

Hinges of Practice: How to Shift Paradigms

Craig Liebenson, DC

Specialists in the management of spinal disorders have seen tremendous changes in the last decade. While the low back pain (LBP) problem has been acknowledged as an epidemic, a consensus has gradually emerged as to why this has happened and what can be done about it (Quebec, AHCPR, CSAG, RCGP, Denmark). An overemphasis on the simplistic biomedical approach of identifying and treating the structural cause of pain has led to excesses in diagnostic testing, bed rest, narcotic analgesics, and surgery (Waddell). Meanwhile, an underemphasis on illness behavior has led to an under-utilization of functional (re-activation advice, manipulation and exercise) and cognitive-behavioral approaches (Feuerstein). The wide variation in practice habits - not justified by evidence of effectiveness - has been the major motivation of the guidelines development "players." (AHCPR)

Hinge #1 - The LBP Problem Is Expensive, Mismanaged; Solutions Are Known, but Not Generally Utilized

Patients with acute spinal problems tend to improve quickly, although recurrence is the norm. Those that develop chronic pain or become disabled are failed by a health care system that characteristically falls into the trap of overemphasizing the structural cause of pain, rather than providing early reassurance that there is no serious disease, and that the road to recovery is through gradually resuming normal activities and restoring function (Malmivaara, Indahl, Burton '95). Unfortunately, implementation of guidelines summarizing this modern approach has been poor, possibly as a result of its aggressive tone.

Acute low back pain is one of the leading complaints that leads an individual to seek professional health care. From diagnostic triage to rehabilitation, our management should have as its goal the maintenance or resumption of normal functional activities. Certain benchmark "tools of the trade" include reassurance that nothing serious is wrong; simple reactivation advice; pain relief options, such as medication or manipulation; cognitive-behavioral education; and spine conditioning exercises (i.e., McKenzie or stabilization training). New research also suggests it may not even be so important exactly what is offered, so long as it is matched to the patient's activities and offered with worksite involvement if related to occupation (Loisel, Frank). A key question remains: Whom should receive which components of this "benchmark"? Can we afford aggressive strategies for everyone, or is it possible to stratify individuals into groups that are either more or less likely to recover, and thus require more or less aggressive application of this "benchmark" (Frank, Liebenson, Linton, Kendall, Cherkin)?

What follows is a summary of the major conclusions from successive international low back guidelines:

Quebec - '87

- Specific diagnosis of acute LBP is possible in only 20 percent of cases.
- Management is different for acute stages than for later stages.

- Utility of diagnostic imaging is limited and not recommended routinely.
- Admonitions of the iatrogenic effects of bed rest have been issued.
- Early return of a patient to normal activity should be recommended, even if pain is present.

AHCPR - '94

- Perform diagnostic triage with special emphasis on finding "red flags" requiring urgent attention.
- Recommended: very strict criteria be applied to decision to have surgery.
- Recommended: spinal manipulation as one of the few primary treatment options for acute low back pain requiring additional symptomatic relief.

CSAG - '94

- Acute LBP is best managed in a primary care setting.
- Delay in appropriate care can lead to long-term disability.
- Recommended screening for risk factors of chronicity.

RCGP - '96, '99

- Recommended: consideration of referral to rehabilitation specialists if primary care failed (4-6 weeks).
- Recommend exercises for those not returning to normal activities within six weeks.

New Zealand - '97

- Contrasted acute, recurrent and chronic back pain.
- Chronic back pain is easier to prevent than treat, and often associated with psychosocial risk factors.
- Described in detail: the psychosocial aspects of pain and how to uncover them from history.
- Provided: a screening questionnaire for identifying "yellow flags" risk factors of chronicity.
- Recommended: referral to behavioral medicine specialist if psycho-social factors are relevant.

