Patient Centered Care for People with Multimorbidity

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“Treating an Illness Is One Thing. What About a Patient With Many?”

New York Times, March 31, 2009

Image: Brendan Smialowski for the New York Times
It’s Not Easy Living with Multimorbidity

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

Boyd et al. JAMA 2005;294:716-724
Care Maps

http://durgastoolbox.com/2012/09/19/durga-tool-9-my-care-map-or-the-picture-that-tells-a-thousand-words/
How Applicable are Clinical Practice Guidelines (CPGs) for People with Multimorbidity?

- Reviewed 9 CPGs for chronic conditions
- Most single disease CPGs fail to give adequate guidance for older patients with multimorbidity

<table>
<thead>
<tr>
<th>Issue</th>
<th>Is Criteria Addressed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>Limited</td>
</tr>
<tr>
<td>Quality of Evidence</td>
<td>Limited</td>
</tr>
<tr>
<td>Specific recommendations</td>
<td>Most address treatment of index disease in presence of single other conditions</td>
</tr>
<tr>
<td>Time needed to treat</td>
<td>Limited</td>
</tr>
<tr>
<td>Quality of life</td>
<td>Limited</td>
</tr>
<tr>
<td>Trade-offs in goals of therapy</td>
<td>Not at all</td>
</tr>
<tr>
<td>Patient preferences</td>
<td>Limited</td>
</tr>
<tr>
<td>Burden</td>
<td>Limited</td>
</tr>
</tbody>
</table>

Boyd et al. JAMA 2005;294:716-724
Canadian Guidelines

- 16 guidelines assessed
- 56.2% of guidelines addressed treatment for patients with multiple chronic conditions
- 18.8% addressed the issue for older patients.
- 93.8% included specific recommendations for patients with one concurrent condition
- only three guidelines (18.8%) addressed specific recommendations for patients with two comorbid conditions, only one for more than two concurrent comorbid conditions.

Fortin et al. BMC Family Practice 2011
Canadian Guidelines

10 CPGs reviewed
• 8 mentioned people with comorbidities
• 4 indicated the time needed to treat to benefit in the context of life expectancy
• 5 discussed barriers to implementation
• 7 discussed the quality of evidence.

Mutaswinga et al. Canadian Family Physician
July 2011 vol. 57 no. 7 e253-e262
Is this only relevant for the older population?
### Multimorbidity is Common

Percentage of Major Chronic Disease in Isolation Among Women Aged 65 or Older: NHANES, 1999-2004

<table>
<thead>
<tr>
<th></th>
<th>Arthritis</th>
<th>Coronary Heart Disease</th>
<th>Chronic Lower Respiratory Tract Disease</th>
<th>Diabetes</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with only 1 disease of 5 possible diseases</td>
<td>47%</td>
<td>17%</td>
<td>19%</td>
<td>17%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Weiss CO et al. JAMA 2007;298:1160-1162
Prevalence of Comorbidities in Adults with Coronary Heart Disease Aged ≥ 45 in NHANES, 1999-2004

Boyd et al. JAGS 2011 May;59(5):797-805
Multimorbidity in primary care and general practice

Multimorbidity and age

Prevalence (%) vs. Age (yr)

In Scotland, people living in more deprived areas develop multimorbidity 10 years before those living in affluent areas.

Living with MCCs

• Affects quality of life, functional status, ability to get a job and work, and life expectancy
• Receive care that often is fragmented, incomplete, inefficient, and ineffective
• Have higher healthcare costs and utilization rates

(Chronic Conditions among Medicare Beneficiaries, CMS Chartbook 2012)
So what is patient-centered care for people with multimorbidity?
Patient-Centered Care

• “It may be most commonly understood for what it is not—technology centred, doctor centred, hospital centred, disease centred.”
  – Stewart M  *BMJ* 2001;322:444

Key Elements:

• patients' concerns and need for information;
• integrated understanding of the patients' world
• common ground on issue and management
• prevention and health promotion;
• continuing relationship
Conceptual Framework

Comorbidity

Comorbid Disease

Index Disease

Comorbid Disease

Comorbid Disease

Multimorbidity

Condition

Condition

Condition

Condition

Patient

Boyd, CM, Fortin M. Public Health Reviews, 2011.
What Do Clinicians Need to Best Care for the People with Multimorbidity?

