

John Miller, MD

Rocky Mountain
Research Forum

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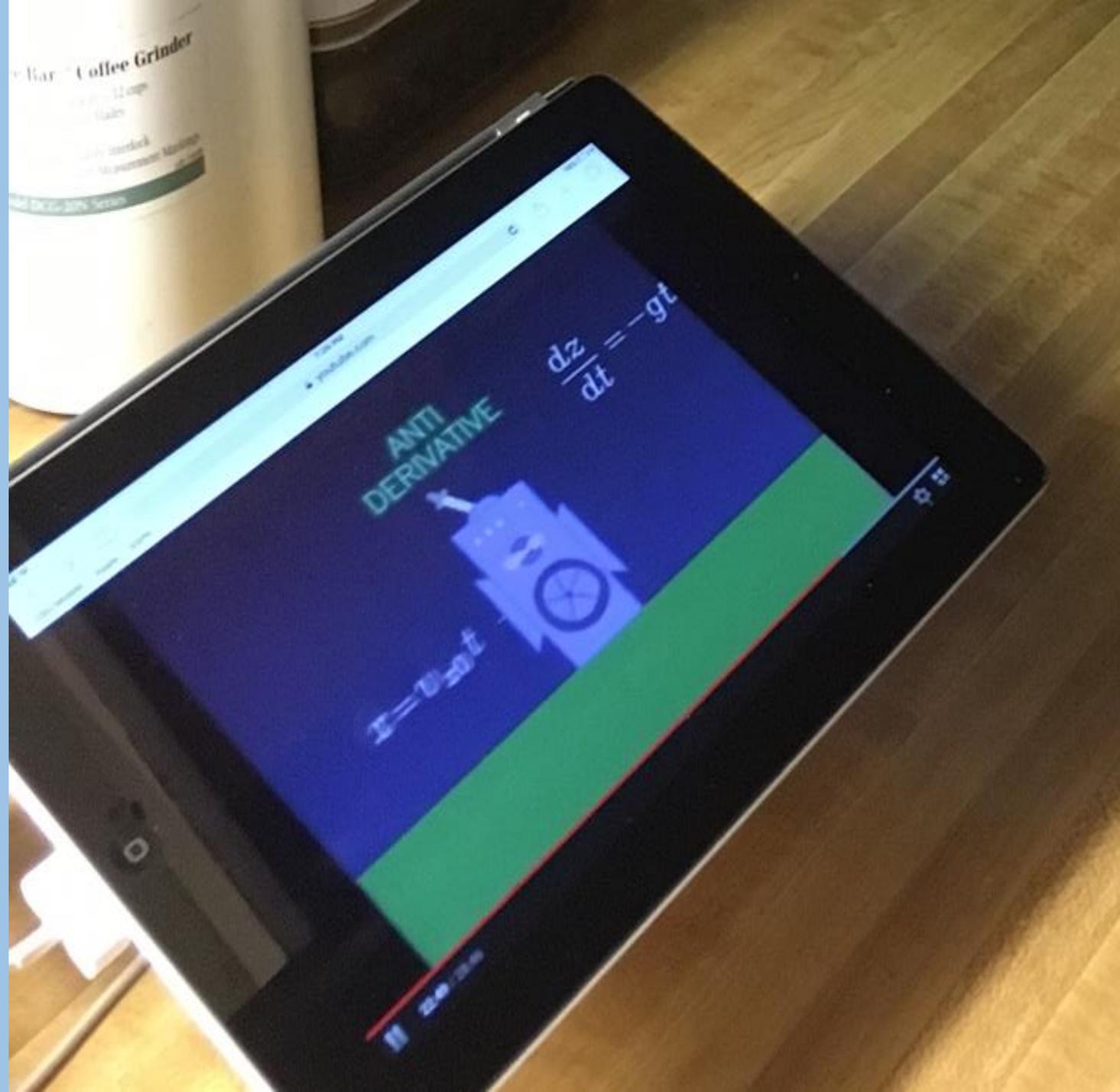
Rocky Mountain
~~Research Forum~~
Retirement