Denmark - Danish Institute for Health Technology Assessment '99

- Included an economic analysis of potential savings of a health care system based on the advice of the guidelines.
- A back school was suggested that emphasizes overcoming fear-avoidance behavior and that "hurt does not equal harm" is recommended, rather than traditional approaches with more "careful" advice.
- Manual therapy is recommended for both acute and chronic LBP.
- The GP and DC are recommended as the portals to the system.
- Better cooperation and more consistent management methods (especially diagnosis) between different health care providers (HCPs) is needed.
- Common postgraduate courses for different HCP's involved in managing LBP should be expanded.

Hinge #2 - Pathology Does Not Correlate Well with Pain

It is generally acknowledged that the biomedical approach for spine pain has been a failure (Waddell, Nachemson). According to the International Association for the Study of Pain (IASP), pain does not simply result from structural injury or pathology, but is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage..." The patient's psyche is thus just as important as his or her soma. Pain is related, of course, to peripheral activation from physical sources, however it is modulated both in the dorsal horn - Melzack-Wall gate control theory - and by descending influences, largely of psychological origin (Melzack, Main).

Many doctors overutilize diagnostic imaging as part of the initial evaluation of a LBP patient. This is done for two mistaken reasons: first, the false belief that serious diseases (i.e., tumors, infections) can be missed even by a thorough history and physical examination (van den Hoogen); second, the false belief that structural pathologies (herniated discs, arthritis), which can only be identified with imaging are strongly correlated with symptoms. We know that history and examination, are over 99 percent sensitive to identifying "red flags" of serious disease. We also know that the "false plus" rate for identifying herniated discs or degenerative conditions with imaging (e.g., x-ray, MRI) is so high as to make the tests clinically inappropriate as screening procedures (van Tulder). The problem is that too many individuals who have pain unrelated to the structural findings will be mislabeled and could receive unnecessary treatments, thinking of themselves as "sick," when most of these changes are related more to age than to symptoms!

So - what do we tell patients the cause of their pain is, if it is not pathology? It is usually the result of a back that is not conditioned for the tasks it was performing. Early spring gardening causes pain, not because of injury, but because the muscles are not in shape yet! Between the ages of 20 and 50 we lose approximately 50 percent of our muscle protection, enabling pain to arise without trauma, and independently of structural pathologies such as herniated discs or degenerative arthritis.

Shift in Practice - Focus on physiology more than pathology. Identify activity intolerances and functional deficits, and establish restoration of function as the primary goal of care.

Hinge #3 - Injuries Heal If We Don't Debilitate

Low back problems infrequently become chronic, but these cases are disproportionately costly. The main cause of acute pain becoming chronic is due to the patient taking on the "sick role" instead of viewing it as a temporary illness. Thus, LBP patients require an approach which addresses the physical (biological) and psycho-social dimension of their problem. This modern approach is called "biopsychosocial" (BPS), in that the total patient is our subject. Rather than focusing on structural causes and cures, restoring function by emphasizing physiological goals is the main focus of this new paradigm. Psychophysical perceptions that lead one to fear and thus avoidance of activity must be addressed, so reactivation can occur (Vlaeyen).

Shift in Practice - Reassure patients that they do not have anything seriously wrong with their backs. Explain that improvement is likely to begin quickly and that you will provide them with care, such as manipulation, to improve their comfort and speed their recovery.

Hinge #3a - More Than a Few Days Bed Rest Leads to Poor Healing/Recovery

Due to the failure to pinpoint the specific pain generators in low back pain, bed rest and analgesics have become the typical treatment. The self-limiting course of most low back pain episodes has given justification to this practice of symptomatic treatment. Unfortunately, the seemingly benign

prescription of prolonged bed rest is iatrogenic (Waddell, Malmivaara). Deyo performed a controlled clinical trial that compared two days of bed rest against two weeks of it, and concluded that not only was two days of bed rest as effective as two weeks' worth, but the negative effects of prolonged immobilization were also limited (Deyo).

