Managing the Palliative Care Patient with Multiple Chronic Conditions: Guiding Principles

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UCSF Division of Geriatrics
Overview

• Describe trends in multimorbidity in the U.S.
• Understand the impact of multimorbidity on illness burden
• Reflect on our need for evidence
• Think on how to better provide better care
  – Guiding principles
  – Systems change
• Thoughts on how to apply these principles now
  – Within one setting
  – Across settings
• “I am not resigned”
The many faces of multimorbidity

- 80 YO with sarcoma, heart failure, kidney failure, severe pain, and existential crisis
- 70 YO who is bedbound with vascular dementia, renal insufficiency, lower extremity paraplegia s/p AAA repair with recurrent hospitalizations for anemia and... an exhausted caregiver
- 54 YO with metastatic breast cancer, depression, and chronic pain
Rise in Chronic Diseases 2003-2023

- Cancers: 62%
- Mental Disorders: 54%
- Diabetes: 53%
- Heart Disease: 41%
- Hypertension: 39%
- Pulmonary Conditions: 31%
- Stroke: 29%

Population Growth = 19%

Milken Institute 2007
Population Aging

- Best practice life expectancy (the highest value recorded in a national population) has increased 3 mo/yr since 1840

Christensen K et al Lancet 2009;374:1196
### Population Aging

<table>
<thead>
<tr>
<th>Age Group</th>
<th>1850-1900 (%)</th>
<th>1900-25 (%)</th>
<th>1925-50 (%)</th>
<th>1950-75 (%)</th>
<th>1975-90 (%)</th>
<th>1990-2007 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14 yrs</td>
<td>62.13</td>
<td>54.75</td>
<td>30.99</td>
<td>29.72</td>
<td>11.20</td>
<td>5.93</td>
</tr>
<tr>
<td>15-49 yrs</td>
<td>29.09</td>
<td>31.55</td>
<td>37.64</td>
<td>17.70</td>
<td>6.47</td>
<td>4.67</td>
</tr>
<tr>
<td>50-64 yrs</td>
<td>5.34</td>
<td>9.32</td>
<td>18.67</td>
<td>16.27</td>
<td>24.29</td>
<td>10.67</td>
</tr>
<tr>
<td>65-79 yrs</td>
<td>3.17</td>
<td>4.44</td>
<td>12.72</td>
<td>28.24</td>
<td>40.57</td>
<td>37.22</td>
</tr>
<tr>
<td>&gt;80 yrs</td>
<td>0.27</td>
<td>-0.06</td>
<td>-0.03</td>
<td>8.07</td>
<td>17.47</td>
<td>41.51</td>
</tr>
</tbody>
</table>

Age-specific contributions to increase in record life expectancy in women*

- Life expectancy initially related to decreases in infant mortality
- Since the 50’s, mortality rates for 80+ has continued to fall

Christensen K et al Lancet 2009;374: 1196
Growth in Multimorbidity

Figure 1. Prevalence of two or more of nine selected chronic conditions among adults aged 45 and over, by age and sex: United States, 1999–2000 and 2009–2010

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>45–64</td>
<td>16.1</td>
<td>121.0</td>
<td>15.2</td>
<td>120.6</td>
<td>16.9</td>
<td>121.3</td>
</tr>
<tr>
<td>65 and over</td>
<td>37.2</td>
<td>145.3</td>
<td>39.2</td>
<td>149.0</td>
<td>35.8</td>
<td>142.5</td>
</tr>
</tbody>
</table>

\(^1\)Significantly different from 1999–2000, \(p < 0.05\).

NOTE: Access data table for Figure 1 at: http://www.cdc.gov/nchs/data/databriefs/db100_tables.pdf#1.

SOURCE: CDC/NCHS, National Health Interview Survey.

Fried VM et al. NCHS Data Brief; #10. July 2012
Chronic **Serious** Illness

• Longer survival with advanced disease
• High illness and symptom burden
• Management complexity increased
  – Patient/caregiver fatigue
  – Ongoing financial stressors from serious illness
  – Multiple providers
  – Dynamic goals and treatment preferences
  – Conflicting/interacting treatment regimens
Impact of Multimorbidity on Function: Joint Effects of Two Diseases

• Risk of Mobility Disability
  – Heart Disease Only: OR = 2.3
  – Arthritis Only: OR = 4.3
  – Both Heart Disease and Arthritis: OR = 13.6

NHANES III
Ettinger et al;

From Fried L, NIA Comorbidity Conference 2005
Multimorbidity and Function: 3-year decline in physical functioning

