart failure/COPD
 - JVP low/flat
- ***Likely at dry weight if symptoms optimal for resident and one or more volume depletion indicator is present***

Reassessing the dry weight

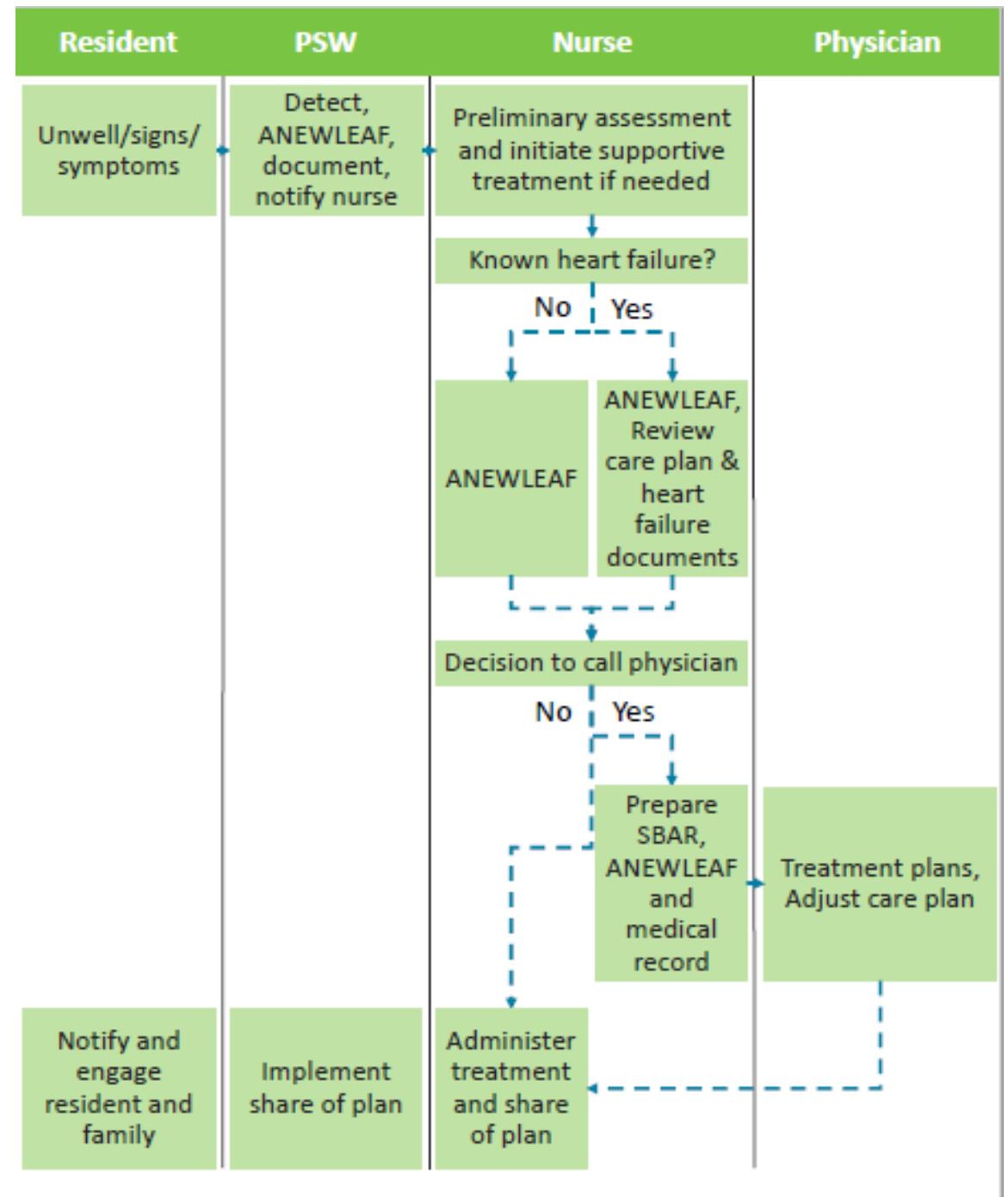
- Residents with HF change over time
 - Some lose solid body mass over time
 - Others, feeling better, may put on weight
- For a resident losing solid body mass target weight needs to be periodically reduced
 - Resident will become more symptomatic from HF over time
- For a resident gaining solid body mass target weight needs to be periodically increased
 - Resident will become more volume depleted over time

Weight frequency

- Guidelines recommend daily: difficult to do in nursing home
- In nursing home consider
 - At least 3 / week if resident unstable
 - At least 2 / week as resident improves: **BATH TIME**
 - At least weekly if stable for 2-4 weeks
- Resident should be reassessed frequently by clinician
 - ***PSWs and front-line staff can provide useful information AND should be provided with guidance by MD, nurses***
- The goal is tracking rapid changes

5. A resident is unwell

- Ideally this is what we want to prevent by building capacity within the team
- But odds are this is where you will begin



Results from a scoping literature review on HF in LTC

Heckman et al, under review

- HF management interventions in NH improve
 - knowledge of HF
 - interprofessional communication
 - job satisfaction among nurses and PSWs
 - increase ACEi and β -blocker prescribing
 - reduce acute care utilization and costs.

Essential ingredients

- Multimodal nurse and PWS education
 - Multimodal
 - Overseen by advance practice nurses and/or physicians
 - Bedside teaching
- *External consultants contribute*
 - *providing leadership*
 - *shared care*
 - *supporting program development and staff education*

Summary

- Chronic illnesses WILL get worse over time, often with exacerbations
 - **Should not be a surprise**
- Consider the underlying processes of management
- Consider the 5 key care processes:
 - How do you support? How do you improve efficiency without **ADDING** work? (hint: use their MDS tools)
- Mobilize and engage with LTC teams and MDs **EARLY** to build what you can with them
 - Think about the medium to long term: you will be able to build a relationship beyond COVID-19
- Make it routine business: weekly touch points

Questions?

