The Complex Patient:  
Where do I Begin?

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I have no conflicts of interest with respect to any product or commercial interest.
Objectives

• Identify complex patients
• Explain the rationale for an interdisciplinary approach to care
• Describe evidence that interdisciplinary care benefits complex older patients
Identifying Complex Older Patients

- 85 years and older
- Complex biomedical, psychosocial problems
- Geriatric syndromes
- Frailty
How is the Complex/ Frail Patient Vulnerable?

• At risk for adverse outcomes under stress
• Adverse outcomes:
  • Mortality
  • Falls
  • Disability
  • Dependency
  • Delayed and incomplete recovery
  • Adverse outcomes during hospitalization
What Are Determinants of Health Outcomes?

• The disease(s)

• The underlying health status
Two 80 yr old women

• Walks daily and participates in Tai Chi 3x/wk
• BP of 180/80; started on Hctz.
• One month later her BP is 100/50 and she c/o a little dizziness

• No regular exercise
• BP of 180/80; started on Hctz.
• 1 week later fall sustains a hip fx in the ED her BP is 100/50
• Post-op confusion
• D/C to SNF for rehab
Case 3- 90 yr old man

• Lives alone found by friend on the floor next to his walker. States he stumbled.
• PHs: Diabetes, AMD, IHD, hs bladder CA. Wt loss from 170 to 158 over last 3 yrs. He has had 3 falls in the last year due to tripping.
• Soc hs: Wife died 5 yrs ago, has MOWs. Friends and family check on him
Case 3- In the ED

• Mildly dehydrated and cachexic
• Physical exam: diffuse weakness, muscle wasting, unable to stand or transfer, cognitively intact, changes of arthritis and osteoporosis.
• Admitted for rehydration and falls evaluation
Case 3- In the hospital

- Rehydrated IV and oral
- Falls evaluation negative for treatable problems
- PT unable to ambulate with walker; OT concern with transfer for self care tasks
- D/C to SNF
Case 3- In the SNF

- Slow progress, fair appetite
- After 3 weeks walks 30 feet
- Concerns re safety and self care
- D/C to ALF, still wants to go home
Frailty: Clinical and Subclinical

- Case 3: Low muscle mass, muscle wasting, weakness, low activity, hs of falls; loss of independence at admission
- Case 2: Onset of frailty with seemingly minor change in regimen, progressive problems and complications in hospital

L Fried, 2008
The Spectrum of Resilience & Frailty

- Vigorous
  - Not Frail
- Vulnerable
  - Poor recovery
  - Decompensates with minor stress
- Frailty Syndrome
  - Outcome = loss of independence
- End stage Frailty
  - Predeath
Frailty
What Is It?
Two Different Concepts

• The sum total of all the diseases places the patient at risk (Rockwood).

• Frailty is its own geriatric syndrome, with recognizable presentation and distinct etiology (Fried).
Clinical Manifestations of Frailty

- Sarcopenia - low muscle mass
- Weight loss, undernutrition
- Decreased strength and exercise tolerance
- Slowed motor processing and performance
- Decreased balance
- Low physical activity
- Cognitive vulnerability?
- Increase susceptibility to stress

Frailty occurs when multiple factors are present
Frailty: an operational definition

- Unintentional weight loss since age 60, or underweight
- Slow walking speed
- Weakness
- Exhaustion
- Low physical activity
Frailty: How common is it?

• About 11% of women age 70-79

What does it mean to Outcomes?

• More than twice as likely to die
• Almost twice as likely to have worsening ADL disability
• Greater risk of worsening mobility, falls and hospitalization
What is the rationale for an interdisciplinary approach to care of older persons?

It’s based in who they are and our need to communicate in order to provide the needed care.
Complex Older Patients

• 85 years and older
• Complex biomedical, psychosocial problems
• Geriatric syndromes
• Frailty
# Caring for Complex Older Patients

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<thead>
<tr>
<th>Complex biomedical</th>
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<tr>
<td></td>
<td>Nursing</td>
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<td>Physical Therapy</td>
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<td>Frailty</td>
<td>ALL</td>
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Usual Care

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**PATIENT**

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<th>Psych</th>
<th>PT/OT</th>
<th>Dietetics</th>
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Interdisciplinary Team Care

Evaluation

Patient Centered Discussion Around Individual Values & Goals

Care Plan
How to think about medication in the older complex patient
Medication Appropriateness Index

- Is there an indication for the drug?
- Is the medication effective for the condition?
- Is the dosage correct?
- Are the directions practical?
- Are there drug-drug interactions?
- Are there drug/disease interactions?
- Is there unnecessary duplication of drugs?
- Is the duration of therapy acceptable?
- Is this the least expensive compared with others of equal effectiveness?