• Maximize use of therapies likely to benefit patients with multimorbidity

• Minimize use of therapies unlikely to benefit or likely to harm patients with multimorbidity

• Incorporate patient preferences and values regarding burdens, risks, and benefits
How do we get the evidence base we need to support patient-centered care?
Development of a Preliminary Framework for Guidelines That Are More Applicable to People with Multiple Chronic Conditions

Three Domains:

- Stakeholders: e.g. guideline developers, methodologists, clinicians, multimorbidity, government
- **Ultimate Goal**: Prioritization within, and across, diseases for what is most likely to benefit an individual patient

Uhlig et al., Trikalinos et al, Weiss et al, Boyd and Kent JGIM In Press 2013
The Evidence Base

- Are participants representative of the actual population (often multimorbid)
- the number of trials with explicit age exclusions ↓
  - While trial enrollment of older patients ↑,
    - still well below levels that older patients are affected
- number of heart failure trials excluding participants with specific comorbidities ↑ from 1985 to 1999
- exclusion/inclusion criteria less important than who is the “average” patient in a trial
  Kravitz R et al. *Milbank Quarterly* 82: Dec 2004
  Kent and Kitsios, *Trials* 2009
Diabetes trials

% of trials excluding patients with specific comorbidities

- Renal Insufficiency
- Liver Insufficiency
- Insulin Therapy
- Coronary Artery Disease
- Type I Diabetes
- Serious concomitant diseases (unspecified)
  - Age > 65
  - Age < 40
- Diabetic nephro-, retino- or neuropathy
- Hypertension
- Cardiac disease (unspecified)
- Cancer (unspecified)
- Oral steroid use
- Unable to exercise (unspecified)
- Heart Failure
- Anemia
- Musculoskeletal diseases or disabilities
- Psychiatric illness
- Peripheral vascular disease
- Neurologic disabilities
- COPD or Emphysema
- Impaired mental status
Steps of Guideline Development

1 and 2: Choosing Topics

3: Commissioning Work Group and Process

4 and 5: Refining Questions, Choosing and Ranking Important Outcomes

6: Systematic Reviews

7 and 8: Grading quality of evidence and applicability

9. Summarizing benefits and harms

10. Formulating recommendations and Grading Strength

11. Implementation/evaluation

(GRADE, NICE, USPSTF, IOM)
Choosing Topics

• Prevalence
• Important interactions
  – condition-condition
  – condition-treatment
  – treatment-treatment
• ? evidence
Framework for Considering Comorbid Conditions

**Concordant conditions:**
- same overall pathophysiologic risk profile
- shared disease management plan

**Discordant conditions:**
- not directly related in either their pathogenesis or management

(Piette JD and Kerr EA Diabetes Care 29:725-731, 2006)
Choosing Topics: Focus

Index Condition
Choosing Topics: Focus

- **Comorbid Condition**
- **Index Condition**
- **Comorbid Condition**
- **Comorbid Condition**
Choosing Topics: Focus

Comorbid Condition

Index Condition

Comorbid Condition

Comorbid Condition

Morbidity/Risk

Index Condition/Risk
Choosing Topics: Focus

Comorbid Condition

Index Condition

Comorbid Condition

Comorbid Condition

Morbidity/Risk

Index Condition/Risk

Condition

Condition
Choosing Topics: Focus

Comorbid Condition

Index Condition

Comorbid Condition

Comorbid Condition

Morbidity/Risk

Index Condition/Risk

Condition
Condition
Condition
Choosing Topics: Focus
Steps of Guideline Development

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7 and 8: Grading quality of
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9. Summarizing benefits and
   harms
10. Formulating
    recommendations and
    Grading Strength
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(GRADE, NICE, USPSTF, IOM)
Addressing Comorbidities in Guideline Questions

