The Patient-Centered Medical Home: an update on the evidence

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Objectives

- **At the end of this session, participants will be able to:**
- Describe common models of patient-centered medical homes (PCMH)
- Assess the effects of PCMH on the experience of patients and staff
- Discuss the impact of PCMH models on clinical quality and cost outcomes
- Identify remaining issues to be evaluated regarding PCMHs.

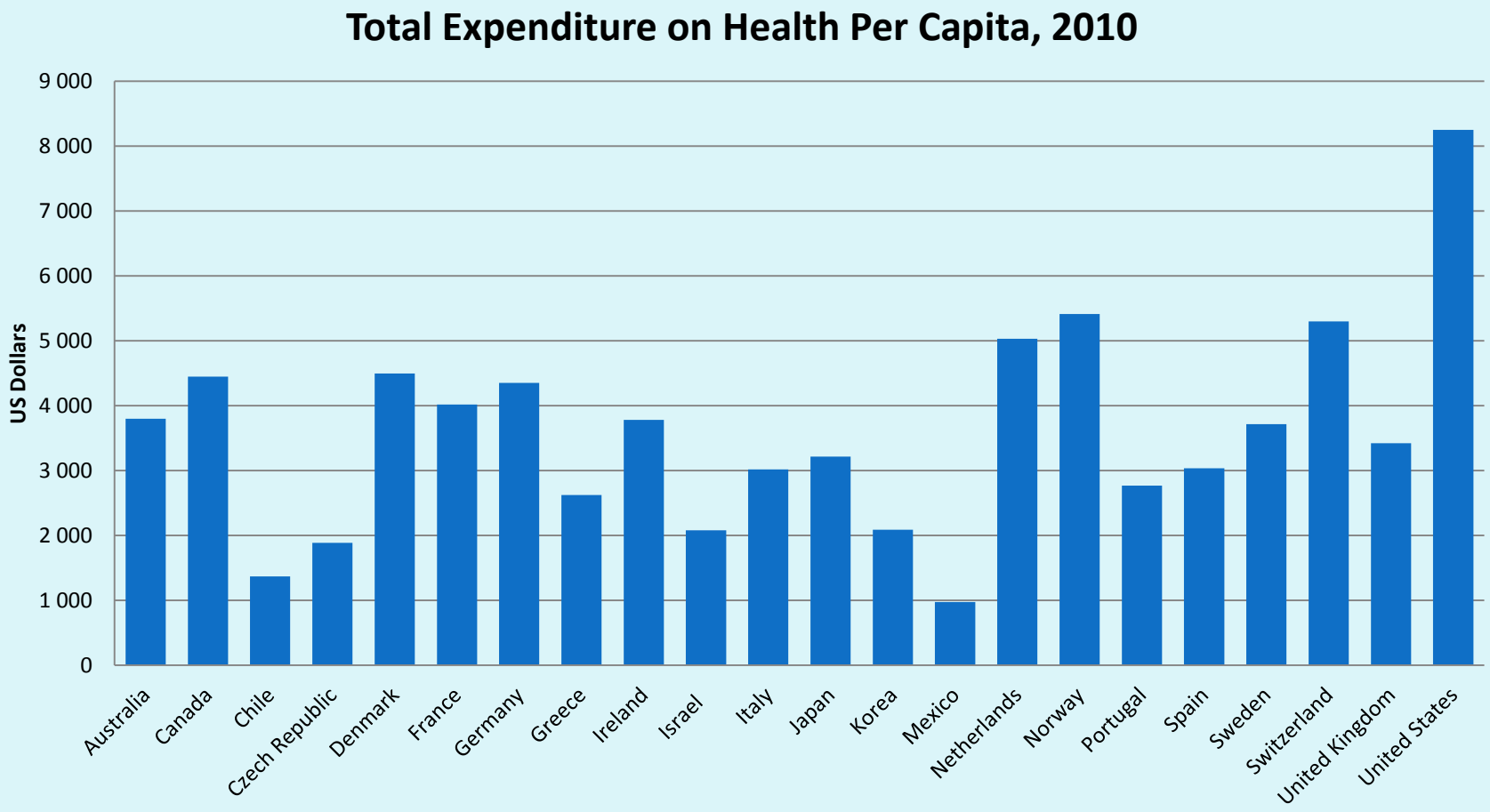
Why learn about PCMH models?

- PA education programs should help students to understand the purpose, design, and outcomes of PCMH.
- The goal of this session is to help PA educators gain knowledge that will support their teaching about PCMHs.