EBG: Evidence-Based Gardening



CME: Continuing Mathematical Education





Bar Coffee Grinder
12 cups
Blades
Stainless Steel
Measurement Markings
20% Screen

ANTI
DERIVATIVE

$$\frac{dz}{dt} = -gt$$



$$x = vt = at$$





Learning New Procedures

Practicing Physician Wellness



A Coincidental Career in Primary Care Research

John Miller Invited Lecture
Saint Anthony North Family Medicine Residency

May 19, 2017

Elizabeth A. Bayliss, MD, MSPH
Kaiser Permanente Institute for Health Research
Department of Family Medicine
University of Colorado School of Medicine

Outline

- My path to primary care research
- A few example projects with a variety of methods
- Potential opportunities to engage in primary care research
 - Associated skills and training
- Questions and discussion
 - Research idea(s) and how to approach them

Discovering Family Medicine

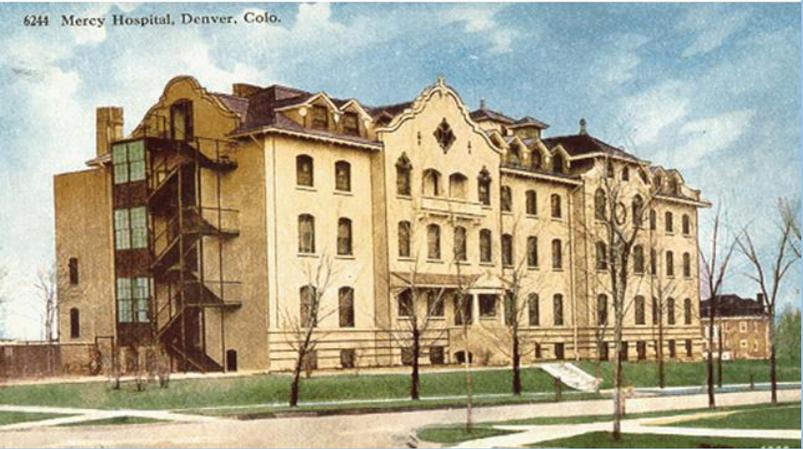
Born/ raised in Brooklyn NY



College English Major



Mercy Family Medicine Residency



Medical School: Univ of Rochester/ CU



Back to school: Pre-med courses



(Brief detour on Wall Street)



Mercy class of '92



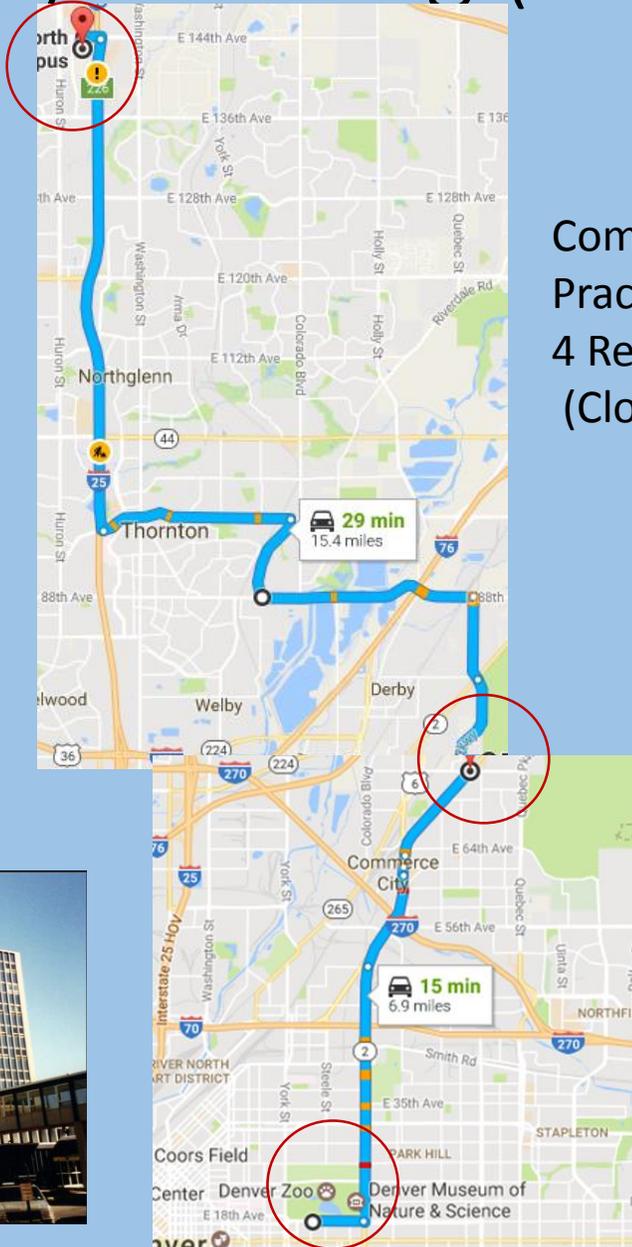
Early Career: Practice / teaching (1992-1999)



