When Clinical Reasoning Overrules the Evidence

Breakout session
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Objectives – Break Out Session

- Case examples where clinical expertise and patient values led clinician away from EBP interventions
- How to integrate clinical experience, EBP and patient values into a plan of care
  - ICF / Patient Centered Care
  - SINSS
  - Reassessment
  - Common clinical syndrome

Evidence Based Practice

Components of Clinical Reasoning

- Information Gathering
- Analysis
- Intervention
- Decision Making
- Reassessment
Clinical Decision Making

Two Compartment Thinking
“Semi-permeable brick wall”

<table>
<thead>
<tr>
<th>Theoretical</th>
<th>Known</th>
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<tbody>
<tr>
<td>Pt presentation</td>
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<tr>
<td>History</td>
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<td>Signs</td>
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<td>Symptoms</td>
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<td>Research evidence</td>
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Two Compartment Thinking
The Diagnostic Process

- Anatomy
- Physiology
- Biomechanics
- Pathology
- Research evidence
- Pt presentation
- Signs
- Symptoms
- History

What is the utility of the brick wall analogy?
- Diagnosis is arrived at by relating the clinical examination of a patient to the knowledge on the theoretical side of the brick wall
- Enables us to use manual therapy without a precise diagnosis (treatment threshold)
- Enables us to use manual therapy coupled with analytical assessment to assist with differential diagnosis (hypothesis revision and making features fit)
Two Compartment Thinking
“Semi-permeable brick wall”

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<tr>
<th>Theoretical</th>
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<tr>
<td>Basic sciences</td>
<td>Presentation</td>
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<td>Research data</td>
<td>History</td>
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<td>Clinician past experience</td>
<td>Behavior of problem</td>
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<td>Pathology</td>
<td>Pt specific factors</td>
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Presentation: SINSS

- **Severity of the symptoms**
  - Numeric pain scales (NPRS)
  - Impact on function
    - Neck Disability Index
    - Patient Specific Functional Scale
  - Fear Avoidance Beliefs Questionnaire
  - Screening for Depression
- **Irritability**
  - Amount of activity to exacerbate the symptoms
  - The degree of the exacerbation
  - The time to subside
- **Nature**: Pathological considerations, pt specific factors
- **Stage**: Acute, subacute, chronic, recurrent, episodic
- **Stability**: Rate or progression of change in the condition over time

Back pain with leg pain

- 29 year old male with left LBP radiating down to lateral border of foot
- Previous history (5 years prior) of grade I spondylolisthesis with left leg pain and S1 nerve root involvement
  - Responded well to PT with lumbar flexion and stabilization exercises
- Recent injury (4 weeks) moving refrigerator, had return of left leg pain, weakness in S1, absent Achilles reflex
  - Reimaged due to concern of progression of Spondylolisthesis
  - Revealed herniated disc at L5/S1

Case: Weighing the factors on both sides of the brick wall

- **Grade I Spondylolisthesis**
  - Responds well to lumbar flexion exercises, avoidance of extension and stabilization exercise
- **Disc herniation**
  - Responds well to lumbar extension exercises
- Patient presents with peripheralization with both flexion at 20° and extension at 10°
- Can’t sit or stand painfree
- S1 nerve root impairment
  - L Achilles reflex absent
  - Impaired light touch lateral border of foot
  - Weak toe walking, gastroc, hamstrings, peroneals
Case: Spondylolisthesis with Disc Herniation

- What more information do you need?
- Where would you start with treatment for this individual?
  - Why (how did those factors on both side of the brick wall play into decision?)

- Surgeon suggested fusion with diskectomy
- What can we offer this patient?
- What was your working hypothesis?

Lumbar stenosis

- 70 y.o. male with MRI diagnosis of severe central canal and foraminal stenosis
- Symptoms include 2 year hx of progressive central LBP with bilateral radiating pain into dorsum of right > left foot
- Hard time with walking on heels
- EHL weakness right 3+/5
- Impaired light touch dorsum of right foot

Two compartment thinking

Anatomy
Pathophysiology
Biomechanics
Neurophysiology

Symptoms
History
Signs
Clinical Syndromes
Case: Severe spinal stenosis

Weighing the factors on both sides of the brick wall

- MRI + for spinal stenosis
- Flexion shown to open foramen and central canal
- Research (Whitman et al) suggests flexion should benefit
- Low back pain
- Right > left leg pain
- Better with standing and walking
- Centralization with extension
- Peripheralization with flexion
- Prone CPA’s feel “good”

Case: Severe spinal stenosis

- What more information do you need?
- Where would you start with treatment for this individual?
  - Why (how did those factors on both side of the brick wall play into decision?)

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Case: Severe spinal stenosis

- Surgeon suggested multi-level fusion
- What can we offer this patient?
- What was your working hypothesis?

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Neck Pain following Whiplash

- 28 y.o. female with 3 week history of right sided neck pain that started after being rear-ended in MVA
  - Has a lawyer representing her
  - Neuro exam normal
  - Ligamentous testing and cervical artery dysfunction screen normal
  - Limited right rotation compared to left (55 deg vs 70 deg)
  - Pain and hypomobility with spring testing C3-5
  - Does not believe manipulation will help, but willing to try…
CPR for Cervical Manip
Puenteudra et al JOSPT 2013

> **3 factors present:**
  - Symptoms < 38 days
  - Positive expectation that manipulation will help
  - > 10° Difference rotation
  - Pain with spring (PA) testing middle cervical spine

39%

90%

Pre-test Probability of Success

+LR = 13.5

Post-test Probability of Success

Meets 3 out of 4 factors Cervical Manip CPR

- Would you manipulate this patient?
- Why or why not?