Background

- The PCMH is promoted as a partial solution to a number of problems in the US healthcare system.

The US spends more on health



Data from the Organization for Economic Cooperation and Development (OECD)
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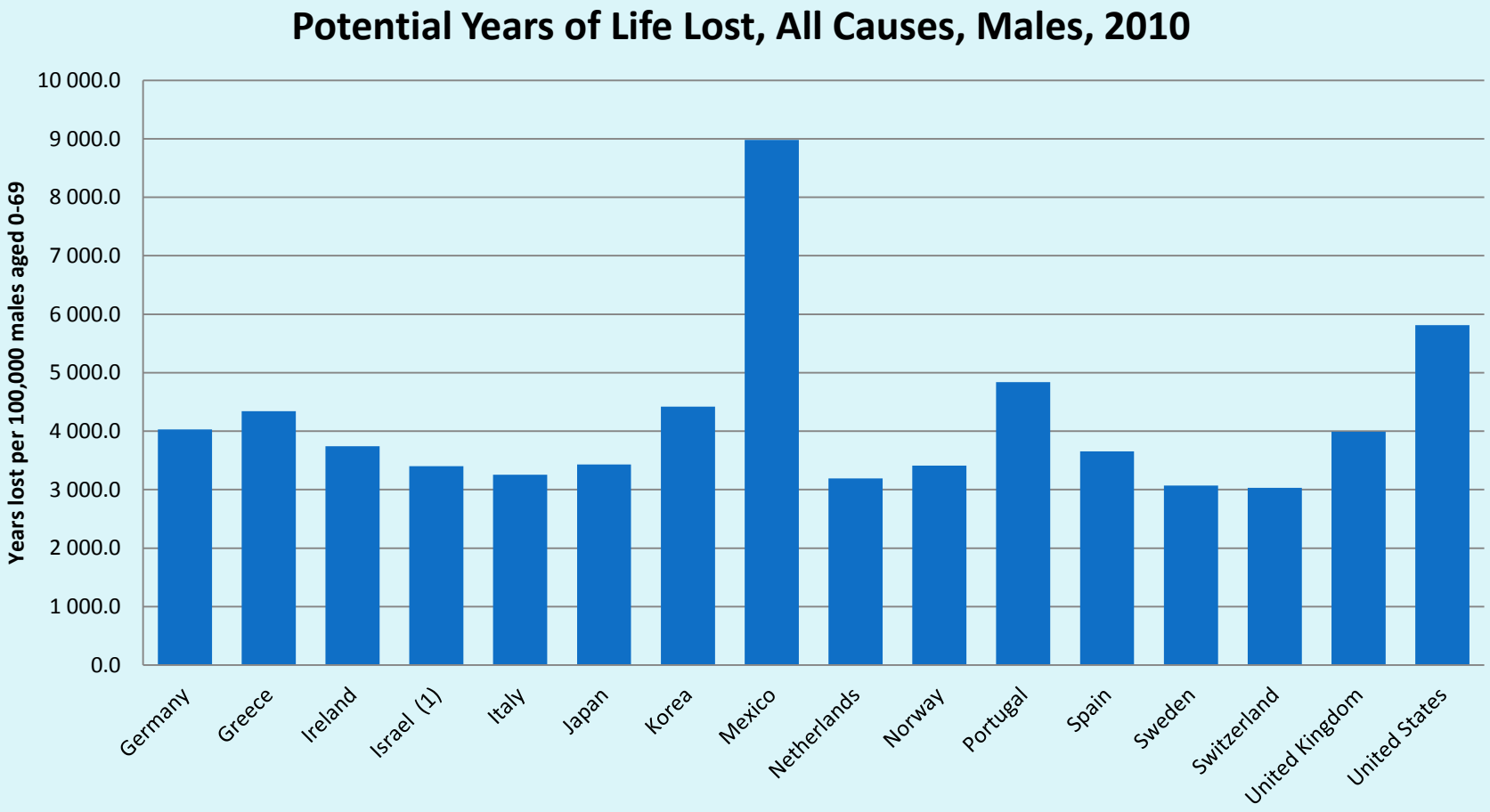
But gets less for its money



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Other problems

- Patient experience often not good
- Fewer providers are going into primary care
  - Satisfaction among primary care providers is waning
- Many patients don't have access to care

The connection to primary care

- The US has a high ratio of specialist to primary care providers compared to higher-performing nations
- Chronic disease care accounts for over 75% of health care spending
- Most chronic disease can be managed in primary care settings

Improved primary care might

- Improve both cost and quality through
  - Better management of chronic conditions
    - Ex: well-managed asthma or heart failure→ fewer ED visits and hospitalizations
  - Focused attention on patients with high need
- Improve patient experience
- Improve staff satisfaction
- Improve access to care

A Partial Solution

- Patient-Centered Medical Home (PCMH)

- A approach to care organization to
  - better address patient needs
  - Improve quality
  - Control costs
  - Improve access to care (?)