St. Anthony North



Mercy Hospital
Closed 1995



Commerce City
Practice/ Residency training site
4 Residents (2/year)
(Closed 1999)



Primary Care Research Fellowship

- 2 years (2000 – 2002)
- Funded by NIH National Research Service Award (NRSA)

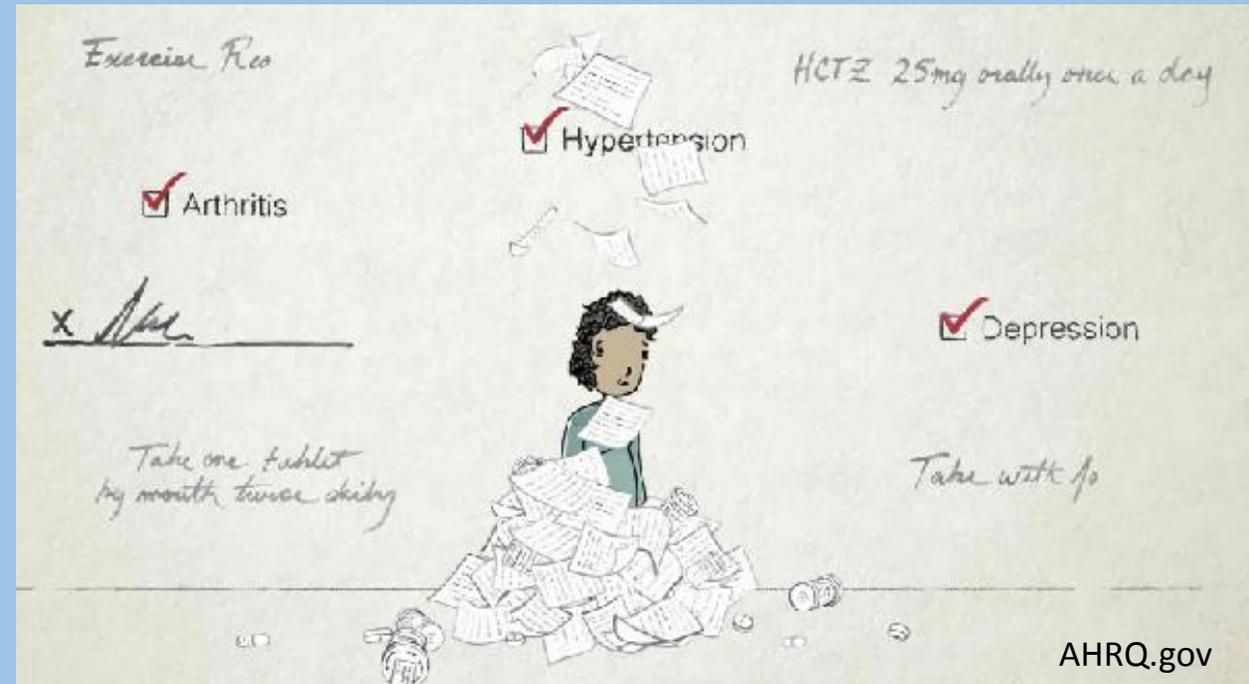
Components

- Research Project
- Work in progress
- MSPH Curriculum
- Mentoring (individual /team)