## Multimorbidity and symptom burden

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N = 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Age (SD)</td>
<td>74.77 (6.49)</td>
</tr>
<tr>
<td>Gender (% Female)</td>
<td>52.3%</td>
</tr>
<tr>
<td>Race (% African American)</td>
<td>47.7%</td>
</tr>
<tr>
<td>Urban / Rural (% Rural)</td>
<td>49.4%</td>
</tr>
<tr>
<td><strong>Physical Symptoms</strong></td>
<td></td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>35.0%</td>
</tr>
<tr>
<td>Feeling tired or fatigued</td>
<td>47.9%</td>
</tr>
<tr>
<td>Problems with balance or dizziness</td>
<td>35.0%</td>
</tr>
<tr>
<td>Weakness</td>
<td>38.8%</td>
</tr>
<tr>
<td>Constipation</td>
<td>36.2%</td>
</tr>
<tr>
<td>Daily pain</td>
<td>38.5%</td>
</tr>
<tr>
<td>Pain limiting activities</td>
<td>41.0%</td>
</tr>
<tr>
<td>Stiffness</td>
<td>49.0%</td>
</tr>
<tr>
<td>Sleepiness</td>
<td>32.2%</td>
</tr>
<tr>
<td>Poor appetite</td>
<td>17.2%</td>
</tr>
<tr>
<td><strong>Affective Symptoms</strong></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>35.9%</td>
</tr>
<tr>
<td>Anhedonia</td>
<td>36.5%</td>
</tr>
<tr>
<td>Tense or high strung</td>
<td>36.8%</td>
</tr>
</tbody>
</table>

Ritchie et al. Medical Care, 2012
## Multimorbidity and symptom burden

<table>
<thead>
<tr>
<th>Mean Total Number of Symptoms (SD)</th>
<th>4.80 (3.40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Symptoms</td>
<td>10.0%</td>
</tr>
<tr>
<td>1-2 Symptoms</td>
<td>10.9%</td>
</tr>
<tr>
<td>3-4 Symptoms</td>
<td>20.3%</td>
</tr>
<tr>
<td>5-6 Symptoms</td>
<td>16.6%</td>
</tr>
<tr>
<td>7-8 Symptoms</td>
<td>15.4%</td>
</tr>
<tr>
<td>9-10 Symptoms</td>
<td>10.2%</td>
</tr>
<tr>
<td>10+ Symptoms</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

### Verified Comorbidities (Charlson)

<table>
<thead>
<tr>
<th>Mean Number of Symptoms (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Comorbidities</td>
</tr>
<tr>
<td>3-4 Comorbidities</td>
</tr>
<tr>
<td>5+ Comorbidities</td>
</tr>
<tr>
<td>All</td>
</tr>
</tbody>
</table>

Ritchie et al. Medical Care, 2012
Multimorbidity and depressive symptoms

Penninx et al. J Psychosom Res 1996;40:521-534; Adapted from Kriegsman D, NIA Comorbidity Conference, 2005
Multimorbidity and hospitalizations

Potential Preventable Hospitalizations Per 1000 Beneficiaries

Number of Chronic Conditions

Wolff, J. NIA Comorbidity Conference, 2005
# Multimorbidity: Medicare Expenditures

<table>
<thead>
<tr>
<th>Number of Chronic Conditions</th>
<th>Percent of Beneficiaries 65+</th>
<th>Percent Medicare Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7+</td>
<td>2</td>
<td>14</td>
</tr>
</tbody>
</table>

# Multimorbidity: Medicare Expenditures

<table>
<thead>
<tr>
<th>Number of Chronic Conditions</th>
<th>Mean Medicare Expenditures Per Beneficiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$211</td>
</tr>
<tr>
<td>1</td>
<td>$1,015</td>
</tr>
<tr>
<td>2</td>
<td>$1,870</td>
</tr>
<tr>
<td>3</td>
<td>$3,204</td>
</tr>
<tr>
<td>4</td>
<td>$5,246</td>
</tr>
<tr>
<td>5</td>
<td>$8,159</td>
</tr>
<tr>
<td>6</td>
<td>$11,948</td>
</tr>
<tr>
<td>7+</td>
<td>$23,825</td>
</tr>
</tbody>
</table>

Multimorbidity, guidelines and impact on Care: Same Target A1c / BP?

45 yo DM2 only

89 yo DM2, AD, deaf, blind, HTN, CAD, CHF, HTN, OA, OP, COPD, (acronym soup)
Complexity and Clinical Guidelines

Clinical Practice Guidelines and Quality of Care for Older Patients With Multiple Comorbid Diseases
Implications for Pay for Performance

Cynthia M. Boyd, MD, MPH
Jonathan Darer, MD, MPH
Chad Boult, MD, MPH, MBA
Linda P. Fried, MD, MPH
Lisa Boult, MD, MPH, MA
Albert W. Wu, MD, MPH

Context Clinical practice guidelines (CPGs) have been developed to improve the quality of health care for many chronic conditions. Pay-for-performance initiatives assess physician adherence to interventions that may reflect CPG recommendations.

