Overuse of Healthcare in Older Adults: An Update and Next Steps

Jodi Segal, MD, MPH
Professor of Medicine, Health Policy and Management and Epidemiology
A Research Agenda

• K24 from NIA

• The purpose of the NIH Midcareer Investigator Award in Patient-Oriented Research (K24) is to provide support for protected time to devote to patient-oriented research (POR) and to act as research mentor primarily for clinical residents, clinical fellows and/or junior clinical faculty.

• Funding is generous support for PI; a bit for other things
Proposed 4 projects in 5 years.

The overarching aim of this career development award is to advance research supporting harm reduction for older patients through parsimonious use of health care.

Funding started Sept 2015
Project 1: Systematic Review of Determinants of Overuse

- Systematically review literature
- Identify gaps in literature
- Let this project inform later projects
Project 1

Determinants of Overuse:

- **Patient factors:**
  - Tolerance of uncertainty
  - Fear
  - Expectations*
  - Deference to doctor
  - Access to care

- **Clinician factors:**
  - Tolerance of uncertainty
  - Fear of litigation
  - Tradition*
  - Incomplete evidence*

- **System factors:**
  - Fee-for-service*
  - Uncertain accountability
  - Geography/community

- **Other factors:**
  - Advertising*
  - Competition*

Consequences of Overuse:

- **From diagnostics:**
  - Unnecessary downstream testing
  - Costs
  - Anxiety

- **From procedures:**
  - Complications of procedures
  - Costs

- **From medications:**
  - Complications of medications/adverse drug events
  - Antibiotic resistance—lessening availability next time treatment is needed
  - Costs

- **From emergency services:**
  - Intensity of therapy
  - Time
  - Nosocomial infection

*Likely sites for intervention
Key questions

- Is there evidence to support these hypothesized determinants of overuse?
- Is there evidence that the key determinants differentially impact overuse of diagnostics, procedures, medications, emergency services, inpatient care?
- Is there evidence that there are subgroups (e.g. older adults, ethnic/racial minorities, high income) with overuse patterns that exceed those of other subgroups?
Progress on Project 1

Team:

- Ritu Sharma – project manager from the Evidence-based Practice Center
- Stephanie Nothelle, MD – fellow in geriatric medicine/GIM
- Monica Tung – medical student
- Jean Pannikotu – visiting medical student
- Allison Oakes- PhD candidate, HPM
- Yunwen Zu – MHS student, Epi
- Zachary Predmore – PhD candidate, HPM
- Jeremiah Hinson, MD – emergency medicine faculty
- Madeline Jackson, MHS student, HPM – work study student
Search strategy

(medical overuse[MeSH Terms]) OR health services misuse[MeSH Terms]) OR health services overutilization[MeSH Terms]) OR unnecessary procedures[MeSH Terms]) OR medically unnecessary procedures[MeSH Terms]) OR Diagnostic Tests, Routine/utilization*[MeSH Terms]) OR Defensive Medicine/statistics & numerical data) OR Practice Patterns, Physicians'/economics/standards[MeSH Terms]) OR *Practice Patterns, Physicians'/economics/trends[MeSH Terms]) OR Health Services Abuse[MeSH Terms]) OR Health Services Overuse[MeSH Terms]) OR Medical overutilization[MeSH Terms]) OR Overmedication[MeSH Terms]

Restrict to English
Restrict to 1/1/1998 to present

Plus

direct to consumer advertising

direct to consumer marketing
Title Screening - Title Screening

Order By RefId Reviewed View Responses For: Emmanuellyoha Search: Has Attachments Go


5. JAMA PATIENT PAGE. High-Value Care. A. A. Razzmaria. Jama 2015: 2462

6. Why Doctors Are Rethinking Breast-Cancer Treatment. S. O’Connor. Time 2015: 30-6


12/12/2017
Abstract screening

Door-to-balloon (DTB) time is an important quality measure for ST-segment myocardial elevation Infarction (STEMI). Aggressive measures to reduce DTB time can increase the incidence of false positive STEMI and may increase mortality in that group. Efforts to reduce DTB time should be monitored systematically to avoid unnecessary procedures especially in critically ill patients who don’t have STEMI and may benefit from other appropriate therapies in timely manner. We report two cases where trying to achieve an aggressive DTB time may have led to unwarranted outcomes.