Emerging area of research interest: Complex patient care

- This is how people are
- Frustration with disease-specific care models
- Suited to study from a primary care perspective
- Lots of potential questions (too many!)
- Interesting to address interacting effects



Example projects over past 15 years

- Barriers to self-care for individuals with multiple chronic conditions
 - Fellowship, qualitative interviews
- Instrument development
 - Self-reported disease burden
 - Barriers to self-care
- Effect of primary and specialty continuity of care on utilization and quality of life
- Patterns of statin prescribing at the end of life
- Measures of care quality for complex patient populations

Barriers to self-care for individuals with multiple chronic conditions

- Research question: What barriers to self-care are reported by patients with competing demands from multiple conditions?
- Rationale: Patients struggle with managing self-care for many conditions at once
- Methods:
 - One on one interviews
 - 16 Individuals with 2 or more common chronic conditions
 - Free listing – of reported barriers to self-care
 - Card sort-- Sort barriers into thematic areas

Barriers to self-care for individuals with multiple chronic conditions

- Results
- 12 themes
- Themes reflected the phenomenon of ‘multimorbidity’
 - Juggling multiple conditions
 - Single dominant condition
- Easy, low cost, low tech way of exploring a specific topic

Table 3. Potential Barriers to Self-care From Free-Listing Interviews

Potential barrier to self-care	Number of participants citing category*	Examples (quotations)
Compound effects of conditions	14	Can't exercise for diabetes due to the breathing.
Physical limitations/adaptations to limitations caused by conditions	14	Hard to get around and do what I used to.
Compound effects of medications (therapeutic and side effects)	9	Medication for one affects another health problem.
Schedule and coordination of medications	9	Hard to keep on top of needing different medications at different times.
Total burden of medications	6	I don't like taking all this medicine.
Side effects of medications	5	Medicine for blood pressure makes me feel bad.
Lack of knowledge about conditions	8	I didn't know you could treat diabetes.
Financial constraints	8	Need to pay for medicines ... financial issues.
Low self-efficacy or sense of loss of control	8	Feel like I'm falling apart. This has been a bad year.
Burden of the dominant effect of a single condition	8	Loss of vision is worse than COPD or arthritis.
Emotional impact of diseases	7	List of problems makes me worry about health.
Inadequate communication with providers	7	Not everybody is the same and needs the same treatment.
Need for or use of social support	7	It's a team effort between the two of us [husband and wife].
Logistical issues	3	Have to go to the doctor more.
Need for understanding conditions.	3	Society, parents, teachers need to try to understand chronic

COPD = Chronic obstructive pulmonary disease.

*Mean number of barriers to self-care mentioned by respondents, 7.7 (range, 5-11).

Instrument development : Self-reported disease burden: Barriers to self-care

- Research question: How can we better quantify the disease burden experienced by patients? (Get beyond the problem list.)
- Rationale: Research analyses usually use counts of diagnoses from claims, but those don't include the patient perspective.
- Methods:
 - Develop survey based on interviews
 - Weighted list of conditions
 - Pilot test with small group
 - Validate with larger group: 352 HMO members age 65+ with (minimum) diabetes, depression, arthritis
 - Linear regression: Look for incremental relationship between predictor (new disease burden measure) and outcome (function, other morbidity measures)

Instrument development : Self-reported disease burden: Barriers to self-care

- Results
- Greater self-reported disease burden is associated with worse function.
- Self-reported disease burden is distinct from morbidity measures that are based on diagnoses in claims data.
- Conclusion: potentially useful addition to the morbidity measurement toolbox.

HEALTH STATUS

The following is a list of common health conditions. Please indicate if you currently have the condition in the first column. If you **do not** have the condition, circle "No" and skip to the next condition. If you **do** have the condition, circle "Yes" and indicate in the second column how much the condition interferes with your daily activities.