[Will use of these drugs meet the patients goals]
Case Study

• An 85 year old man has hypertension, dementia, and advanced heart failure. Recent medication additions include furosemide and simvastatin.

• Remaining life expectancy is 2.2 yrs
• Time to benefit: >2 yrs unlikely to help
• Goals of Care: avoid invasive RX, maintain
• Treatment Targets: symptom management
Objective 3

What is the evidence that interdisciplinary care is of benefit to complex older patients?
Models with Evidence of Benefit

• Collaborative Care for Older Adults with Alzheimer Disease in Primary Care
• IMPACT: Improving Mood-Promoting Access to Collaborative Treatment
• Elder GRACE: Geriatric Resources for Assessment and Care
• PACE: Program of All Inclusive Care for the Elderly
Effectiveness of Collaborative Care for Older Adults With Alzheimer Disease in Primary Care: A Randomized Controlled Trial


Christopher M. Callahan, MD; Malaz A. Boustani, MD, MPH; Frederick W. Unverzagt, PhD; Mary G. Austrom, PhD; Teresa M. Damush, PhD; Anthony J. Perkins, MS; Bridget A. Fultz, MA; Siu L. Hui, PhD; Steven R. Counsell, MD; Hugh C. Hendrie, MB, ChB, DSc
Maintaining & Maximizing Function in AD

- AD results in multiple deficits
- AD evolves and changes over time
- Treating the whole person includes treatment for significant others
- Therefore treatment must be: 
  
  Holistic, Interdisciplinary & Individualized
Maintaining & Maximizing Function in AD

Modalities*
- Behavior
- Affect
- Sensory
- Imagery
- Cognition
- Interpersonal
- Medical

*Lazarus Model
Maintaining & Maximizing Function in AD

Modalities in Early AD

- **Behavior**- reinforcement, redirection, extinction
- **Affect**- relaxation, CBT, supportive psychotherapy
- **Sensory**- vision and hearing
- **Imagery**- low self esteem related to impairment
- **Cognition**- adapt services and therapies
- **Interpersonal**- family counseling and support
- **Medical**- medication and medical comorbidity

*Lazarus Model*
Maintaining & Maximizing Function in AD

Modalities in Later AD

• **Behavior**- structure & organizing to ↓ behaviors
• **Affect**- exercise, music, art therapy
• **Sensory**- pain assessment becomes complex
• **Imagery**- anticipate loss of ability to comprehend
• **Cognition**- *adapt services and therapies*
• **Interpersonal**- *family counseling and support*
• **Medical**- *medication and medical comorbidity*

*Lazarus Model*
464 Patients Assessed for Eligibility

258 Patients Ineligible
- 253 Did Not Have Alzheimer Disease
- 5 Did Not Have a Caregiver
- 53 Patients Refused Participation

74 Physicians Randomized (153 Patients)

37 Physicians Assigned to Augmented Usual Care (69 Patients)

37 Physicians Assigned to Intervention (84 Patients)
The Intervention: Collaborative Care

- Cholinesterase inhibitors
- Education on communication; caregiver coping; legal & financial; pt exercise; and a caregiver guide from the AD Association.
- Seen bimonthly, then monthly X 1 yr.
- Memory and Behavior Problems Checklist
- 8 protocols*: personal care, repetitive behavior, mobility, sleep disturbances, depression, agitation/aggression, delusions or hallucinations, & caregiver's physical health.
- If nonpharmacological failed, drug therapy for depression, agitation, sleep disturbance, or delusions

http://iucar.iu.edu/research/behavioralprotocols.html
The Intervention: Collaborative Care

• NP met weekly with a support team i.e. a geriatrician, geriatric psychiatrist, and a psychologist who reviewed the care of new and active patients

• Patients & caregivers also invited to participate in voluntary group session led by social psychologist focused on caregiver stress. Patients were taken to a nearby room for a group chair-based exercise class
Table 3. Group Comparison of Pharmacological Management

<table>
<thead>
<tr>
<th>Prescribed medication</th>
<th>Augmented Usual Care (n = 69)</th>
<th>Intervention (n = 84)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholinesterase inhibitors</td>
<td>38 (55.1)</td>
<td>67 (79.8)</td>
<td>.002</td>
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<tr>
<td>Memantine*</td>
<td>6 (8.7)</td>
<td>7 (8.3)</td>
<td>&gt; .99</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>19 (27.5)</td>
<td>38 (45.2)</td>
<td>.03</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>5 (7.3)</td>
<td>11 (13.1)</td>
<td>.29</td>
</tr>
<tr>
<td>Sedative-hypnotics</td>
<td>7 (10.1)</td>
<td>8 (9.5)</td>
<td>&gt; .99</td>
</tr>
<tr>
<td>No prescribed medications</td>
<td>1 (1.5)</td>
<td>1 (1.2)</td>
<td>&gt; .99</td>
</tr>
</tbody>
</table>

