Case Studies to Help Our Case for Autonomy and Strategies for Full Time Clinicians to Contribute to the Literature

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Objectives

Upon completion of this course, attendees will be able to:

1. Discuss current state of physical therapy practice and future direction in regards to role as direct access providers.
2. Review literature, including case studies/series on performance of physical therapists in direct access role.
3. Demonstrate basic clinical reasoning strategies to recognize uncommon presentations and develop clinical questions.
4. Demonstrate strategies for subjective and objective exam to support clinical questions.
5. Efficiently translate clinical findings into an abstract based on research questions and findings.

Current State of PT Practice²,3

Direct access in all 50 states
- 20 states unrestricted access
- Most federal payers require physician referral

Ongoing legal disputes over
- Manipulation → starting Oct 1 do NOT need physician referral
- Dry Needling → April 2019

Opposition: Safety and Utilization⁶

- Family health clinic (FHC) vs. “Advance Practice” PT Clinic (PTC)
- Actual or “near miss” safety event
  - 1.9x more likely in FHC
- Imaging per encounter
  - FHC: 1 per 4.99
  - PTC: 1 per 37.13
- No adverse events with:
  - 1,817 Thrust Manipulations (FHC=197, PTC=1,621)
  - Dry Needling (PTC only=2,910)
- Referrals to other providers per encounter
  - FHC: 1 per 3.06
  - PTC: 1 per 51.88

Future Directions²,4,5

Full Autonomy
- Direct Access
- Lower cost and health care utilization with PT first

Additional rights
- Imaging & NSAIDs
  - Present and successful in U.S. military
  - Wisconsin able to order radiographs since April 2016

Levels of Patient Access to Physical Therapist Services in the States
Some Problems with Case Studies
- Unable to infer causality
- Unable to generalize findings
- Findings can only be considered hypothesis
- Over-interpreting/misinterpretation
- Biases
  - Publication bias
  - Observer’s subjectivity with retrospective analysis
- Unlikely to be accepted by most major journals

Limitations of RCTs
- Poor external validity
  - Assumption that findings are transferable to your patient
  - Often does not match real world environment
- Mixed treatment effect
  - Group with overall better outcomes will still have patients with poor outcome
  - Does not answer WHY subjects improved
- Treatment fidelity
  - Interventions adequately performed?
  - Interventions representative of clinical practice?

“Generalizable truth that we seek to glean from research trials pertains to the sample’s (and, hopefully, the population’s) story, not the stories of individuals participants”

what does an expert clinician have novices don’t have?

Expert:
1. Clinical reasoning
   a. Sound knowledge base
   b. Manner of knowledge retrieval
   c. Experiences values and attitudes
   d. Ability to involve the patient in decision making
2. Patient Management
   a. Verbal and nonverbal patient communication
3. Patient Education
Novice vs Expert Clinician Dialogue Examples

Novice
- PT: “Is it getting warm yet?”
- Patient (X): “Not yet”
- (Long period of silence)
- PT: “Have you been walking?”
- X: “I did yesterday.”
- PT: “Were you sore?”
- X: “Not too bad.”
- (Long period of silence)
- PT: “Does it hurt in your shoulder?”
- X: “That is the spot right there; I can feel it every time you move over it.”
- (Long period of silence)
- PT: “How much time have you been leaving the collar off?”

Expert
- PT: “Now I’m going to get started here (with the ultrasound), and then gradually I’m going to have you bring that right knee up to your chest, but gradually. Now I’m going to do this with a little stretch. Did you do a lot of walking this morning?”
- X: “Yes, I usually walk in the morning, about three blocks.”
- PT: “How did you feel?”
- X: “Okay when I first put my leg out. Initially, getting up in the morning: that is when it pulls. When I walk to the bus, it eases.”
- PT: “How is it during the course of the day?”
- X: “It is better during the day but worse at night.”

Can you still communicate like an expert if you are a new grad?

...But how do we get there??
- Red flag screening
- Differential diagnoses
- Cased based learning
- Strong subjective history
- Mentorship by experienced clinicians
- Solid knowledge background
- Improving communication skills

LIFELONG LEARNING

Expert practice: Jensen GM, PT 2000

Pattern Recognition
- Faster, efficient
- Expert clinician
- Can result in biases at all levels of expertise, more diagnostic error
- Prematurely limit hypotheses, testing

Hypothetico-Deductive
- Complex, unfamiliar
- Novice/student
- Inefficient
- Costly
- False positives
- Inappropriate referrals

Credit: Beth Buzzell
Future Directions

- Full autonomy
- Additional rights

BUT I work 40h/week... how can I contribute?

