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Goals and objectives

Goal: Simply manage multimorbidity

1. Place the patient back in the center
2. Re evaluate the primary literature
3. Develop a toolbox for simplifying care

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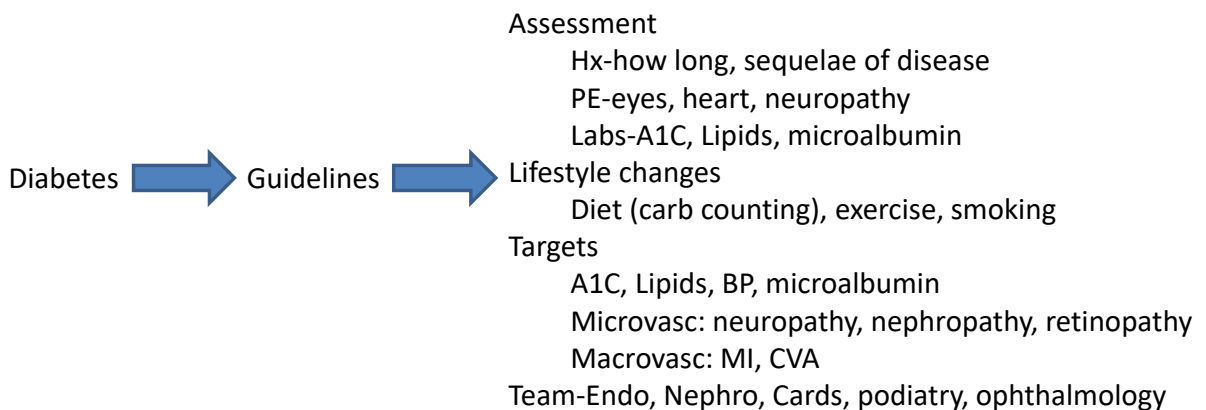
Definition of terms

- Multimorbidity-presence of 2 or more medical conditions
 - Multiple chronic conditions-chronic diseases only
 - Mixture of acute and chronic issues (hospitalists)
- Polypharmacy-use of ≥ 5 or more medications
- Frailty-deficit accumulation, vulnerability to adverse health outcomes

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The challenge of multimorbidity

- Start with diabetes



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Failure of clinical guidelines

- Current management
 - Cynthia Boyd. Clinical practice guidelines JAMA 2005
 - Theoretical patient with
 - Hypertension
 - Diabetes
 - Osteoarthritis
 - Osteoporosis
 - COPD

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Failure of clinical guidelines

Table 3. Treatment Regimen Based on Clinical Practice Guidelines for a Hypothetical 79-Year-Old Woman With Hypertension, Diabetes Mellitus, Osteoporosis, Osteoarthritis, and COPD*

Time	Medications†	Other
7:00 AM	Ipratropium metered dose inhaler 70 mg/wk of alendronate	Check feet Sit upright for 30 min on day when alendronate is taken Check blood sugar
8:00 AM	500 mg of calcium and 200 IU of vitamin D 12.5 mg of hydrochlorothiazide 40 mg of lisinopril 10 mg of glyburide 81 mg of aspirin 850 mg of metformin 250 mg of naproxen 20 mg of omeprazole	Eat breakfast 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
12:00 PM		Eat lunch 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
1:00 PM	Ipratropium metered dose inhaler 500 mg of calcium and 200 IU of vitamin D	
7:00 PM	Ipratropium metered dose inhaler 850 mg of metformin 500 mg of calcium and 200 IU of vitamin D 40 mg of lovastatin 250 mg of naproxen	Eat dinner 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
11:00 PM	Ipratropium metered dose inhaler	
As needed	Albuterol metered dose inhaler	