+

	I have this condition (Circle one)		If you circled yes, how much does this condition interfere with your daily activities?				
	No	Yes ⇨	Not at all	←-----→			A lot
Angina/coronary artery disease	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asthma	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Back pain	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cancer (within the past 5 years)	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cholesterol, elevated	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic bronchitis/COPD	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Colon problem (e.g., diverticulitis, irritable bowel)	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Congestive heart failure	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes	No	Yes ⇨	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Effect of primary and specialty continuity of care on utilization and quality of life

- Research question: Does continuity of care affect hospital utilization in a system with a shared electronic health record (EHR)?
- Rationale: Can we demonstrate that continuous clinician-patient relationships have value beyond simply knowing clinical information?
- Methods
- Retrospective data analysis
- 12,200 seniors with 3+ chronic conditions over 3 years
- Measure COC with primary and specialty care clinicians
- Logistic regression: Are higher levels of COC associated with lower risk of hospitalization?

Effect of primary and specialty continuity of care on utilization and quality of life

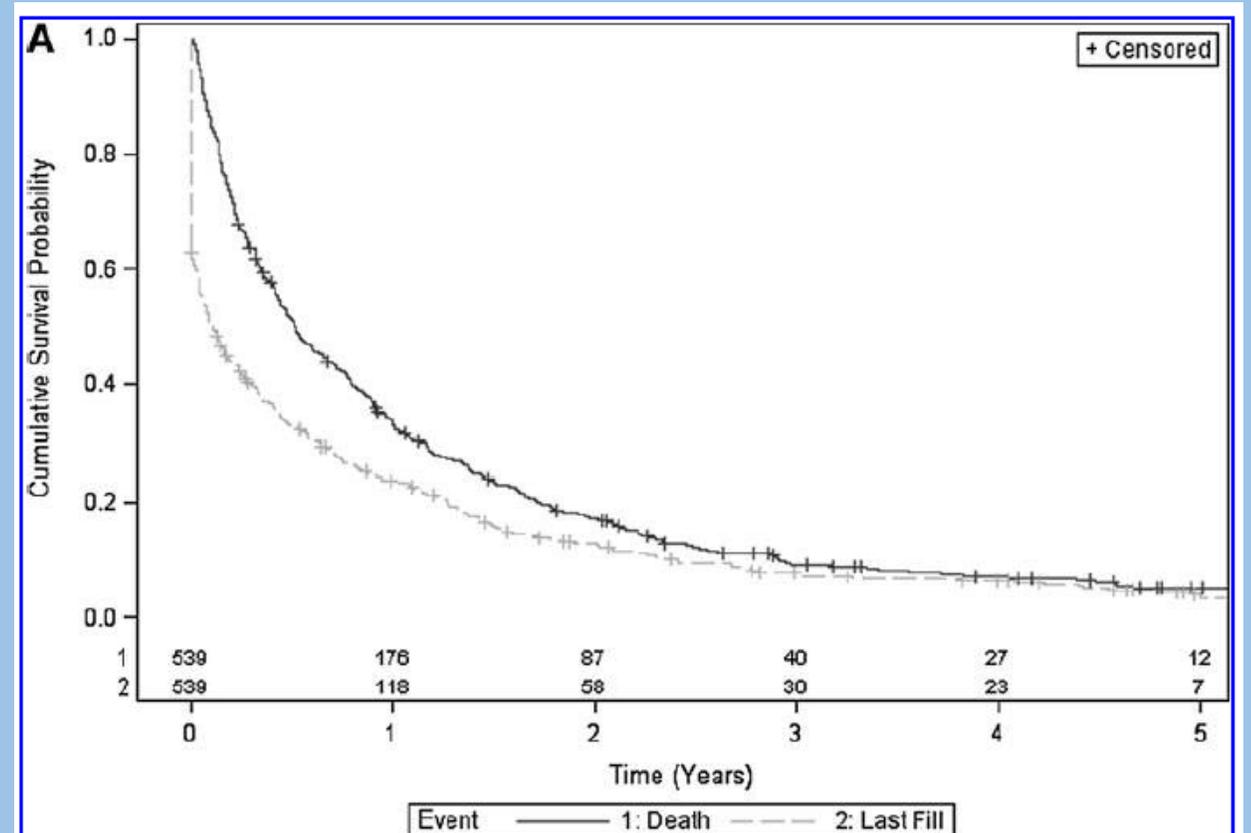
- Results
- Greater continuity of care is associated with a lower risk of hospitalization and ED use
- Specialty care continuity is associated with a lower risk of hospitalization
- Primary care continuity is associated with a lower risk of ED use
- We did not find an association between continuity of care and self-reported quality of life
- Conclusions: Care continuity is important even with a shared EHR.
- Quality of life is affected by lots of things other than processes of care