Objective To evaluate the applicability of CPGs to the care of older individuals with several comorbid diseases.

Data Sources The National Health Interview Survey and a nationally representative sample of Medicare beneficiaries (to identify the most prevalent chronic diseases in this population); the National Guideline Clearinghouse (for locating evidence-based CPGs for each chronic disease).
CPG for the Complex Multimorbid Patient

• Hypothetical patient: 79 year old woman with 5 chronic conditions of moderate severity: COPD, HTN, DM, Osteoporosis, OA

• Generated an aggregate treatment regimen

Boyd et al. JAMA 2005
<table>
<thead>
<tr>
<th>Time</th>
<th>Medications</th>
<th>Non-pharmacologic Therapy</th>
<th>All Day</th>
<th>Periodic</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 AM</td>
<td>Ipratropium MDI, Alendronate 70mg weekly</td>
<td>Check feet, Sit upright 30 min. Check blood sugar</td>
<td>Joint protection, Energy conservation</td>
<td>Pneumonia vaccine, Yearly influenza vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exercise (non-weight bearing if severe foot disease, weight bearing for osteoporosis)</td>
<td>All provider visits: Evaluate Self-monitoring blood glucose, foot exam and BP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Muscle strengthening exercises, Aerobic Exercise ROM exercises</td>
<td>Quarterly HbA1c, biannual LFTs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Avoid environmental exposures that might exacerbate COPD</td>
<td>Yearly creatinine, electrolytes, microalbuminuria, cholesterol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.4gm Na, 90mm K, Adequate Mg, ↓ cholesterol &amp; saturated fat, medical nutrition therapy for diabetes, DASH</td>
<td>Referrals: Pulmonary rehabilitation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Diet as above</td>
<td>Physical Therapy</td>
</tr>
<tr>
<td>8 AM</td>
<td>Eat Breakfast, HCTZ 12.5 mg, Lisinopril 40mg, Glyburide 10 mg, ECASA 81 mg, Metformin 850mg, Naproxen 250mg, Omeprazole 20mg, Calcium + Vit D 500mg</td>
<td>Diet as above</td>
<td>Avoid environmental exposures that might exacerbate COPD</td>
<td>DEXA scan every 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3800-4800$ per year out of pocket.</td>
<td>Yearly eye exam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wear appropriate footwear</td>
<td>Medical nutrition therapy</td>
</tr>
<tr>
<td>12 PM</td>
<td>Eat Lunch, Ipratropium MDI, Calcium+ Vit D 500 mg</td>
<td></td>
<td>Albuterol MDI prn</td>
<td>Patient Education: High-risk foot conditions, foot care, foot wear</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limit Alcohol</td>
<td>Osteoarthritis</td>
</tr>
<tr>
<td>5 PM</td>
<td>Eat Dinner</td>
<td></td>
<td>Maintain normal body weight</td>
<td>COPD medication and delivery system training</td>
</tr>
<tr>
<td>7 PM</td>
<td>Ipratropium MDI, Metformin 850mg, Naproxen 250mg, Calcium 500mg, Lovastatin 40mg</td>
<td></td>
<td>Courtesy of C. Boyd</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>11 PM</td>
<td>Ipratropium MDI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Gaps in evidence
Selective Exclusions

- Study of phase III or IV RCTs published in 2007

- Exclusion over a certain age (20%)

- Exclusion criteria that may disproportionately affect older adults
  - Physical disability or functional limitations (18%)
  - Decreased life expectancy (22%)
  - Inability to give informed consent (11%)
  - Age-related cognitive impairment (5.5%)
Selective Exclusions

• Review of all RCTs from Jan-March in 4 separate years in the 5 highest IF journals

• Polypathology was excluded in
  – 63% of the 284 RCTs identified
  – 90% of the 200 RCTs that mentioned coexisting diseases
  – 94% of the 190 RCTs that considered polypathology as part of the selection process.

How can we provide better palliative care for those with multimorbidity?

• At the person level
• At the system level
Guiding Principles at the Person Level

• Seek to understand the person and their preferences

• Characterize prognosis

• Address illness burden, treatment complexity and feasibility
Seek to Understand Patient Preferences

• Patient preferences/values
  – In the context of culture, beliefs, family

  – Prioritize universal health outcomes:
    • living as long as possible,
    • maintaining function, and
    • alleviating pain and other symptoms

I would rather die than take a treatment that causes:

- functional impairment: 74% / 26%
- cognitive impairment: 88% / 12%
Characterize Prognosis

• Prognosis informs decisions about:
  – disease prevention or treatment
  – disease screening
  – a change in a patient’s clinical status
  – health service utilization

• But is made in the context of uncertainty

www.eprognosis.org

Assess and cultivate prognostic awareness

Assess
• What’s your sense of how you are doing?
• What is your sense of what the future holds?
• What has your team told you about your illness and what to expect?
• How worried are you about your illness? What worries you the most?