NO, this article DOES NOT apply to any of the Key Questions (check only one reason)

- Article is not written in English
- Article describes a study conducted in or pertaining wholly to a non U.S. population
- Article has no original data (opinion, descriptive data, letters, editorial)
- Article does not describe a diagnostic, surgical procedure, imaging procedure, laboratory test, consultant visit, hospitalization, emergency department, medications or devices, end of life services, outpatient visits, or an aggregate of health care services including costs
- Study does not test or explore determinants, drivers, or correlates of use of the service
- Overuse is almost certainly driven by lack of scientific evidence (not any other determinant) and is therefore likely to be highly unique to the clinical situation
- Other-please specify

Yes

Undeal-No abstract or cannot tell from abstract alone—get it for full text screen

Flag excluded article

Pull for hand searching

SUBMIT FORM and go to This Form - Next Reference or Skip to Next
Title review – roughly 11,000 titles

We thought we were going to write one paper.

We thought wrong.
Six Manuscripts Blossomed

- Determinants of Overuse of Medications in Institutionalized Older People (S.N.) – published, JAMDA
Six Manuscripts Blossomed

- Determinants of Overuse of Medications in Institutionalized Older People (S.N.) – published, JAMDA
- Determinants of Overuse of Imaging in ED (M.T.) – accepted, AJEM
Six Manuscripts Blossomed

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- Determinants of the Overuse of Imaging in Low Risk Prostate Cancer (A.O.) - published, Urologic Oncology
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- Factors Associated with Overuse of Colon Cancer Screening-under review after revisions
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- Factors Influencing Overuse of Breast Cancer Screening – under review after revisions
- Factors Associated with Overuse of Colon Cancer Screening-under review after revisions
- Determinants of Overuse of Medications in Ambulatory Older People (S.N.) - under review
Results

- Classified determinants as patient-level, clinician-level, and system level
- Heterogeneous literature even within type of outcome being evaluated
- Probably cannot make sweeping comments across different types of overuse
- Few of the hypothesized determinants (in diagram) were studied
# Inappropriate Medication Use in Older Adults in the Ambulatory Care Setting

<table>
<thead>
<tr>
<th>Patient Factors</th>
<th>Number significant</th>
<th>Number studied</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>14 (↓); 4 (↑)</td>
<td>47</td>
</tr>
<tr>
<td>Sex</td>
<td>24 (F); 1 (M)</td>
<td>42</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>10 (W); 4 (H); 3 (B)</td>
<td>38</td>
</tr>
<tr>
<td><strong>Clinical Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Med Count</td>
<td>38 (↑)</td>
<td>42</td>
</tr>
<tr>
<td>Outpatient Utilization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulatory: 6</td>
<td></td>
<td>Ambulatory: 9</td>
</tr>
<tr>
<td>ED: 2</td>
<td></td>
<td>ED: 3</td>
</tr>
<tr>
<td>Comorbidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psych: 13 (↑)</td>
<td></td>
<td>Psych: 17</td>
</tr>
<tr>
<td>Physical: 6 (↑), 2 (↓)</td>
<td></td>
<td>Physical: 19</td>
</tr>
</tbody>
</table>
### Inappropriate Medication Use in Older Adults in the Ambulatory Care Setting

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Number significant</th>
<th>Number studied</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional health insurance</td>
<td>5 (↑)</td>
<td>12</td>
</tr>
<tr>
<td><strong>Geographic region</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South (6)</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>West (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clinician Characteristics- Specialty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geriatric care in last year</td>
<td>3 (Y) 1 (N)</td>
<td>5</td>
</tr>
</tbody>
</table>
Overuse: provision of care in circumstances where the potential for harm exceeds the potential for benefit.

**Determinants**

Patient factors:
- Tolerance of uncertainty
- Fear
- Expectations *
- Deference to doctor
- Access to care

Clinician factors:
- Tolerance of uncertainty
- Fear of litigation
- Tradition *
- Incomplete evidence *

System factors:
- Fee-for-service *
- Uncertain accountability
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Other factors:
- Advertising *
- Competition *

**Consequences**

From diagnostics:
- Unnecessary downstream testing
- Costs
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From procedures:
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From emergency services:
- Intensity of therapy
- Time
- Nosocomial infection
- Costs

*Likely sites for intervention
Project 2: Qualitative Study of Older Adults’ Perspectives on Overuse

Team
Ariel Green, MD, MPH – geriatrics
Monica Tung – medical student
Methods

- Recruited groups of people aged ≥65 from four senior centers in Baltimore City
- Purposive sampling based on race/ethnicity and SES
- Focus group methodology
- Qualitative content analysis
- Atlas.ti, version 8, textual data analysis software
- $25 gift card each for their time
Baltimore Senior Centers
Discussion Guide

• Probed understanding of the concept of overuse

• Explored different wording choices: “unnecessary,” “excessive,” “overtreatment”

• Two scenarios: screening colonoscopy and intensive type 2 diabetes in a frail, 90 year old