When overly aggressive diagnostic methods are used during the acute phase, a high percentage of unrelated structural pathologies is uncovered; this increases the patient's notion that his or her spine is damaged or vulnerable, and leads to excessive inactivity, deconditioning and debilitation - all of which slow rather than speed recovery.

Shift in Practice - Do not prescribe more than a day or two of bed rest as a treatment for LBP. Explain to the patient that too little activity is just as dangerous as too much, and that deconditioning is the most common reason why acute pain persists.

Hinge #3b - Reactivation Is Important Emotionally and Physically: Reassure, Reactivate, Recondition

Reactivation is both safe and effective. Information and advice emphasizing the value of fitness and safety of resuming activities achieved superior outcomes to advice which reinforced rest, activity restrictions and the notion that the spine was injured or damaged (i.e., arthritis or a herniated disc - Burton, 1999). Other studies have shown that advice to resume normal activities is superior to not only traditional bed rest and analgesic prescriptions, but also, more modern approaches, such as McKenzie exercise programs (Malmivaara, Indahl).

Reactivation supported by pain-relieving measures, such as manipulation and medication, is appropriate for acute care. However, care must be taken that such measures are not substituted for appropriate advice: reassuring and reactivating the patient.

Shift in Practice - Recommend early resumption of normal activities even if there is still some discomfort. Assure the patient that hurt does not necessarily equal harm. Give specific activity modification advice about what to avoid during ADLs. Teach patients what they can do for themselves so they don't become dependent on passive therapies and develop abnormal illness behavior.

Hinge Point #4 - Ideal Time for Aggressive Intervention Is on Subacutes or High Risks

A "holy grail" of LBP research has been the search for ways to identify a high-risk group early on for which preventive treatment is better than waiting for full-blown chronicity to set in. This is of value, since aggressive treatment for everyone in the hopes of preventing chronicity in a minority is cost ineffective. To scientifically determine whom should receive more (vs. less) aggressive care, Frank has presented the concept of the "number needed to treat" to determine the cut-off for when it would be more efficient and cost-effective to substitute more aggressive treatment for a less aggressive approach. He states that it is possible to show that "the number needed to treat" to prevent a single case from passing into chronicity at six months drops swiftly over the first month, and then remains rather stable. (Frank)

According to Frank there are three distinct stages in terms of risk of an acute episode becoming chronic.

- Acute - one to four weeks - risk of chronicity is low.

- Subacute - four to 12 weeks - risk of chronicity is high *ipso facto*, and survival curve suggests aggressive treatment will be cost-effective here.
- Chronic - 12 or more weeks - recovery halts.

Different types of exercise have been shown to be effective for chronic pain: spinal stabilization that focuses on training "inner-range" endurance of the deep stabilization system (O'Sullivan); isotonic endurance and strength training of the trunk musculature (Manniche); and cognitive-behavioral approaches (Frost 1998, 2000, Klaber-Moffet, 1999).

Shift in Practice - Screen patients that are not improving within the first month for psychosocial risk factors of a poor prognosis. Offer more active than passive care. Be aware of cognitive-behavioral approaches that may be appropriate for those patients at risk of becoming chronic.

In summary, the BPS approach is a new paradigm for practice. It is evidence-based and can be easily incorporated into the primary care setting. Patients need reassurance, relief of pain, reactivation and sometimes rehabilitation.

Keys to Recovery - The Four Rs

1. Reassurance that no serious disease is present and that improvement is likely to begin rapidly (within a few weeks).
2. Relieve pain with medication or manipulation.
3. Reactivation includes advice that normal activities can be resumed (walk, swim, bike, etc.), and education about simple activity modifications to reduce biomechanical strain (i.e., hip hinge, cats, abdominal bracing).
4. Rehabilitate/recondition/reeducate muscles with McKenzie, stabilization, progressive strengthening, or cognitive-behavioral approaches.

Leaving out any of these will lead to frustration or resentment.