Cultivate
• Have you ever had times when you think about what it might be like if you got sicker?
• I wonder if we should think about what it would be like if you got sicker. It might be good just to prepare in the event that did happen.
Illness burden and treatment complexity

“When you’re not all that great, doing it, following this regimen can be sort of a drag. Especially the pill taking…and making sure I take the right ones”

“Like, ‘Take the medicine. It's going to feel good.’ She will then. She said, ‘No, no, no my stomach is bothering.’ So the doctors said, ‘No, you take the medicine,’ and they gave her, ‘You take this medicine in the morning. And then take another Tylenol at night. That's going to help.”
Treatment Complexity and Feasibility

• Treatment complexity
  – Steps in the task
  – Number of choices
  – How long it takes
  – Information consent
  – Intervening distracting tasks

• Feasibility
  – Cognition or literacy
  – Resource limitations

Nolan TW. BMJ. 2000 March 18; 320(7237): 771–773
Address Treatment Complexity, Feasibility, and Burden

- Treatment burden

Fried et al. NEJM 2002: 346 (14): 1061
Change Care Delivery at the System Level

✓ Delivery system re-design targeted to the highest-risk populations-- those with advanced disease and/ functional impairment-- key to success at improving quality and the patient/family experience.

✓ Training and skills- early integration of palliative care and geriatrics
Palliative Care - Dynamic, Not Linear...

...For when illness burden impacts the person or their loved one
How should we envision a rational health care system for those with complex serious illness?

- Primary Care in the home or in the clinic (always)
- Specialty Care (often)
- Palliative Care Geriatrics Hospice (most times)

Interprofessional Care
What works?

Seven critical success factors:
1. Primary care physicians are in control
2. Clinicians are paid for quality not quantity via risk sharing
3. All-payer rate standardization
4. Regionalization of costly services
5. Limits on supply/capacity for costly services
6. Primary physicians follow their patients in the hospital
7. **There are well integrated palliative care and hospice services**

Bodenheimer T, West D. NEJM 2010; 363:1391-93
Common Gaps in Palliative Care

Opportunities for better multimorbidity care across the continuum

- Outpatient care
- Home care
- Long term care
Outpatient Complex Illness Care

Survival Functions

Median Survival
Early palliative care
11.6 mo
Standard care
8.9 mo
p=0.02

Home care

• RCT of home-based palliative care vs usual care for 297 advanced COPD and CHF patients

• 91% vs 83% satisfaction

• Reduction in ED visits and hospital days

Brumley et al. JAGS, 55: 2007
Long term care

- Two RCTs and one controlled before-and-after study were included (735 participants)
- Higher satisfaction with care
- Lower observed discomfort
- Higher referral to hospice services in the intervention group

Hall S et al. Cochrane Database of Reviews, 2011
Case Study: The California Blue Shield Global Budget Pilot Project

• Pilot ACO in Sacramento area for 41,000 California Public Employees’ Retirement System (CalPERS) employees/dependents enrolled in a Blue Shield HMO

• Focused review of the 5,000 patients accounting for 75 percent of total health care costs

Blue Shield Pilot Strategies

• Coordinate pre- and postdischarge planning processes to avoid delays and readmissions
• Personalize care and disease management
• Develop a comprehensive palliative care program across hospital, physicians, and care managers to engage patients and their families in end-of-life decisions
• Implement home-based medical care for high-risk, frail, elderly patients to improve their quality of life

Blue Shield Pilot Project Outcomes

- Health care costs for CalPERS members \(\downarrow\)1.6 \% from the 2009 baseline amount (nonmembers: \(\uparrow\) 9.9 \% from 2009)
- Inpatient days for CalPERS members \(\downarrow\)12.1 \% (nonmembers: \(\uparrow\) 2.5\%)
- Hospital readmissions within 30 days of discharge \(\downarrow\) 15 \%, from an already low 5.4 percent
- Extended hospital stays—those of twenty days or longer—\(\downarrow\) 50 \%

Education in basic palliative care skills

• Advance care planning

• Communication skills (e.g. giving bad news; empathic opportunities)

• Symptom assessment/management

Take Home Messages

• Multimorbidity needs to be addressed at the person and system level

• Person level: “seek to understand,” characterize prognosis and address illness/treatment burden

• System level: integrate palliative illness care across the care continuum

• Personal level: persevere, push on, struggle together
“I am not resigned”