Conducting Health Services Research on Physical Therapy: Perspectives From the Front Line

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Cecil G. Sheps Center for HSR

- **Founded in 1968:** one of the oldest and largest centers of its kind in the U.S.

- **Mission:** “to improve the health of individuals, families, and populations by understanding the problems, issues and alternatives in the design and delivery of health care services.”

- **Director:** Timothy S. Carey, MD, MPH
  - 18 Research Programs (e.g., Rural Health, Health Disparities)
  - Staff of over 220
Cecil G. Sheps Center for HSR

- **Pan University Research Center:** > $19 million in external funding/yr.
- **AHRQ Funded Initiatives:** DEcIDE; RTI-UNC Evidence-Based Practice Center; Practice-Based Research Network; T32 training program
Overview of Presentation

• Review of IOM’s 6 aims of quality of care.
  – Useful for “categorizing” areas of health services research
  – Useful for generating questions relevant to PT

• Present some examples of our work & work of others within context of quality.

• Highlight future opportunities, relevant/timely topics.
IOM Components of Quality Care

- Effective
- High Quality Care
- Patient/Family Centered
- Efficient
- Timely
- Safe
- Equitable

Value

Care Coordination

Health System Infrastructure
EFFECTIVE

• Providing services based upon scientific knowledge and avoiding those services not likely to benefit.

• Avoiding underuse, overuse, misuse of care.

**UNDERUSE** - When patients do not receive medically necessary care, or when proven health care practices are not followed.

**OVERUSE** - When treatments are given without medical justification, or when an equally effective option could have been followed that would have cost less or caused fewer side effects.

**MISUSE** - another way of describing medical errors, which can be defined as either the failure to properly carry out appropriate treatment plans or the use of inappropriate plans.
Underuse of Care – PT examples

• Only 30 % of individuals with chronic LBP and functional limitations saw a PT in the past year. *(Freburger, Holmes, Carey. Phys Ther. 2011).*

• Uninsured individuals with chronic LBP less likely to receive PT. *(Freburger, Holmes, Carey. Phys Ther. 2011).*

• Exercise underused for chronic LBP by all types of practitioners. *(Freburger, Carey, Holmes, & others. Arthritis Rheum. 2009)*
# Use of Treatments by Individuals Who Saw a PT for Chronic LBP

<table>
<thead>
<tr>
<th>TREATMENTS</th>
<th>Percent Who Received (95% CI)</th>
<th>Evidence on Effectiveness</th>
<th>TYPE OF USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ACP/APS</td>
<td>Cochrane</td>
</tr>
<tr>
<td>EXERCISE</td>
<td>74.8 (64.9 – 82.7)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>HEAT</td>
<td>50.8 (40.9 – 60.7)</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>COLD PACK</td>
<td>41.4 (32.3 – 51.2)</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>E-STIM ON-SITE</td>
<td>31.5 (23.1 – 41.3)</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>ULTRASOUND</td>
<td>29.5 (21.0 – 39.6)</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>TENS AT HOME</td>
<td>27.4 (19.2 – 37.6)</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>CORSET/BRACE</td>
<td>24.0 (16.5 – 33.5)</td>
<td>?</td>
<td>–</td>
</tr>
<tr>
<td>MASSAGE</td>
<td>19.6 (12.6 – 29.3)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>MANIPULATION</td>
<td>10.4 (5.8 – 17.9)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>TRACTION</td>
<td>7.0 (3.3 – 14.3)</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

(Freburger, Holmes, Carey. Phys Ther. 2011).
Practice Variation

- Striking variation in **quantity & quality** of care delivered in different areas of the U.S.
  - Variation not related to differences in illness severity, access

**Hb A1C Testing in Diabetic Pts.**

Map legend
- 90% to 92% (4)
- 85% to < 90% (18)
- 80% to < 85% (20)
- 70% to < 80% (8)

Average annual percent of diabetic Medicare enrollees age 65-74 having HbA1c test, 2003-2005

Practice Variation – WHY?

• Lack of evidence on effectiveness
  – Wide variation in use of discretionary surgeries for LBP; less variation in joint replacement surgery (Weinstein et al., Spine, 2006)

• Lag between discovery and implementation
  – 17 years on average (NCQA, 2007)

• Financial incentives/disincentives
  – Supplier induced demand, more use in areas of greater supply
  – Medicare spending varies more than two-fold across US regions with no differences in outcomes.

Variation in Adult Ambulatory PT Visits

• Analysis* of Medical Expenditure Panel Survey data
  – Variation in number of visits by census region
  – More visits in urban regions vs non-urban regions
  *controlling for insurance, SES, illness severity, other factors
  (Machlin SR, Chevan J, Yu WW, Zodet MW. Phys Ther 2011)

• Analysis* of Medicare Current Beneficiary data
  – Variation in use of PT (yes/no) by census division
  – Variation in number of visits, costs by census division
  *controlling for insurance, SES, illness severity, PT supply, other factors
  (Freburger JK, Holmes GM. Phys Ther 2005)

• Bigger questions:
  – What are the reasons behind the variation?
  – What is the right amount?
SAFE

• Avoiding injuries to patients from the care that is intended to help them.

• Concept of Misuse: failure to properly carry out appropriate treatment plans; medical errors.