1. Reassurance requires the knowledge and skill of performing and interpreting diagnostic triage.
Indicated: on day one.
Purpose: to dispel the myth that the spine is damaged or imaging is required.
2. Relieve pain requires the recommendation of medication or delivery of skilled manipulation.
Indicated: within a few days if discomfort present.
Purpose: to provide increased comfort, patient satisfaction, and possibly accelerate recovery.
3. Reactivation requires an educational discussion about functional goals and the means to reach those goals.
Indicated: on day one.
Purpose: Dispel the myth that rest is required or that the spine is vulnerable and give practical advice about how to gradually resume normal activities.
4. Rehabilitation requires the skilled functional assessment and training of the patient.

Indicated: in the subacute phase for those at risk of chronicity.

Purpose: Improve spine stability by enhancing trunk muscle conditioning and performance ability in ADLs.

A new audit tool has been recently developed for use in primary care settings (MD, DC, PT) to help implement the major evidence-based recommendations of the guidelines in our practices ([url=<http://www.imrci.ac.uk>]<http://www.imrci.ac.uk>[/url]). It reviews diagnostic triage, assessment of psychosocial factors, indications for manipulation and rehabilitation, the limited role of bed rest, and the appropriate referral considerations for other investigations or treatments.

References

1. Agency for Health Care Policy and Research. 1994. *Acute low-back problems in adults. Clinical Practice Guideline Number 14*. Washington DC, U.S. Government Printing Office.
2. Burton AK, Tillotson K, Main C, Hollis M. Psychosocial predictors of outcome in acute and sub-acute low back trouble. *Spine* 1995;20:722-8.
3. Burton K, Waddell G. Information and advice to patients w/ back pain can have a positive effect. *Spine* 1999;24;2484-2491.
4. Cherkin DC, Deyo RA, Street JH, Barlow W. Predicting poor outcomes for back pain seen in primary care using patients' own criteria. *Spine* 1996;21:2900-2907.
5. Clinical Standards Advisory Group. *Back Pain*. Report of a CSAG committee on back pain. 1994. London, HMSO.
6. Clinical Standards Advisory Group. Waddell G, Feder G, McIntosh A, Lewis M, Hutchinson A 1996. *Low back Pain Evidence Review*. London, Royal College of General Practitioners.
7. Clinical Standards Advisory Group. Waddell G, McIntosh A, Hutchinson A, Feder G, Lewis M 1999. *Low back Pain Evidence Review*. London, Royal College of General Practitioners (www.rcgp.org.uk).
8. Danish Health Technology Assessment. Manniche C et al. *Low Back Pain: Frequency Management and Prevention from an HAD Perspective*, 1999.
9. Deyo RA, Diehl AK, Rosenthal M: How many days of bed rest for acute low back pain? *NEJM*, 1986; 315:1064-1070.
10. Frank J, Sinclair S, Hogg-Johnson S, Shannon H, Bombardier C, Beaton D, Cole D 1998. Preventing disability from work-related low-back pain. New evidence gives new hope - if we can just get all the players onside. *Canadian Medical Association Journal*; 158: 1625-1631.
11. Feuerstein M, Zastowny TR 1999. Occupational Rehabilitation: Multidisciplinary Management of Work-Related Musculoskeletal Pain and Disability. in Gatchel R, Turk DC (ed). *Psychological Approaches to Pain Management: A Practitioner's Handbook*. 458-485. London, The Guildford Press.
12. Frost H, Lamb S, Klaber Moffett JA, Faribank JCT, Moser JS. A fitness programme for patients with chronic low back pain: Two-year follow-up of a randomised controlled trial. *Pain* 1998;75:273-279.
13. Frost H, Lamb SE, Shackleton CH. A functional restoration programme for chronic low back pain: A prospective outcome study. *Physiotherapy* 2000;86(6):285-293.
14. Klaber Moffet J, Torgerson D, Bell-Syer S, Jackson D, Llewelyn Phillips H, et al. A randomized trial of exercise for primary care back pain patients: Clinical outcomes, costs and preferences. *British Medical Journal* 1999;319:279-283.
15. IASP 1995. *Back Pain in the Workplace: Management of Disability in Nonspecific Conditions*. Fordyce WE (ed). Seattle, IASP Press.
16. Indahl A, Velund L, Eikeraas O. Good prognosis for low back pain when left untampered: A randomized clinical trial. *Spine* 1995;20:473-7.