*All 13 patients prescribed memantine also received a cholinesterase inhibitor.
**Table 4. Clinical Outcomes**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Mean (SD) Score</th>
<th>Between-Group Difference (95% CI)</th>
<th>P Value</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Augmented Usual Care</td>
<td>Intervention</td>
<td></td>
</tr>
<tr>
<td>Total Patient Neuropsychiatric Inventory (range, 0-144)†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>13.4 (21.2)</td>
<td>10.5 (15.3)</td>
<td>-2.8 (-8.3 to 2.6)</td>
</tr>
<tr>
<td>6 mo</td>
<td>11.1 (16.4)</td>
<td>9.4 (12.9)</td>
<td>-1.1 (-5.4 to 3.1)</td>
</tr>
<tr>
<td>12 mo</td>
<td>16.1 (19.4)</td>
<td>8.0 (12.0)</td>
<td>-8.1 (-9.9 to -1.3)</td>
</tr>
<tr>
<td>18 mo</td>
<td>16.2 (18.7)</td>
<td>8.4 (10.2)</td>
<td>-7.4 (-9.9 to -1.2)</td>
</tr>
<tr>
<td>No. of Neuropsychiatric Inventory modules ≥1 (range, 0-12)†</td>
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<tr>
<td>Baseline</td>
<td>3.2 (2.8)</td>
<td>3.0 (2.7)</td>
<td>-0.2 (-1.0 to 0.7)</td>
</tr>
<tr>
<td>6 mo</td>
<td>2.9 (2.4)</td>
<td>2.7 (2.6)</td>
<td>-0.1 (-0.9 to 0.6)</td>
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<tr>
<td>12 mo</td>
<td>3.5 (2.7)</td>
<td>2.5 (2.5)</td>
<td>-0.7 (-1.5 to 0.01)</td>
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<tr>
<td>18 mo</td>
<td>3.6 (2.8)</td>
<td>2.3 (2.4)</td>
<td>-1.3 (-1.7 to -0.2)</td>
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<tr>
<td>Cornell Scale for Depression in Dementia (range, 0-38)†</td>
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<tr>
<td>Baseline</td>
<td>5.4 (5.9)</td>
<td>4.4 (4.9)</td>
<td>-1.1 (-2.8 to 0.6)</td>
</tr>
<tr>
<td>6 mo</td>
<td>5.2 (5.4)</td>
<td>4.3 (6.0)</td>
<td>-0.8 (-1.8 to 1.1)</td>
</tr>
<tr>
<td>12 mo</td>
<td>5.8 (5.9)</td>
<td>3.5 (3.9)</td>
<td>-1.0 (-2.6 to 0.5)</td>
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<tr>
<td>18 mo</td>
<td>5.4 (4.4)</td>
<td>4.2 (3.9)</td>
<td>-1.2 (-1.6 to 1.5)</td>
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<tr>
<td>Telephone Interview for Cognition (range, 0-41)‡</td>
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<tr>
<td>Baseline</td>
<td>17.1 (6.8)</td>
<td>17.9 (8.3)</td>
<td>0.8 (-2.0 to 3.6)</td>
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<tr>
<td>6 mo</td>
<td>16.0 (7.1)</td>
<td>16.9 (8.8)</td>
<td>-0.6 (-2.1 to 0.9)</td>
</tr>
<tr>
<td>12 mo</td>
<td>14.6 (8.2)</td>
<td>16.7 (8.9)</td>
<td>0.9 (-0.6 to 2.6)</td>
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<tr>
<td>18 mo</td>
<td>15.3 (9.0)</td>
<td>16.0 (9.5)</td>
<td>0.7 (-1.5 to 1.7)</td>
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</table>