PT Examples: falls, burns, aggressive treatment that may delay recovery
EQUITABLE

• Providing health care to all individuals in a manner that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status. (Disparities)

• Related to **access to care** which requires:
  – Gaining entry into the health care system. (e.g., insurance)
  – Finding providers who meet the needs of individual patients. (e.g., geography/supply)
  – Getting access to sites of care where patients can receive needed services. (e.g., ease of contacting provider & getting an appointment; transportation; physician referral)
## Summary of Some Studies on PT Access

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>DATA</th>
<th>EVIDENCE OF DISPARITIES</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB adults w/ MSK problems</td>
<td>NAMCS</td>
<td>Insurance, physician type, geography, <strong>no racial disparities</strong></td>
<td>Freburger &amp; Holmes, 2003</td>
</tr>
<tr>
<td>CB Medicare Beneficiaries</td>
<td>MCBS</td>
<td>Income, geography, <strong>no racial disparities</strong></td>
<td>Freburger &amp; Holmes, 2005</td>
</tr>
<tr>
<td>CB adults w/ spine problems</td>
<td>NSN</td>
<td>Gender, education, geography, WC, litigation, <strong>no racial disparities</strong></td>
<td>Freburger &amp; Holmes, 2005</td>
</tr>
<tr>
<td>CB adults w/ MSK Conditions</td>
<td>MEPS</td>
<td>Insurance, education, race, ethnicity, geography</td>
<td>Carter &amp; Rizzo, 2007</td>
</tr>
<tr>
<td>CB w/ spine problems</td>
<td>MEPS</td>
<td>Income, education, gender, <strong>no racial disparities</strong></td>
<td>Chevan &amp; Riddle, 2011</td>
</tr>
<tr>
<td>NC residents w/ chronic LBP</td>
<td>Survey</td>
<td>Insurance, <strong>no racial disparities</strong></td>
<td>Freburger, Carey, Holmes 2011</td>
</tr>
</tbody>
</table>

CB=community-based
EFFICIENT

• Producing the best possible outputs from a given set of inputs.
  – Producing a specific output with the least costly inputs.
  – Avoiding waste, including waste of equipment, supplies, ideas, and energy.

Examples of inefficient care
  – Overuse of care
  – Avoidable hospitalizations, re-hospitalizations
  – More costly care to achieve the same quality as a less costly alternative
EFFICIENCY OF PT


- Retrospective cohort study
- Analysis of data on Medicare beneficiaries with LBP (n=439,195)
- Receipt of PT early after an episode of acute LBP associated with decreased odds of receiving spinal injections, decreased odds of frequent physician visits.

INPUT: PT

OUTPUT: LESS USE OF CARE
OTHER PT EFFICIENCY EXAMPLES

• Direct access – does that lead to more efficient care?
  
  *(Pendergrast, Kleithermes, Freburger, Duffy. HSR 2011)*

• PTA to PT ratio
  
  *(Resnik, Liu, Mor, Hart. Phys Ther 2008)*

• Shift in tasks from physicians to PTs
  • Direct access – addresses impending physician shortage
  • Patient-centered medical home
TIMELY

• Reducing waits and sometimes harmful delays for both those who receive and those who give care.

PT Example:

– Timeliness of mobilization and/or rehabilitation in the inpatient setting.

  • Early mobilization of ICU patients on mechanical ventilation
  • Reduces LOS
  • Increased function
  • No adverse events
PATIENT/FAMILY-CENTERED

• Providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.

• Other components
  – Transparency
  – Choice in all matters without exception

  (Berwick, Health Affairs, 2009)
PATIENT/FAMILY-CENTERED – PT Examples

Hush JM, Cameron K, Mackey M. Patient satisfaction with musculoskeletal physical therapy care: A systematic review. Phys Ther 2010.

• Patients highly satisfied with PT care.

• PT attributes associated with high satisfaction included effective communication, empathy, involvement in decision-making, spending enough time with the patient
Opportunities/Timely Issues

EFFECTIVENESS

- More studies on overuse, underuse of PT care
- Better understanding of practice variation
- Cost-effectiveness studies
- Comparative effectiveness research
  - APTA’s Outcome Registry
  - Patient-Centered Outcomes Research Institute (PCORI)
PCORI

• Independent, non-profit health research organization.
• Established as part of Affordable Care Act.
• Focuses on “comparative clinical effectiveness” research.
• Proposed national priorities
  • Comparative assessments of prevention, diagnosis, treatments
  • Improving healthcare systems
  • Communication and dissemination
  • Addressing disparities
  • Accelerating patient-centered and methodological research
Opportunities/Timely Issues

**EQUITABLE**

- Better understanding of access issues, disparities in different areas of PT (e.g., home health) and diagnoses
- Studies on ways to decrease disparities

**TIMELINESS**

- Timeliness of care in the acute care setting.
- Time from referral to actually being seen by a PT and how this impacts outcomes, recovery.
  - APTA’s Outcomes Registry
Opportunities/Timely Issues

**EFFICIENCY**
- Models of delivery within PT (e.g., PT/PTA use)
- Models of delivery within larger healthcare system (e.g., PT vs MD care)
- Role of EHR in efficiency

**PATIENT-CENTERED**
- Coordinated Care
  - Patient-centered medical home model of delivery
  - Accountable care organizations
  - Transitions of care – PT’s role
  - Expanded access to care – email, internet sites
Funding Opportunities

• Patient-Centered Outcomes Research Institute (PCORI)
• Centers for Medicare & Medicaid (CMS) Innovation Center
• Agency for Healthcare Quality & Research
• National Institute of Health – 2 RFAs from NIH Health Care Systems Research Collaboratory
• Foundation for PT
• American Physical Therapy Association
THANK YOU