Patterns of statin prescribing at the end of life

- Research question: Are preventive medications (statins) discontinued at the end of life to decrease patient medication burden?
- Rationale: Statin side effects are worse in frail people. Why keep taking medicines from which one is unlikely to experience benefit?
- Methods:
- Retrospective data analysis
- 539 seniors with poor cancer prognosis (0-25% 5-year survival) taking statin medications
- Plot the time to the event (discontinuing medication, death)

Patterns of statin prescribing at the end of life

- Median 2 months from last refill to death
- Same for both primary and secondary prevention
- Statins are not being discontinued around the time of a life limiting diagnosis



Measures of care quality for complex patient populations

- Research question: What would be ideal measures of care quality for complex older patients and populations that could be measured from an EHR?
- Rationale: Many current, disease-specific measures of care quality are less relevant for complex patients with lots of conditions. (E.g. HgbA1c)
- Methods:
 - Webinars with geriatric care and policy experts and focus group with geriatric patients
 - Develop working list of possible measures
 - Conduct modified Delphi process (rank the importance of each measure)
 - Ask EHR data experts what is feasible to measure

Measures of care quality for complex patient populations

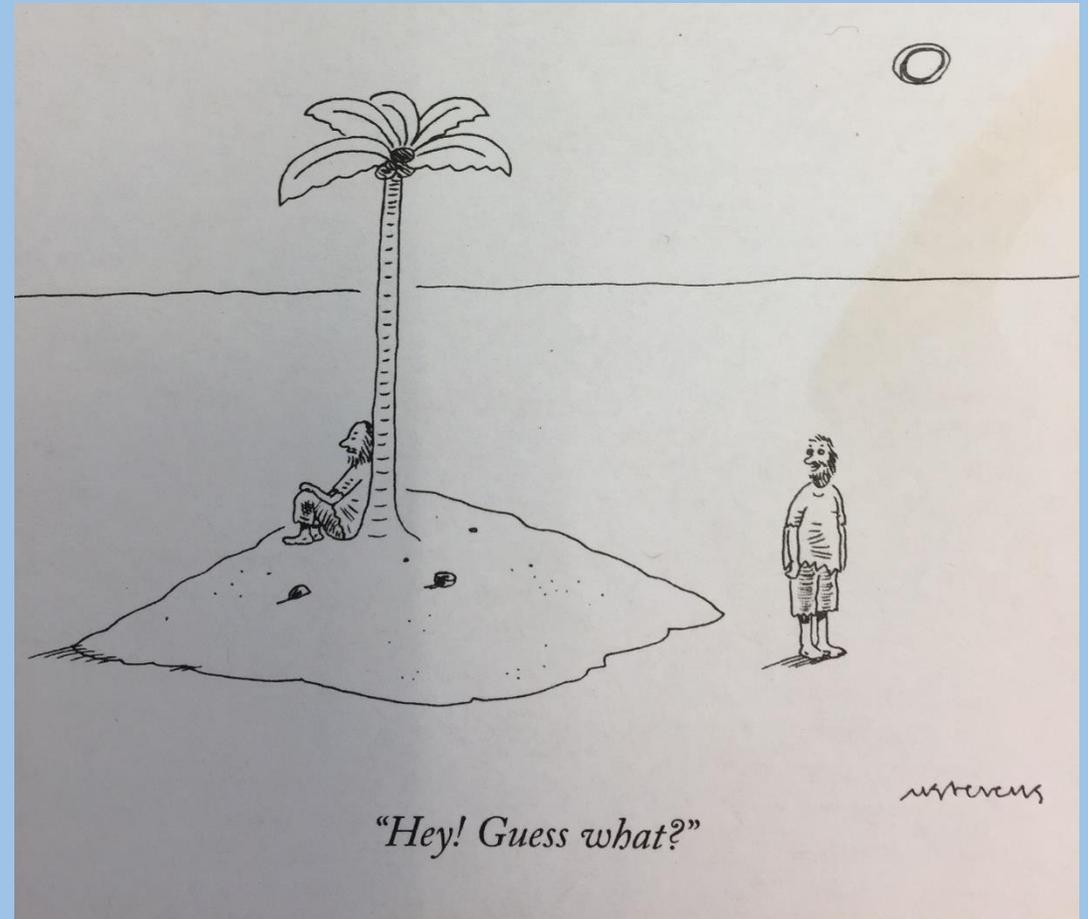
- Results:
- Ideal quality measures assess processes of care rather than outcomes
- Many ideal measures are not easily measurable with electronic data