Problems with this scenario…

- Derivation study only…
- CPR excluded patients with whiplash in past 6 weeks
- CPR also excluded patients with pending litigation
  - Results cannot be applied to this patient
- Patient has expectation that manipulation will not help…
  - What happens if something goes wrong???

Patient expectations of benefit from interventions for neck pain and resulting influence on outcomes
Mark D Bishop, PT, PhD., Paul Mintken, PT, DPT, Joel E Bialosky, PT, PhD, Joshua A Cleland, PT, PhD. J Orthop Sports Phys Ther, Epub 18 March 2013.

- Secondary analysis of validation study data
- 140 patients were asked
  - General expectations of benefit as well as
  - Specific expectations for individual interventions
- Were expectations related to outcomes at 1 and 6 months after treatment?
  - General expectations of benefit have a strong influence on clinical outcomes for patients with neck pain.
Interaction effect of ‘matched’ intervention and time on self-reported disability

![Graph showing interaction effect of 'matched' intervention and time on self-reported disability.](image)

**Chronic Neck Pain**

- 61 year old female with R sided neck and shoulder pain
- Previous history (15 years prior) of neck and R shoulder pain
  - Had brain stimulator placement for pain management with subsequent removal after 2 years
- OA dysfunction, CT jxn dysfunction, Thor hypo T3-4, R shoulder ROM hypo flexion/abd, motor control deficits, scapular muscle strength impairments
- NDI: 50%
- Activity limitations: no cooking, driving, walking > 10’, no reading, no tennis, no travel, wife of CEO of major industry -> avoidant
- Pt expectation: “I need to be strong”
- Multi-level cervical spondylosis

**Case: Weighing the factors on both sides of the brick wall**

- Manual therapy effective in neck pain
  - Walker et al
  - Cleland et al
- Upper quarter (DNF) strengthening for neck pain
  - Jull et al
- Pain neuro physiology
- TNE beneficial in chronic pain
  - Moseley et al

**Case: Chronic Neck Pain**

- What additional information do you need?
- Where would you start with treatment for this individual?
  - Why (how did those factors on both side of the brick wall play into decision?)
Case: Chronic Neck Pain

- Patient has 15 year history of neck pain and on 5th round of physical therapy in 2 years
- What can we offer this patient?
- What was your working hypothesis?

Case: Acute Low Back Pain

- 25yo female presents with 2 week history of central LBP
- Met pragmatic rule for lumbar manipulation
  - Pain less than 16d, no sx distal to knee
  - Normal neuro exam
  - Hypomobile and painful CPA L5
  - Negative expectation for manipulation

Acute Low Back Pain

- Lumbar manipulation & mobility exercise reduce pain & disability in acute LBP (Flynn et al, Childs et al)
- LBP provoked by any movement (high severity, irritability)
- Pt reports negative expectation for manipulation
- Pt reports inability to work in any capacity as baker as standing provokes sx immediately (activity avoidance)

Case: Acute Low Back Pain

- What additional information do you need?
- Where would you start with treatment for this individual?
  - Why (how did those factors on both side of the brick wall play into decision?)
  - What is your working hypothesis?
Case: Acute Low Back Pain Outcome

• ...

Low back pain with L hip pain

• 32 yr old female w/ primary complaints of LBP and L anterior and posterior hip pain and L lateral thigh numbness
• Thigh and anterior hip pain centralize with repeated extension
• MRI shows labral tear L hip, is considering surgery
• Psychosocial factors

Case: LBP with L hip pain

• Centralization of LE symptoms positive prognostic factor
• Labral pathology on MRI
• Manual therapy and exercise effective for hip and low back pain
• Hip pain provoked by walking
• Low back pain “constant” without mechanical aggravating/easing factors
• Decreasing activity level with progressive weight gain last 4 yrs
• Centralization of LE sx within session, but not maintained
• History of depression

Case: LBP with L hip pain

• What additional information do you need?
• Where would you start with treatment for this individual?
  • Why (how did those factors on both side of the brick wall play into decision?)
  • What is your working hypothesis?
Case: Acute Low Back Pain Outcome

• Initial treatment approach
  • Extension oriented exercise and manual therapy
  • Trial of mechanical traction
  • Result: status quo
• Modified treatment approach
  • Videos
  • …
• Outcome
  • …

Where Reasoning Can Lead You Astray

• Trap of falling into practice habits

Key Points:

• Most important to skilled reasoning is that there are no recipes!
• Health care (and PT) is not an exact science
• While clinical trials and theory extrapolated from basic science provide helpful guides to management for different problems, they are not prescriptions!
• PTs must judge how their patient matches the population in the research and then tailor management to the patient’s unique
  • Lifestyle
  • Goals
  • Impairments in body, structure and function
  • Activity and participation restrictions
  • Perspectives (including expectations and previous experiences)
  • Psychological status

Jones