PMH: Htn, Dm2,
Osteoporosis
Osteoarthritis, COPD

Medications

- 12 medications
- 19 doses
- 5 times per day

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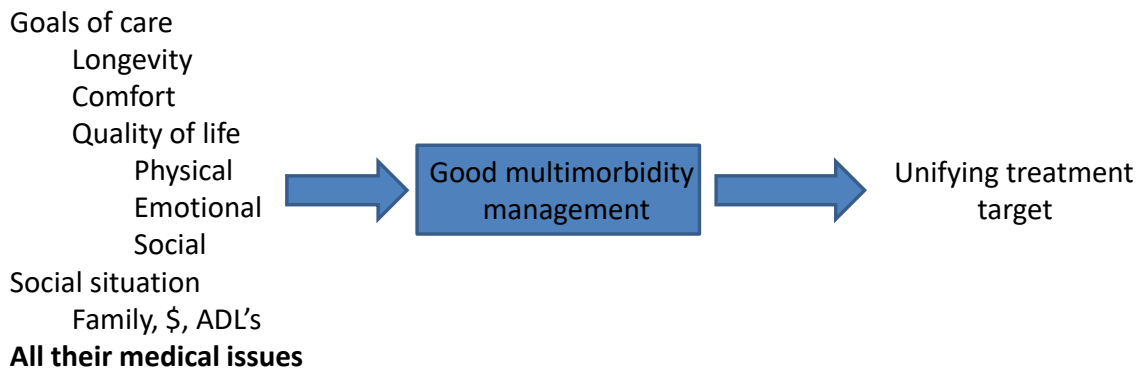
Patient perspective

- Patient perspective
 - Burdens family and social life
 - Interferes with work
 - Forces negotiations between health care professionals
 - 22 identified self management skills
 - Monitor symptoms, using medications, adjusting to disability, manage emotions, improve sleep, manage pain

Ortenblad L. Multimorbidity a patient perspective. Chronic Illness. Dec 2018
 Noel. JGIM Dec 2007

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The goal of multimorbidity management



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Current response to multimorbidity

- AGS guideline summary
 - 2010 Multimorbidity Guiding Principles
 1. Elicit patient preferences
 2. Interpret the evidence
 3. Evaluate patient prognosis
 4. Clinical Feasibility
 5. Optimize therapy and care plan

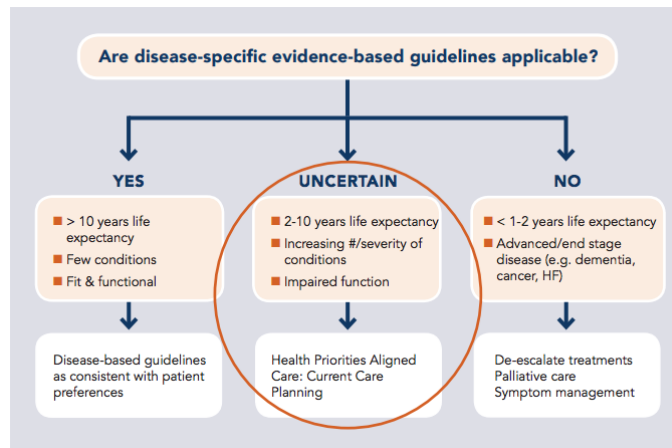
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Current response to multimorbidity

- AGS guideline summary
 - 2019 Multiple Chronic Conditions Action Steps
 1. Identify and communicate patient's health priorities and health trajectory
 2. Decide: start, stop or continue care based on health priorities, benefits vs harms and trajectory
 3. Align decisions among patient, caregivers and clinicians

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Current issues in multimorbidity



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Other guidelines

- NICE (National Institute for Health Care Excellence) Sept 2016
- AGS Beers List 2019
- Stop Start Polypharmacy guideline 2015
- SIGN Polypharmacy guideline (Scottish Intercollegiate Guideline Network) 2018

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Simplified framework

1. Patient framework
2. Disease framework
3. Integrating the two into a care plan

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Proposed multimorbidity framework

Disease and treatment effects	Patient goals
What are the outcomes?	What matters most to the patient?
What is the time frame to benefit?	What is the time frame of the patient?
What are the risks and side effects?	How tolerable are side effects?
How likely is it to achieve a benefit?	How well can they handle complex care?

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Patient factors-1. Goals of Care

1. What matters most? (goals of care)
 - Longevity
 - Function
 - Quality of life
 - Physical
 - Social
 - Emotional well being
 - Treatment preferences

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Patient factors-2. Time frame

2. What is the time frame for the patient?
 - What time frame matters most to the patient?
 - (now or later?)
 - What should be their current time frame?
 - (prognosis)

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Patient factors-4. Ability to handle care

4. How well can they handle complex care?
 - Multiple physicians, tests, medications, self care techniques
 - Avoid treatments with diminishing returns
 - Prioritize effective interventions over less effective interventions

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Diseases and treatment

1. Clinical outcomes
2. Time frame to benefit
3. Risks
4. Efficacy

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1. Understanding clinical outcomes

1. Hard clinical outcomes
 - Death or hospitalization
 - CV events (MI/CVA-fatal/non fatal)
 - Function
 - ADL's/iADL's, gait, independence, falls
 - Quality of life
 - Comfort, dyspnea
- No biomarkers/proxies
 - A1C, BP, LDL (it gets worse)