Definition of PCMH

1. Team-Based Care
2. At least 2 of 4 elements
    1. Enhanced Access to Care
    2. Coordinated Care
    3. Comprehensive Care
    4. Systems-Based Approach to Quality and Safety
3. Patient-Centered
4. Structural Changes to Traditional Practice

Jackson G, Powers B, et al. The Patient-Centered Medical Home: A systematic review. *Annals of Int Med.* 2013;158(3):169-178.

What do studied PCMH models look like?

- Use of interprofessional teams
- Address comprehensive health needs of patients
- Develop ongoing relationships between the care team and individuals
- Engage in care coordination
- Work to enhance access to services
- Use systems-based approach to improving quality and safety
- New structures of care organization

Challenges in PCMH research

- Wide variation in PCMH models
  - How can we measure PCMH?
- Studies test many care aspects at once
  - Which ones are making the difference?
  - Should some aspects carry more weight?
- Many early evaluations test only 1-2 aspects of PCMH, rather than fully transformed practices
  - Ex: assess effect of adding care coordination (and what exactly is care coordination?)
- Need a valid, reliable and standardized PCMH measurement tool

Evaluation vs. research

- Early PCMH evaluations have been very positive
  - Conducted by the health care organizations implementing the PCMH
  - Conducted by hired consulting firms
  - Usually examines a single organization
  - Not intended for publication

Research

- Peer-reviewed research is more scant currently.
- This research literature is the focus of our presentation

What does existing research tell us about the PCMH model?

- Systematic reviews of the literature
  - Jackson (2013) evaluated the effects of PCMH on:
    - Patient and Staff Experience
    - Clinical Quality
    - Cost of Care
  - Hoff (2012)

- Additional papers since Jackson review

Jackson G, Powers B, et al. The Patient-Centered Medical Home: A systematic review. *Annals of Int Med.* 2013;158(3):169-178.

Hoff T, Weller W, DePuccio M. The Patient-Centered Medical Home: A Review of Recent Research. *Med Care Research and Review, 2012; 69(6):619-644.*

PATIENT AND STAFF EXPERIENCE

Patient Experiences

- 19 Studies evaluated patient experiences
- 14 in systematic reviews
  - 8 in Jackson et. al. 2013, 6 in Hoff et. al. 2012
- 5 new in 2013 (Martsolf, 2012, Day, 2013; Hudak, 2013; Kern, 2013; Schmidt, 2012)
  - Research based = 8
  - Evaluation based = 11

General study characteristics:

- Single clinic or single system health studies
- Short duration (<2 years)
- Vary across geographic locations, patient age ranges, and clinic setting (public, private, military)
- Patient experience is not the primary outcome

Patient Experiences

- 13 of 19 studies show evidence for small improvements in:
  - Patient satisfaction
  - Patient perceived care coordination
- 6 of 19 studies showed no relationship
  - 4 of 6 are research-based studies

Staff Experiences

- 7 Studies evaluated staff experiences
- 5 in systematic reviews
  - 3 in Jackson et. al. 2013, 2 in Hoff et. al. 2012
- 2 new in 2013 (Hardy, 2013; Savage, 2013)
  - Research based = 2
  - Evaluation based = 5
- Few practices studied, few clinicians involved, many not be generalizable

Staff Experiences

- Small to moderate improvement in overall experience. (low strength of evidence)
  - Reid et. al. published 2 studies of Group Health Cooperative
    - 2 different time points
    - medical home providers had significantly lower levels of burnout compared with providers not engaged in medical home care

Staff burnout

- Workplace stress measured by the Maslach Burnout Inventory tool (Reid et. al. 2010)

- PCMH staff vs staff in traditional sites
  - Lower mean emotional exhaustion scores
    - (12.8 vs 25.0, $p<0.01$)
  - Lower mean depersonalization scores
    - (2.0 vs 4.4, $p<0.05$)
  - No change in personal accomplishment scores
    - (No statistically significant difference)