		Measurement Feasibility	
		Higher	Lower
Relative salience as quality measure	Higher	Functional assessment Advance Directive on record Depression screen Medication reconciliation Annual flu vaccine System contact after care transition	Drug-Drug interactions Shared decision making Goal setting Assess social support Continuity of care Tailored communication of treatment plans
	Lower	Pneumonia vaccine Pain assessment BMI measurement Time to return call Anxiety screen	Inappropriate use of care** (e.g. over use of screening colonoscopy, pap, PSA) Redundant or wasteful care** (e.g. duplicate tests)

**Requires specific denominator.

Study designs not used (yet)

- Randomized controlled trial
 - Less common for primary care questions— hard to control all of the real world effects on outcomes
- Pragmatic clinical trial
 - Compare effectiveness of treatments or other interventions in a real world setting



Patient- Healthcare System Engagement: Simplify Everything

- Consider the patient and family context
- Balance clinical inertia and clinical momentum
- Optimize continuity
- Simplify and clarify care teams– put the patient in charge
- Minimize medication burden
- Measure processes not outcomes
- Use technology appropriately



Skills and talents that generalists bring to research

- See the forest AND the trees
- Understand how systems interact
- Easily integrate information
- Match evidence to people
- Think quantitatively and qualitatively
- Understand the patient/ family perspective

- Able to ask the right question and interpret patient-centered results

Possible approaches to engaging in primary care research

- Academic model
- Clinical partner to academic projects
- PBRNs
- Clinician stakeholder or advisor
- Member of/ liaison to community engagement team
- Review manuscripts for journals– valuable perspective

- Not an ideal approach: just ‘do a little research’ on your own
 - Not as much fun as with a team
 - Not usually rigorous enough to share and can be frustrating

Skills, training, collaborators, resources needed to conduct primary care research

- Academic model
 - Fellowship training or equivalent
 - Practice in, and comfort with, writing (and more writing)
 - Methodological collaborators
 - Start-up support (~ 2+ years)
- Clinical partner to “academic” projects
 - Understanding of the pace of and approach to pragmatic research
 - Some fluency in language of study design and methods
 - Small but solid time commitment
 - Interest in being a champion to clinical setting

Resources and training needed (cont.)

- Practice Based Research Network (PBRN) participation
 - Functional umbrella network
 - Often partner with academic team members (methods and project lead)
 - Flexibility to opt in/ out
 - Projects often focus on collecting information or data in the 'real world'
- Clinician stakeholder or advisor
 - Advise academic or larger project
 - Study design, feasibility, materials for patients or clinicians, results interpretation
 - Usually quarterly meetings and some materials review