17. Kendall NAS, Linton SJ, Main CJ. *Guide to assessing psychosocial yellow flags in acute low back pain: Risk factors for long-term disability and work loss*. Accident Rehabilitation & Compensation Insurance Corporation of New Zealand and the National Health Committee 1997. Wellington, NZ. Available from www.nhc.govt.nz.
18. Liebenson CS, Yeomans SG. Yellow Flags: Early identification of risk factors of chronicity in acute patients. *J Rehabil Outcomes Meas*, 4 (2), 31-40, 2000.
19. Linton SJ, Hallden BH. Can we screen for problematic back pain? A screening questionnaire for predicting outcome in acute and subacute back pain. *Clin J Pain* 1998;14;1-7.
20. Loisel P, Abenhaim L, Durand P, Esdaile JM, Suissa S, Gosselin L, Simard R, Turcotte J, Lemaire J 1997. A population-based, randomized clinical trial on back pain management. *Spine*; 22: 2911-2918.
21. Main CJ, Watson PJ. Psychological aspects of pain. *Manual Therapy* 1999;4:203-215.
22. Malmivaara A, Hakkinen U, Aro T, et al. The treatment of acute low back pain - bed rest, exercises, or ordinary activity? *N Engl J Med* 1995;332:351-5.
23. Manniche C, Lundberg E, et al. 1991: Intensive dynamic back exercises for chronic low back pain. *Pain* 47:53-63.
24. Melzack R, Wall PD 1965. Pain mechanisms: a new theory. *Science* 150:978.
25. Nachemson A, Vingard E 2000. Assessment of neck and back pain syndromes. In Nachemson A, Jonsson E (ed). *Swedish SBU report. Evidence based treatment for back pain*. Stockholm/Philadelphia, Swedish Council on Technology Assessment in Health Care (SBU)/Lippincott (English translation) - (in press).
26. O'Sullivan P, Twomey L, Allison G 1997. Evaluation of specific stabilizing exercise in the treatment of chronic low back pain with radiologic diagnosis of spondylolysis or spondylolysthesis. *Spine* 24:2959-2967.
27. Royal College of General Practitioners. 1995. *The development and implementation of clinical guidelines. Report of the Clinical Guidelines Working Group*. 1-31. London, Royal College of General Practitioners.
28. Spitzer WO, Le Blanc FE, Dupuis M, et al: Scientific approach to the assessment and management of activity-related spinal disorders: A monograph for clinicians. Report of the Quebec Task Force on Spinal Disorders. *Spine* 1987; 12(suppl 7):S1-S59.
29. van den Hoogen HMM, Koes BW, van Eijk JTM, Bouter LM 1995. On the accuracy of history, physical examination, and erythrocyte sedimentation rate in diagnosing low back pain in general practice: a criteria-based review of the literature. *Spine*; 20: 318-326.
30. van Tulder MW, Assendelft JJ, Koes BW, Bouter LM 1997. Spinal radiographic findings and nonspecific low back pain: a systematic review of observational studies. *Spine*; 22: 427-434.
31. Vlaeyen JWS, Crombez G. Fear of movement/(re)injury, avoidance and pain disability in chronic low back pain patients. *Manual Therapy* 1999;4:187-195.
32. Waddell G. *The Back Pain Revolution*. 1998 Churchill Livingstone, Edinburgh.

Craig Liebenson, DC
 Los Angeles, California
 cldc@flash.net

MARCH 2001