*P Value*
<table>
<thead>
<tr>
<th>Instrument</th>
<th>Usual</th>
<th>Intervention</th>
<th>Grp-Diff</th>
<th>P-value</th>
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<tr>
<td>Alzheimer Disease Cooperative Study Group ADLs (range, 0-78)‡</td>
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<tr>
<td>Baseline</td>
<td>49.3 (15.9)</td>
<td>50.6 (15.8)</td>
<td>1.3 (−4.4 to 7.1)</td>
<td>.62</td>
</tr>
<tr>
<td>6 mo</td>
<td>47.0 (16.7)</td>
<td>49.3 (8.8)</td>
<td>0.6 (−3.0 to 4.3)</td>
<td>.73</td>
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<tr>
<td>12 mo</td>
<td>44.6 (17.0)</td>
<td>48.6 (17.7)</td>
<td>1.4 (−2.3 to 5.1)</td>
<td>.44</td>
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<tr>
<td>18 mo</td>
<td>42.1 (16.8)</td>
<td>45.7 (20.1)</td>
<td>2.5 (−1.2 to 6.2)</td>
<td>.18</td>
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<td>Total Caregiver Neuropsychiatric Inventory (range, 0-60)†</td>
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<tr>
<td>Baseline</td>
<td>6.5 (10.4)</td>
<td>4.2 (5.6)</td>
<td>−2.4 (−4.9 to 0.2)</td>
<td>.08</td>
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<tr>
<td>6 mo</td>
<td>5.7 (7.2)</td>
<td>4.4 (6.4)</td>
<td>−0.1 (−2.0 to 1.8)</td>
<td>.92</td>
</tr>
<tr>
<td>12 mo</td>
<td>7.7 (8.7)</td>
<td>3.5 (5.8)</td>
<td>−2.2 (−4.2 to −0.2)</td>
<td>.03</td>
</tr>
<tr>
<td>18 mo</td>
<td>7.4 (9.7)</td>
<td>4.6 (6.3)</td>
<td>−1.0 (−3.0 to 1.0)</td>
<td>.33</td>
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<tr>
<td>Caregiver Patient Health Questionnaire-9 (range, 0-27)†</td>
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<tr>
<td>Baseline</td>
<td>4.4 (5.6)</td>
<td>3.8 (5.1)</td>
<td>−0.6 (−2.3 to 1.1)</td>
<td>.49</td>
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<tr>
<td>6 mo</td>
<td>4.3 (5.1)</td>
<td>3.6 (5.0)</td>
<td>−0.5 (−1.8 to 0.9)</td>
<td>.50</td>
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<tr>
<td>12 mo</td>
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<td>3.1 (3.9)</td>
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<tr>
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<td>3.1 (4.5)</td>
<td>−1.6 (−3.0 to −0.2)</td>
<td>.02</td>
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Abbreviation: ADLs, activities of daily living.
*Intention-to-treat, mixed-effects regression models adjusted for baseline score and using last observation carried forward.
†Higher scores equate with worse symptoms.
‡Higher scores equate with better function.
Collaborative care for AD resulted in:

- Significant improvement in quality of care
- Reduced behavioral and psychological symptoms of dementia among primary care patients and their caregivers.
- Without significantly increasing the use of antipsychotics or sedative-hypnotics.
IMPACT: Improving Mood

• Purpose: improve Rx of depression in primary care
• Design: collaboration of pts, primary providers and specialists
• Intervention:
  • Pt education
  • Care manager meets & calls
  • Individual Rx plan; health & soc svc referral prn;
  • Fails to respond-psych eval at PC clinic
IMPACT: Improving Mood

- Outcomes:
  - Higher rates of Rx
  - Greater reduction of sx
  - Higher rates of satisfaction
  - Less functional impairment
  - Higher quality of life

- One Year Outcomes:
  - Higher rates of Rx
  - Greater reduction of sx
  - Less functional impairment
  - Higher quality of life
Elder GRACE: Geriatric Resources for Assessment and Care

Intervention

• Home based geriatric care by nurse and social worker
• Follow-up 1/month at home or by phone
• Team: geriatrician, PT, pharmacist, mental health SW, community svc liaison
Elder GRACE: Geriatric Resources for Assessment and Care

Outcomes

• Improved quality of life
• Reduced acute care use, if high risk and low income
• Duration of intervention may have been too short to measure functional and other outcomes.
PACE: Program of All Inclusive Care for the Elderly

- Managed Medicare-Medicaid program
- Target: pts with disability otherwise sufficient for NH care
- Services: all Medicare & Medicaid services + Day Care, nutrition, Rec Rx, personal care, transportation
- Team: MD, Nurse, SW, PT, RT, dietician, home-care coordinator, driver, CNA
PACE: Program of All Inclusive Care for the Elderly

- Process: initial assessment and plan by ALL members, weekly care-plan meetings
- Three day per week center attendance for monitoring and early intervention for change in status (medical, functional, psych-soc)
PACE: Program of All Inclusive Care for the Elderly

Outcomes:
• Higher pt satisfaction
• Improved health status & function
• Longer stay in community
• Improved quality of life
• Lower mortality
• Benefits greatest for the oldest & most frail
• Very low turnover of CNAs
Summary-1

• Complex older patients:
  • Can be identified
  • Are vulnerable to poor health outcomes
  • Have needs best addressed through interdisciplinary care
Interdisciplinary care for complex older patients improves outcomes:

- Better quality of care
- Reduced behavioral and psychological symptoms
- Better functional status
- Higher quality of life
- Reduces acute care use
- Longer stays in the community