**Population:** Define conditions of interest

**Intervention and Comparators:** effect modification

**Outcomes:** choice & ranking of relevant outcomes

- harms, burdens, benefits
- non-disease specific and disease specific
- linkage between surrogate and clinical outcomes

“Effect of treatment on the final outcome may be small even if there are strong associations between treatment and the surrogate and between the surrogate and the patient-important outcome”

Walter SD et al 2012 Sep;65(9):940-5

**Timeframe for considering outcomes:**

- risk prediction
- tradeoffs
Personalized Decisions

Do Screen

Likelihood of Benefit

Patient Preferences (moveable fulcrum)

Don’t Screen

Likelihood of Harm

Slide Courtesy of Louise Walter, UCSF
• Net benefit of multiple interventions under consideration can be compared

• Ultimately can allow for prioritization with an individual patient
Approach to the Evaluation and Management of Older Adults with Multimorbidity: Guiding Principles

• Patient Preferences
• Interpreting the Evidence
• Prognosis
• Treatment Complexity and Feasibility
• Optimizing Therapies and Care Plans

http://www.americangeriatrics.org/health_care_professionals/clinical_practice/multimorbidity
Patient-Centered Care

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Multiple Chronic Conditions in Context

Moving from “What is the matter?” to

“What Matters to You?”

NIH/PCORI Meeting on Multiple Chronic Conditions in Context, Feb. 2013
Self-Management

• One quarter of high risk older adults with multiple chronic conditions who were invited to participate in Chronic Disease Self-Management attended 5 sessions

Dattalo M et al Medical Care 2012
Role of Family/Friends: *Hidden in Plain Sight*

- 40% of older adults are routinely accompanied to medical visits
- Accompanied older adults are older, sicker, less educated, use more health services
- Visit companion: same person over time

Wolff JL and Roter DL. Social Science and Medicine, 72(6) 823-31. 2011.
Opportunities

• Companions assume varied behaviors that can help or hinder communication

• Most physicians struggle to adequately build a productive patient-family-provider partnership
  – Barriers include training, time and reimbursement, concerns about patient privacy

• Best methods to incorporate family in health care for chronic conditions?

Scholle SP. AHRQ, 2010.
Wolff JL and Roter DL. Social Science and Medicine, 72(6) 823-31. 2011.
Interventions for improving outcomes in patients with multimorbidity in primary care and community settings: Systematic review

Susan M Smith¹, Hassan Soubhi², Martin Fortin², Catherine Hudon², Tom O'Dowd³

¹HRB Centre for Primary Care Research, RCSI Medical School, Dublin
²Department of Family Medicine, University of Sherbrooke, Quebec
³Department of Public Health and Primary Care, Trinity College Dublin
Included studies

- Ten studies; all RCTs
  - 3407 patients
  - 8 in USA and 2 in UK
  - Majority 6-12 months
  - 8 included patients with broad range of conditions though elderly
  - 2 focused on co-morbidities

- Overall minimal risk of bias though consideration of contamination of control patients was generally inadequate
Results: Interventions

Interventions:
- 6 organisational
- 4 patient oriented

Multifaceted including:
- Case management
- Enhanced skill mix in teams
- Structured care provision
- Patient focused approaches such as self-care and self-management
Results: overview

• Variation in participants and interventions

• Co-morbidity vs multimorbidity
  – Problems with definitions and overlap with frailty
  – May need different interventions for different groups

• Timescale
  – Improvements in medication related measures

• Targeting risk factors or specific functional difficulties may be more effective
Summary

• Optimal decision-making and care for people with multimorbidity
  – Thinking beyond individual diseases
  – Incorporating the view and context of the patient (and family)
  – Considering Evidence
  – Facilitating patient-centered care within health care delivery

Boyd CM, October 2013
New York Times, March 31, 2009

Image: Brendan Smialowski for the New York Times
Thank you

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- Robert Wood Johnson Physician Faculty Scholars
- AHRQ R21 “Improving Clinical Practice Guidelines for Complex Patients” HS018597-01
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