Cases!
Studies/Reports/Series are good for:
- Novel approaches & treatments
- Rare/unusual presentations
- Clinical reasoning/differential diagnosis
- Medical screening & referral
- Imaging reports
- Forming & exploring new hypotheses
- Accidental findings & adverse events

More Benefits
Studies/Reports/Series are good for:
- Reporting of events that cannot be investigated with RCTs
- Deeper understanding of specific patient interaction

Case S/R/S are also:
- Cheap, time efficient
- Great opportunities for student in-services
- Great first steps for novice researchers
- Potential sparks for further studies

How Does Doing One Case Study Help?
Boissonnault & Ross Systematic Review

- 78 case reports
- PT referral to physician with subsequent Dx of medical condition
- Analysis included:
  - How patient accessed PT
  - Timing of referral
  - Resultant medical Dx
  - PT’s role in referral for Dx testing
  - Relevant patient presentation
  - Supports direct access and autonomous practice
Boissonnault & Ross Systematic Review

- Addresses patient safety concern
- Supports notion that PTs know when to order imaging
- May help further change MD perception of PT
  - Objections to direct access etc.
- AMA
- Every case is a part of the puzzle
  → Contribution to the advancement of PT practice

How does my case support help advancing PT?

- Make a case to support our future directions
- Differential diagnosis & clinical reasoning
- Medical screening for successful referral (including imaging)
- Demonstrate PT ability as first contact provider
- MDs, Insurances, Legislation
- Demonstrate unprecedented value
  * Successful treatment of conditions not usually treated in

How Do I Know This Could Be A Case?

Clinical Reasoning Strategies
- DDX
  - Buckets
  - Evidence based examinations
  - Account for all symptoms (case example)
  - R/O and R/I
  - Is this a familiar pattern?
  - Is this 100% MSK?

Initial Evaluation - “Novice” Clinician

- MD: Pelvic and low back pain with sciatica
- Constant L sided LBP and L sided groin pain
- Numbness in anterior thigh
- Onset 2 weeks ago
- PMH: Kidney stones (1 year prior), Bell’s palsy

What do you think?

- Primary Hypothesis
- Differential Dx?
- Biased by previous information?

Initial Evaluation - “Novice” Clinician

- (+) pain L EXTQ, decreased lumbar AROM
- (+) TTP L QL - worse at attachment close to TL junction
- Decreased hip ROM, reproduction of LBP with L hip IR (20 deg)
- Decreased glute strength
  - PT Dx: L sided LBP and lumbar extension intolerance

How do I know this could be a case?

Clinical Reasoning Strategies

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Differential Dx - Why is it important?\textsuperscript{14,15}
Incorrectly identifying appropriate Dx can lead to:

- Negative pt reported outcomes
- Delays in appropriate treatment
- Unnecessary healthcare costs
- Death or disability
  - Almost twice as often as other error categories

Shortcomings (Kachalia et al)
- Inadequate hx/physical examination (42%)
- Incorrect test interpretations (37%)

DDx - 3-Step Process\textsuperscript{14}

1. Are symptoms due to visceral disorder or serious illness?
   a. Potentially life-threatening pathology?
   b. Non-mechanical disorder?
2. Where is the pain coming from?
   a. Rule out a location
   b. Rule in the location, not knowing the structure at fault
   c. Confirming the structure that is causal
      i. Can be very challenging
3. Why did the symptoms start? Why do they persist?
   a. All biopsychosocial factors

Buckets
- Each dx of your DDx list is a bucket
- Think of the best supported tests/clusters for each bucket
- Which bucket fills the most?
- A pt can always have more than 1 dx
- Do you findings match with the person in front of you?

Clinical Reasoning Principles\textsuperscript{17}

- Understand both the “problem” and the person
  - Work, family, social circumstances
  - Psychological, cognitive, affective status
  - Expectations and goals → PSFS
  - Medical status & PMH
  - Yellow, red, blue, black flags
- Determine exact location, behavior, quality and relationship of ALL symptoms!
- Functional & structure specific testing
  - Reproduce/reduce all symptoms
  - Evidence based examinations

2nd Visit - “Expert” Clinician

Extended Subjective
- P1: Constant, Variable, Deep dull ache/pressure
- P2: Constant, Variable, Deep dull ache, intermittent sharp pain
- P3: Constant, Non-Variable, Superficial numbness/tinging, shooting pain
- P4: Intermittent, Variable, Deep dull ache
- No relationship between P1-4
2nd Visit - “Expert” Clinician

Extended History

- Insidious onset, all symptoms without specific MOI
- Simultaneous onset of:
  - Change in bowel function (constipation)
  - Feeling of bloating in abdomen
  - Reported palpable bulging in L LQ of abdomen
  - Bulging of abdomen after drinking a cup of water
- Pt reports night pain, unchanged by positioning
- Kidney stones: 7x in past year
- Bell’s palsy: 4 years ago
- Family Hx of cancer

Red Flags - How Common Are They?[^18,^19]

- Red flag symptoms in relation to health status
- Downie: 91.2% at least 1 red flag???
- Henschke: 80.4% at least 1 red flag
  - 1,172 subjects → serious pathology in 11 (0.9%)

Red Flags - Time to Panic?[^20]

Short answer - NO!