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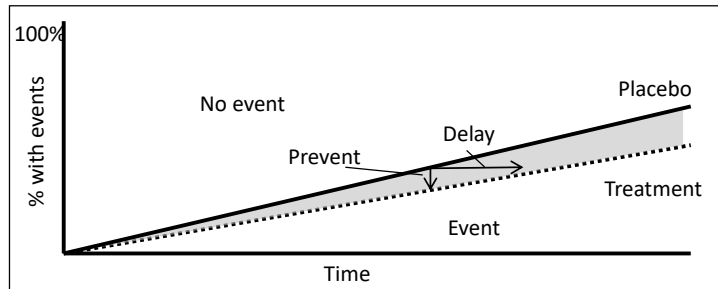
2. Understanding time to benefit

- Will it help the patient now?
- Will it help the patient later?
- Sei Lee et al. Incorporating Lag Time to Benefit Into Prevention Decisions for Older Adults. JAMA 2013

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3. Understanding efficacy

- Visual representation of efficacy



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3. Understanding efficacy

- NNT-Number needed to treat
 - NNT 50 to prevent 1 event over 4 years with a 25% RRR
 - 1 person will have an event prevented
 - 3 persons will have events regardless of treatment
 - 46 persons will not have an event regardless of treatment

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Disease comparison

	Hypertension	Hyperlipidemia	DM 2	Systolic CHF
Outcome				
Time frame				
Risks				
Efficacy				

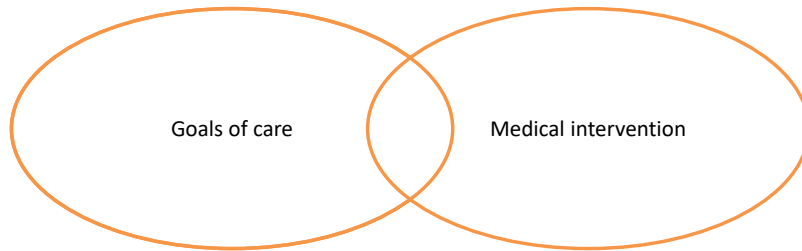
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Disease comparison

	Hypertension	Hyperlipidemia	DM 2	Systolic CHF
Outcome	Mortality CHF Stroke	Non fatal MI (not stroke)	New microaneurysm	Death, DOE, hospitalizations
Time frame	2-3 years	2-3 years	10+ years	3-9 months
Risks	Low to mod	Low	High	Low to mod
Efficacy	40's	40's	30's	10-20

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Shared Decision Making



Model	Goals of care	Medical intervention
Paternalism	Physician Decides	Physician Decides
Informed Consent	Patient	Patient
Collaborative	Shared	Shared
Agent	Patient	Physician
Dysfunctional	Physician	Patient
Avoidant	No one	Everyone

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Prioritizing diseases

- 1. Acute disease/Chief complaints**
 - Infections, acute organ dysfunction (MI, AKI, Hypoxia, CHF)
 - Any chief complaint
- 2. Geriatric syndromes**
 - Falls, delirium, unintentional weight loss
- 3. Chronic diseases**
 - Symptomatic chronic diseases
 - COPD, Depression, CHF, osteoarthritis
 - Asymptomatic chronic diseases
 - Afib, Htn>HL, osteoporosis>>>>DM2 (tight control)
- 4. Primary prevention**
 - Cancer screening
 - Exercise and diet (maybe always a priority?)

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Multimorbidity tools

- Defining patient goals
 - Goals of care
 - Time frame
 - Ability to handle complexity
 - A target feasibility
- Lumping problems
 - Syndromes
- Polypharmacy lens

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Multimorbidity management toolbox

1. Set a unifying treatment target
 - Function, longevity, QOL, simplicity, cost
2. Prioritize medical issues
 - Prioritize treatments
3. Set appropriate treatment targets
4. Simplify

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Vignette #1

- 83 yo woman with mod dementia and diabetes
 - GOC is comfort more than longevity. Along with keeping her as functional as possible.
 - 5 year life expectancy
- What is her ideal A1C? And why?

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Vignette #2

- 85 yo man who lives alone and has Hx CVA, Hx MI, Depression, COPD, Dm2, Htn, HLD, Osteoporosis
 - She wants to stay as independent as possible
- What do you ignore?

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Conclusion

- Focus on goals of care (unifying goal)
- Prioritize diseases and treatments
 - By outcomes, time frame and efficacy
- Pick treatment targets
- Integrate into a care plan that is simple

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