• Pilot tested with local older adults, iteratively refined
Participants

- 5 groups (6-9 per group) – 38 participants
  - 28 women, 10 men
  - 29 African-American, 8 white, 1 other
  - 32 widowed/divorced/never married, 6 married
  - 31 had completed high school/GED (12 had at least some college)
  - Self-reported health: 31 good, very good or excellent
Domains

- Experiences of Overuse
- Consequences of Overuse
- Factors Contributing to Overuse
- Strategies to Lessen Overuse
Overview of Findings

• Virtually all had experienced overuse
  – “unnecessary,” “wasteful,” “overdoing it”

• Consequences of perceived overuse
  – Cost
  – Confusion and anxiety
  – Burden (duplicate testing, polypharmacy)

However, overuse was not a primary concern of the older people in our study.
Representative Quotes: Definitions of Overuse

Overuse is an intervention or a test that is applied in the absence of symptoms.

“…just [because] a person is overweight and someone in their family had diabetes doesn't necessarily mean that you should go looking for it, especially if you're not experiencing some of the things that you experience with diabetes or a blood-sugar high.”

Overuse occurs when an intervention is offered too early in the course of the illness.

“But the doctor tells me he wants me to do this reflux pill, one a day for the rest of my life. I said, ‘Why don’t I just change my eating habits?’”
## Representative Quotes: Contributors to Overuse

| Inadequate communication between the health care providers involved in a patient’s care |
| “… she took in a shopping bag loaded with pain [medicines]… She would never take them. … But if they [doctors] would just talk to each other, she would not have gone in with a shopping bag loaded with painkillers...Nobody carried on any conversations back and forth to anybody.” |

| Unrealistic expectations of benefit |
| “They kept coming to me and saying, ‘You want to sign for this treatment?’ And I kept signing it……I was under the impression that she could survive.” |

| Conceptualizing an intervention as “routine” |
| “It happened to me… I was getting a colonoscopy every five years or so, and…when I got to be 80, maybe it was 75… You know, ‘Come in for another colonoscopy.’ …. So [I] got referred to a second gastroenterologist. He looked at the record, and… he said, ‘Your age – you don’t have to do it anymore.’ But I mean, the first guy, all he knows is, well, he says its a routine thing… and I get a lot of money for this procedure, so we’ll keep asking the person to come in.” |
## Representative Quotes: Consequences of Overuse

<table>
<thead>
<tr>
<th>Category</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconvenience</td>
<td>“‘Oh, no, no, no, you have to go. You have to go.’ I didn’t go the first time; when I came back to him to see him the next time, he scolded me, and I had to go. I had to go. It’s not just that going there is dissatisfying, but it was so difficult for me to go “</td>
</tr>
<tr>
<td>Patient discomfort with high number of medications or reliance on electronic devices.</td>
<td>“She doesn’t feel safe. She just doesn’t feel safe. She feels as if—one doctor gave her the CPAP … and another doctor gave her the vest and she kind of feels torn as to whether or not they discussed it. And, like I said, they’re both electric and they both plugged up to the wall and you’re asleep, you know, so—”</td>
</tr>
<tr>
<td>Uncertainty and worry from testing</td>
<td>“I have had so many blood tests. She assumes, because of certain symptoms that I am showing, I may have this. And then it comes back negative. The next time I go--I go every three months, a quarterly checkup. This another – ‘Maybe you may have this.’ It's like a guessing game. And I'm a human pincushion.”</td>
</tr>
</tbody>
</table>
### Representative Quotes: Emerging Strategies

| The involvement of a trusted primary care doctor | “And he [doctor] will tell me straight up, ‘You don’t need that.’ You know, ‘No, don't do that.’… So it's good when you have a person that you can believe in and trust.” |
| Involvement of the patient in decisions about treatment and testing. | “Well, I think for myself, when I’m given options, I weigh it and if, you know, if I have a little bit of knowledge or I may go and get some knowledge… And, so far, all the doctors I’ve come across have been willing to go along with me on it.” |
| Allowing patient to make the choice about therapy. | “And I thought about it, and I prayed on it, and I thought about it. I said, ‘All this other medicine I take? I know what to eat. I know--let's be real.” |

(Patients do not always differentiate between unnecessary treatment and treatment that is just not preferred.)
Conclusions

• Patients find it difficult to judge the need for tests and treatments.

• Perhaps as a result, overuse was not a primary concern of these older adults.

• Poor communication between patients and doctors and between doctors involved in a patient’s care lead to mistrust and appeared to drive patients’ perceptions of overuse.