Major knowledge gaps about staff experience with PCMH

- Retention in PCMH model has not been studied
- Increasing attractiveness of primary care practice has not been studied

Clinic and Health Care Organization Experiences

- One qualitative study (Bitton, 2012)
- 14 AHRQ funded studies (Summarized in: Tomoaia-Cotisel, 2013)

8 domains underlying dynamics of change in PCMH practices (Bitton 2012)

1. Context: each clinic has a different starting point for building a PCMH
2. Variation in PCMH elements implemented
3. Consultant use to catalyze change
4. IT systems
5. Functionality of teams and teamwork
6. Compensation Reorganization
7. Change fatigue
8. Confounders

Overarching Findings from 14 AHRQ funded studies

(McNellis, 2013 & Tomoaia-Cotisel et.al., 2013)

1. A strong foundation is needed for successful redesign
2. The process of transformation can be a long and difficult journey
3. Approaches to transformation vary
4. Visionary leadership and a supportive culture ease the way for change
5. Contextual factors are inextricably linked to outcome

QUALITY

PCMH and Quality
Study Design and Quality

- 15 studies with comparison group
  - 13 in Jackson Review, 2 new
  - 8 experimental, 7 observational
- 6 explicitly studying PCMH
- Quality of Studies
  - 5 “good”
  - 9 “fair”
  - 1 “poor”

PCMH and Quality Settings

- Country
  - 14 in USA
  - 1 in Canada
- Setting
  - 3 Integrated Delivery System
  - 4 HMO
  - 2 Small/solo practices
  - 4 payer driven interventions
  - 2 Combination

PCMH and Quality Populations

- Practices
  - Ranging from 1 to 21 intervention clinics per study
- Participants
  - 2 All Ages
    - 1 high utilizers
  - 5 Older adults with chronic conditions
  - 6 Adults
    - 4 all adults
    - 2 With a condition (DM, CHF, COPD, CAD, AF)
  - 2 Pediatric

PCMH and Quality Outcome Measures

- 6 Delivery of prevention services
- 8 Chronic Illness Process
- 9 Clinical Outcomes
  - 7 Biomarkers
  - 3 General Health
    - 2 Self-reported health status
    - 2 Mortality
- 0 Unintended consequences or other harms
- 13 Additional Outcomes
  - 9 Cost
  - 4 Patient experience
  - 1 provider experience

PCMH and Prevention Processes

Moderate Evidence of Small to Moderate Effect

Systematic Review (Jackson et. al.)

Studies (Participants), *n* (*n*)	Domains Pertaining to Strength of Evidence				Strength of Evidence and Magnitude of Effect*
	Risk of Bias: Study Design/Quality	Consistency	Directness	Precision	Effect Estimate (Range or 95% CI)
Process of care for preventive services					Moderate strength of evidence: small to moderate positive effects
3 (8377)	RCT/fair	Consistent	Direct	Precise	RD median (range): 1.3% (−0.4% to 7.7%)
3 (65 444)	Observational/fair	Consistent	Direct	Precise	RD median (range): 9.9% (2.2% to 20.6%)

Recent Studies

- 2 Experimental Studies/fair quality (Fifield 2013, Werner 2013)
- Evaluated HEDIS measures
- Improvements in BRCA screening (+3.5% and + 2.2% (both $p<0.05$)

PCMH and Chronic Illness Processes

Insufficient Evidence

Systematic Review (Jackson et. al.)

Studies (Participants), *n* (*n*)	Domains Pertaining to Strength of Evidence				Strength of Evidence and Magnitude of Effect*
	Risk of Bias: Study Design/Quality	Consistency	Directness	Precision	Effect Estimate (Range or 95% CI)
Process of care for chronic illness care services					Insufficient
3 (28 617)	RCT/fair	Inconsistent	Some indirectness	Precise	RD median (range): 4.7% (0.2% to 20.8%)
3 (455 832)	Observational/fair	Inconsistent	Some indirectness	Precise	RD median (range): 7.1% (−7.1% to 21.4%)

Recent Studies

- 2 Experimental Studies/fair quality (Fifield 2013, Werner 2013)
- No improvements in process measures

PCMH and Clinical Outcomes

Insufficient Evidence

Systematic Review (Jackson et. al.)