- More related to prognosis
- Continue exam unless unsafe
- Watchful waiting unless emergency
- We do not truly screen (rule out) or diagnose (rule in) serious pathology
- Enhancement of value-based care

2nd Visit - “Expert” Clinician

Extended Objective

- BP=166/107, HR=73. #VitalsAreVital
- P4 with lumbar AROM and L EXTQ
- (−) P1, 2, 3 not reproduced/worsened with any lumbar or hip testing
- (+) pain with CPA T12-L1, discordant pain
- (+) TTP over L LQ, firm
- (+) palpable pulse 7 cm lateral to umbilicus (L)
- Dorsalis pedis pulse R=2+ L=1+

Abdominal Aortic Aneurysm (AAA)^[^21,^22]

- Male, white, >50 yo, smokers, family hx of AAA
- Palpable pulse >4.0 cm
  - +LR=16
- “Normal”=2.5 cm
Outcome

- Referred to PCP
- Large bladder stone found on ultrasound
- No additional imaging deemed necessary
- Procedure to remove bladder stone
- Initial worsening of symptoms → complete resolution of concerning symptoms 3 days later
- Min residual symptoms in hip

From Clinic to Case Idea

- What is the clinical question?
  - Is this 100% MSK? → Why?
    - DDx
  - Treat, refer & treat, refer? → Why?
    - Scope of practice & risk
  - Is this case unusual/unique? → Why?
    - Uncommon pathology
    - Uncommon presentation
    - ETC.

From Case Idea to Abstract

- Research question formed from clinical question
- Background and Purpose
  - What is the main learning point?
  - What question does the case answer?
- Case description
  - Objective report
  - Clinical reasoning will answer a lot of WHys
- Outcome
  - Successful/not?
  - Discussion/conclusion
    - Reflection of case → learning point

Case Example: Abstract

**Background / Purpose:**
- Patients presenting with pain in multiple regions can create diagnostic challenges for physical therapists. Musculoskeletal and non-musculoskeletal pathologies may occur simultaneously causing similar symptoms. As direct access providers, differentiating between these symptoms and recognizing potential red flags are vital skills for physical therapists. The purpose of this case report was to detail the clinical reasoning leading to both medical and physical therapy management of a patient presenting with left sided low back pain, preceded by left anterolateral hip and groin pain, as well as left thigh numbness.

**Case Description:**
- What does the pt look like?
  - Part 1: first evaluation, PT Dx
  - Part 2:
    - Is this 100% MSK?
    - Extended subjective → multiple red flags
    - Extended objective → raising suspicion
    - Decision: refer
    - Subsequent referrals
    - Imaging/procedure
Case Example: Abstract

Case Description:
The patient was a 49-year-old male referred to physical therapy for pelvic and low back pain with sciatica. A mechanically biased evaluation was performed, resulting in an initial treatment diagnosis of “low back pain with extension intolerance.” The patient was then seen by the author for all remaining visits. During the second visit, additional subjective examination caused suspicion of a potential non-musculoskeletal pathology. Further objective testing lead to physician referral due to findings potentially suggestive of abdominal aortic aneurysm, iliopsoas abscess, or abdominopelvic neoplasm. He was referred back to his primary care physician and then gastroenterologist. Imaging showed a vesical calculus resulting in cistolitholapaxy.

Case Example: Abstract

Outcomes:
Subjective and objective findings suggestive of sinister pathology resolved following the cistolitholapaxy. The patient continued experiencing groin and anterolateral hip pain, consistent with gluteus medius and iliopsoas tendinopathy, superimposed on intra-articular hip dysfunction. Following treatment consisting of manual therapy and exercise through two visits in four weeks, patient self-discharged due to significant reduction in symptoms.

Case Example: Abstract

Discussion / Conclusion:
This case problem provides an opportunity to discuss the differential diagnosis, clinical reasoning, and outcome of a patient who presented with both genitourinary and musculoskeletal pathology. This report reiterates the importance of the ability of physical therapists to screen for non-musculoskeletal pathologies and recognize when to refer.

Credible Case Study Resources
- LEAP (Linking Evidence and Practice) case studies
- By the APTA journal PTJ
- Mark Jones case studies
- JOSPT Resident Case Problem
  - [jospt.org](http://jospt.org) → search Resident Case Problem
- MOSC requirements (for those that expire in 2023 and beyond)
  - Required: 1 reflective portfolio submission every 3 years using ICF model for clinical reasoning
  - Category 3: Professional Writing: Submitting a Case Study/Case Report (optional)
How do I write up the case?

- PTJ Author Checklists
  - https://ptj.bmj.com/pages/authors/
  
- The CARE Guidelines

- BMJ Full Case Template
  - https://bmj.bmj.com/author-tools/bmj-full-case-template

- BMIC: Includes Criteria for Assessment

- Resin A guide to writing case reports for the Journal of Medical Case Reports and BioMed Central Research Notes. Journal of Medical Case Reports 2013 7:239,