---accepted for publication in JGIM
Project 4: Understanding Overuse within JHMI’s *Overuse Index*

- Refine the Johns Hopkins Overuse Index (JHOI)
- Improve *measurement* of overuse using claims data
Project 4 is well underway

Johns Hopkins Overuse Index: Funded by RWJF initially


Overuse Varies Regionally
## Top 10 and Bottom 10 HRR

<table>
<thead>
<tr>
<th>Highest JHOI</th>
<th>Lowest JHOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm Springs/Rancho Mira</td>
<td>Cincinnati OH</td>
</tr>
<tr>
<td>Los Angeles CA</td>
<td>Hickory NC</td>
</tr>
<tr>
<td>Miami FL</td>
<td>Worcester MA</td>
</tr>
<tr>
<td>Bakersfield CA</td>
<td>Huntington WV</td>
</tr>
<tr>
<td>San Angelo TX</td>
<td>Canton OH</td>
</tr>
<tr>
<td>Orange County CA</td>
<td>Kettering OH</td>
</tr>
<tr>
<td>Ventura CA</td>
<td>Grand Junction CO</td>
</tr>
<tr>
<td>Manhattan NY</td>
<td>Tuscaloosa AL</td>
</tr>
<tr>
<td>Bryan TX</td>
<td>Waterloo IA</td>
</tr>
<tr>
<td>Beaumont TX</td>
<td>Covington KY</td>
</tr>
</tbody>
</table>
Presented at Academy Health about Drivers of Overuse

<table>
<thead>
<tr>
<th></th>
<th>OLS</th>
<th>Robust SE</th>
<th>Fixed Effects</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>-0.04</td>
<td>(.090)</td>
<td>0.03</td>
<td>(.11)</td>
</tr>
<tr>
<td><strong>Female (%)</strong></td>
<td>-4.99</td>
<td>(3.5)</td>
<td>-5.33</td>
<td>(4.3)</td>
</tr>
<tr>
<td><strong>White (%)</strong></td>
<td>-1.40</td>
<td>(1.0)</td>
<td>0.33</td>
<td>(2.3)</td>
</tr>
<tr>
<td><strong>Black (%)</strong></td>
<td>-1.58</td>
<td>(1.4)</td>
<td>0.99</td>
<td>(2.5)</td>
</tr>
<tr>
<td><strong>Hispanic (%)</strong></td>
<td>5.56</td>
<td>(2.6)*</td>
<td>2.58</td>
<td>(3.3)</td>
</tr>
<tr>
<td><strong>% eligible for Medicaid</strong></td>
<td>0.52</td>
<td>(1.2)</td>
<td>0.94</td>
<td>(2.0)</td>
</tr>
<tr>
<td><strong>No. Medicare beneficiaries (in 100,000)</strong></td>
<td>0.00</td>
<td>(.060)</td>
<td>-0.01</td>
<td>(.071)</td>
</tr>
<tr>
<td><strong>ACG (comorbidities)</strong></td>
<td>2.17</td>
<td>(.70) **</td>
<td>2.95</td>
<td>(1.1) **</td>
</tr>
<tr>
<td><strong>No. hospital beds§</strong></td>
<td>0.34</td>
<td>(.10) **</td>
<td>0.14</td>
<td>(.14)</td>
</tr>
<tr>
<td><strong>No. primary care physicians</strong></td>
<td>-3.17</td>
<td>(.71) ***</td>
<td>-3.29</td>
<td>(0.84) ***</td>
</tr>
<tr>
<td><strong>No. medical specialists</strong></td>
<td>0.00</td>
<td>(.93)</td>
<td>0.54</td>
<td>(1.1)</td>
</tr>
<tr>
<td><strong>No. hospital-based physicians</strong></td>
<td>5.47</td>
<td>(2.5)*</td>
<td>0.95</td>
<td>(3.3)</td>
</tr>
<tr>
<td><strong>No. surgeons</strong></td>
<td>1.43</td>
<td>(1.1)</td>
<td>2.55</td>
<td>(1.5)</td>
</tr>
</tbody>
</table>
Next Steps:

Submitted two applications to foundations in response to RFAs

1) National Institute for Health Care Management
2) PhRMA Foundation
Plans

NIHCM
Truven MarketScan data
Assess impact of Maryland Global Budgeting (GBR) on overuse

PhRMA
Medicare data
Look across multiple years with panel data techniques
Compare regions relative to their performance on established quality indicators

Team:
Allison Oakes
Hsien-Yen Chang, PhD
John Bridges, PhD
Project 3: Older Patients Decision-Making About Use of Screening and Diagnostic Tests
Overarching Questions that I’m More Interested in:

- Are older adults consumeristic in their attitudes about healthcare?
- Do consumeristic attitudes vary by patient demographics, region, income, health, past healthcare utilization experience?
- Are consumerist attitudes among older adults a contributor to overuse of healthcare?
- Do patient characteristics modify the relationship between consumerism and overuse?
- Are consumeristic attitudes modifiable? – should we?
Why is this interesting?