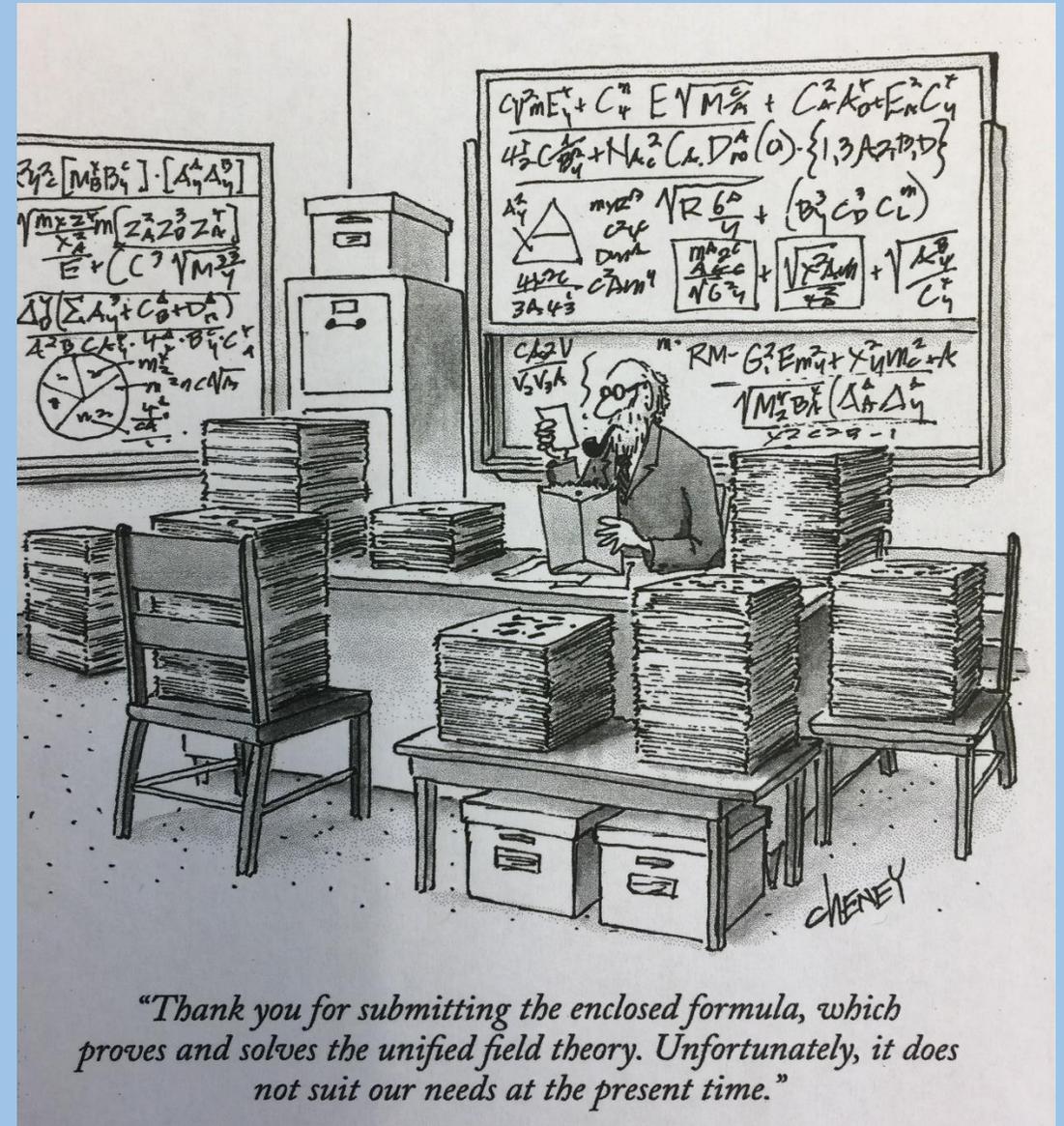
Resources and training needed (cont.)

- Community engagement
 - Liaison to community members
 - Part of community team
 - Inform development and conduct of a larger project designed to be implemented and evaluated in a community
- Be a journal reviewer!
 - Bring a unique primary care perspective— relevance and feasibility
 - Other reviewers can look at the methods
 - Great way to see what's in the pipeline

Discussion question(s)

- If I were going to conduct a research project in the next 5-10 years, I would want to ask (and answer) the following question:
.....

- I think I would like to use the following approach:



Thank you

Acknowledgements

John Miller, MD

All research team members

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