Studies (Participants), *n (n)*	Domains Pertaining to Strength of Evidence				Strength of Evidence and Magnitude of Effect*
	Risk of Bias: Study Design/Quality	Consistency	Directness	Precision	Effect Estimate (Range or 95% CI)
Clinical outcomes: biophysical markers, health status, mortality					Insufficient
3 (2586)	RCT/good	Consistent	Some indirectness	Imprecise	Not reliably estimated
4 (63 533)	Observational/fair	Consistent	Some indirectness	Imprecise	Not reliably estimated

Recent Studies

- 2 Experimental Studies/fair quality (Fifield 2013, Werner 2013)
- Improved HTN control (+23%)

PCMH Clinical Quality Conclusions

- Small to moderate positive effects on delivery of preventive care services
- Unclear effects on delivery of chronic disease care
  - Mixed results
  - Power?
- Insufficient evidence on outcome of care

COST

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Study Design and Cost

- 14 studies with comparison group
  - 11 in Jackson Review, 3 new
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PCMH and Cost Settings

- Country
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  - 3 Combination
  - 1 FQHC
  - 1 Hospital

PCMH and Cost Populations

- Practices
  - Ranging from 1 to 18 intervention clinics per study
- Participants
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  - 8 Older adults with chronic conditions
  - 3 Adults
    - 2 all adults
    - 1 With a condition (DM, CHF)

PCMH and Cost
Outcome Measures

- 7 Emergency Department
- 9 Hospitalizations
- 9 Total Cost
- 2 Efficiency Measures
- 0 Unintended consequences or other harms
- 13 Additional Outcomes
  - 8 Quality
  - 4 Patient experience
  - 2 provider experience

PCMH and Cost

Insufficient Evidence for Cost Reduction

Systematic Review (Jackson et. al.)

Studies (Participants), *n* (*n*)	Domains Pertaining to Strength of Evidence				Strength of Evidence and Magnitude of Effect*
	Risk of Bias: Study	Consistency	Directness	Precision	Effect Estimate (Range or 95% CI)
Economic outcomes: hospital inpatient admissions, ED visits, total costs‡					Low strength of evidence for lower ED visits in older adults and no reduction in admissions; insufficient for total costs in adults; insufficient for all economic outcomes in children
5 (8001)	RCT/fair	Consistent	Some indirectness	Imprecise	Admissions: RR, 0.96 (95% CI, 0.84 to 1.10) in adults ED visits: RR, 0.81 (95% CI, 0.67 to 0.98) in adults Total costs: No summary estimate
6 (229 883)	Observational/fair	Consistent	Direct	Precise	Admissions: RD median (range): −0.2% (1.4% to −8.9%) ED visits: RD median (range): −1.2% (3.1% to −8.3%) Total costs: No summary estimate

Recent Studies

- 2 Experimental Studies, 1 Observational/fair and good quality (Nocon 2012, Fifield 2013, Werner 2013)
- 1 study slight decrease in ED visits
- Higher PCMH rating= higher costs

PCMH Clinical Cost Conclusions

- Low strength of evidence for utilization
  - ED
  - Inpatient
- Insufficient evidence for total cost
  - Not consistently decreased
- 1 Study suggests savings may occur with lengthy exposure to PCMH
- Costs may be a function of approach to implementation

Cost

- There is some evidence that PCMH may be associated with reduced emergency department admissions for older adults.
- Evidence is not yet sufficient to comment on evidence related to
    1) chronic illness care processes
    2) clinical outcomes
    3) effect on hospital admissions
    4) effect on costs of care

CONCLUDING REMARKS

PCMH evaluations

- Compared to peer-reviewed research, evaluations are
  - More positive
  - More consistent

Evaluation example: Patient Centered Primary Care Collaborative (2012)

"Clear, Consistent, and Compelling Data For PCMH Model"

- Improves health outcomes
- Enhances the patient and provider experience
- Reduces expensive, unnecessary hospital and emergency department utilization

Example

- Geisenger Health System ProvenHealth Navigator PCMH Model
  - Statistically significant 14% reduction in total hospital admissions relative to controls, and a trend towards a 9% reduction in total medical costs at 24 months.
  - Estimated $3.7 million net savings, for a return on investment of greater than 2 to 1.

Future Research Studies on PCMH

- 31 ongoing PCMH studies broadly representative of the U.S. health care system
- Results expected in the next 18-24 months
- Evidence base related to PCMH will soon be greatly expanded

Conclusion

- PCMH is a promising model for organizing primary care.
- However, there are significant knowledge gaps about outcomes of the PCMH model.

Questions?
Comments?

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