• Patient-centered care movement treats patients as consumers
• Quality measures address patient satisfaction
• The literature on determinants of overuse does not address the patients’ contributions
• Does a consumeristic mindset of patients drive overuse of resources?
To address these questions...

We need:

Consumerist Attitude towards Healthcare Scale (CAHS)

Team
Young Shin Kim, MD (MPH student)
Mani Keita (PhD cand, HPM)
Two Models

Development of the Medical Maximizer-Minimizer Scale

Laura D. Scherer
University of Missouri

Tanner J. Caverly and James Burke
VA Center for Clinical Management Research, VA Ann Arbor Healthcare System, Ann Arbor, Michigan, and University of Michigan

Brian J. Zikmund-Fisher
University of Michigan

Jeffrey T. Kullgren
VA Center for Clinical Management Research, VA Ann Arbor Healthcare System, Ann Arbor, Michigan, and University of Michigan

Douglas Steinley and Denis M. McCarthy
University of Missouri

Meghan Roney
University of Michigan

Angela Fagerlin
University of Utah and VA Salt Lake City Center for Informatics Decision Enhancement and Surveillance (IDEAS), Salt Lake City, Utah

Objective: Medical over- and underutilization are central problems that stand in the way of delivering optimal health care. As a result, one important question is how people decide to take action, versus not, when it comes to their health. The present article proposes and validates a new measure that captures the extent to which individuals are “medical maximizers” who are predisposed to seek health care even for minor problems, versus “medical minimizers” who prefer to avoid medical intervention unless it is necessary. Method: Studies 1–3 recruited participants using Amazon’s Mechanical Turk. Study 1 conducted exploratory factor analysis (EFA) to identify items relevant to the proposed construct. In Study 2 confirmatory factor analysis (CFA) was conducted on the identified items, as well as tests of internal, discriminant, and convergent validity. Study 3 examined test–retest reliability of the scale. Study 4 validated the scale in a non-Internet sample. Results: EFA identified 10 items consistent with the proposed construct, and subsequent CFA showed that the 10 items were best understood with a bifactor model that assessed a single underlying construct consistent with medical maximizing–minimizing, with 3 of the 10 items cross-loading on another independent factor. The scale was distinct from hypochondriasis, distrust in medicine, health care access, and health status, and predicted self-reported health care utilization and a variety of treatment preferences. Conclusions: Individuals have general preferences to maximize versus minimize their use of health care, and these preferences are predictive of health care utilization and treatment preferences across a range of health care contexts. Keywords: overutilization, overtreatment, medical decision making, patient preferences

Beyond the Decline of the Social Order

New College

University of Florida

Existing discourses suggest numerous consensuses in a consumerist ideology, but no clear path for systematically measuring the phenomena. By developing an Undergraduate Education scale, we provide an operationalization of a consumerist approach to higher education to provide new tools to advance the discussion.
Plans

Step 1. Literature review (non-systematic) to understand literature about consumerism in healthcare and the models that have been used to describe these attitudes and beliefs.

Step 2. Develop a list of attitudes, preferences, and expectations that have been associated with consumeristic attitudes towards healthcare (and closely related constructs).
Step 3. Conduct a pretest survey with local “consumers” including cognitive interviewing and revise survey elements based on feedback

Step 4. Conduct a national survey using Knowledge Networks panel and the revised survey instrument
Step 5. Analyze survey results, do the psychometrics, and generate a Scale that efficiently captures individuals attitudes about healthcare that represent the latent concept of consumerism.

Step 6. Validate Scale (reproducibility, see if it is correlated with attitudes or behaviors that we think it should correlate with, etc.)
“I think of health care services as a product I am buying.”

“My relationship with my doctor is similar to the relationship between a customer and seller.”

“I believe most patients think of their healthcare as a product they are buying.”

“Patients should get reimbursed for healthcare services that they think they did not benefit them (medicines, tests, operations).”

“I believe patients should think of their healthcare as a product they are buying.”
Interesting Model from 1979

Sprætlen, 1979
HEALTH CARE SERVICES: CONSUMER BEHAVIOR MODEL DEVELOPMENT
Fascinating Literature

REMAKING THE American Patient
How Madison Avenue and Modern Medicine Turned Patients into Consumers
Nancy Tomes
Comments – please!