The following questions were asked following a webinar on presurgical psychological evaluations for Spinal Cord Stimulation sponsored by Pearson Assessments. The questions and answers are organized by category below.

**Risk Assessment**

**Q:** Is this model of assessing risk for spinal cord stimulation outcome purely empirical, or is it based on a conceptual system?

**A:** The model is based on both empirical literature and expert consensus, which were organized together using a conceptual model that we call the vortex paradigm or vortex theory. This paradigm conceptualizes intractable medical conditions such as chronic pain as being precipitated by the cumulative effect of biological, psychological and social risk factors. The paradigm suggests falsifiable hypotheses that can be tested by multivariate methods. As noted in the webinar, just like heart disease can be predicted by an equation that includes cholesterol, age, blood pressure, diabetes, genetics etc., the vortex paradigm would predict that a response to surgery for pain can be predicted by an equation that includes depression, catastrophizing, drug abuse, personality disorder, job dissatisfaction, childhood trauma, secondary gain, etc. This is the method used during the development of the BHI 2 MIR.

Biological, psychological and social variables may all contribute to the onset of an injury or illness. Once present, a significant biological condition may have direct psychological and social consequences, and these may interact with the patient’s pre-existing biological, psychological and social strengths and vulnerabilities. As the level of biopsychosocial risk factors increases, the risk of decompensation (a “downward spiral”) into an intractable chronic condition increases. When the patient presents to the physician, all of these variables are present, and a treatment plan should be developed regarding how to either actively treat or manage these concerns, to prevent them from delaying recovery.
The Biopsychosocial Vortex

How intractable biopsychosocial disorders develop

**Illness and injury risk factors**
- Unhealthy lifestyle (e.g., poor diet, work habits, health habits, or biodynamics, lack of exercise, substance abuse, tobacco use, or risk taking)
- All increase risk of onset of illness or injury
- High stress level or psychophysical reactivity
- Exposure to disease, toxic or dangerous work
- Genetic vulnerability

**Common reactions**
- Difficulties adjusting to:
  - Pain or illness symptoms
  - Loss of function or disfigurement
  - Incapacitating conditions
- Affective reactions may include:
  - Depression, anxiety or PTSD
  - Fear of reinjury/recurrence of disease
  - Anger at perceived injustice
- Stress-related complications
  - Suppressed immune response
  - Insomnia and psychophysiological symptoms
- Social difficulties may include:
  - Changes in family dynamics
  - Financial and work problems
  - Forced lifestyle changes

**Psychological vulnerability risk factors**
- History of chronic depression, anxiety, panic or hostility
- Inability to identify/unwillingness to disclose emotion
- Dysfunctional cognitions (e.g., catastrophizing)
- Dysfunctional behavior (e.g., kinesiophobia)
- Somatization or somatic preoccupation
- Use of symptoms to justify dependency
- Antisocial or chronic maladjustment
- Borderline or other characterological traits, (e.g., self-destructive or chronic emotional instability)
- Pessimism or low perseverance
- History of substance abuse
- Current Rx dependency/craving
- Medical phobias

**Intractable biopsychosocial disorders**
- Objective medical disorders can lead to an intractable downward spiral when psychosocial complications are not addressed. These complications drain the emotional energy needed by the patient to adhere to treatment, and magnify the perception and report of symptoms. Intense pain and illness can lead to stress-related complications, including psychophysiological, psychoneuroimmunological and epigenetic changes, and to "windup" central sensitization, and reorganization of the CNS.
- In complex biopsychosocial disorders, the personality can sometimes become reorganized around physical symptoms. In such cases, physical symptoms become central to identity, and supply a pathway for the expression of affective distress and characteristic dysfunction. By focusing only on the physical aspect of emotional pain, the patient may avoid facing the emotions internally. Additionally, the physical symptoms may provide a face-saving means of avoiding the attention and support of others, without having to expose these emotional vulnerabilities. In so doing, these physical symptoms may allow the patient to escape from intolerable aspects of life, justifying adopting a dependent role, while absolving the patient from guilt due to any avoidance of responsibility. This semantic solution may also provide financial gain, a means of punishing or inducing guilt in others, or a rationalization for the abuse of prescription or illicit drugs.
- These conditions are complex, but can still respond to interdisciplinary care.

**Factors blocking escape from vortex**
- Misdiagnosis or biomedical diagnosis only
- Multidisciplinary treatment is not available, or not reimbursed by payer
- Unrealistic patient hopes of an easy, total cure are frustrated by the difficult realities of medical treatment
- Entitlement, compensation focus and litigation
- Patient anxiety or pain is denied, the physician becomes frustrated, and the patient gives up

**Failure to cope with symptoms leads to:**
- Exaggeration of symptoms in attempt to gain support
- Exhaustion and resignation
- Medical fears and helpless depression
- Growing anger/wish for retribution on those blamed for condition
- Increased dependency

**Psychological complications**
- Patient preoccupation with physical symptoms magnifies them in awareness
- Actual psychophysiological changes due to autonomic arousal or musculature bracing
- Conversion of emotions into experience of physical symptoms
- Passive coping leads to wish for quick cure without effort
- Patient does not adhere to treatment plan

**Psychosocial environment risk factors**
- Lack of support at home slows recovery
- Job dissatisfaction reduces motivation to return to work
- Employer unwilling to accommodate patient’s medical restrictions
- Disappointment with medical care increases risk of noncompliance
- History of trauma or victimization increases emotional vulnerability and physical reactivity
- Social environment incentivizes failed recovery by offering secondary gain for medical complaints in the form of excessive sympathy, decreased responsibility, monetary incentives, or allowing the abuse of anesthetic or other medications

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Q: Does the BHI 2 Medical Intervention Risk (MIR) Report predict poor behavioral response to medical intervention generally? Or does it predict the outcome for specific procedures, e.g. SCS implant?

A: It can serve in both capacities. The construction of the MIR Presurgical Risk Score began by identifying risk factors shown by systematic reviews to be predictive of outcome from spinal surgery and spinal cord stimulation. The Presurgical Risk Score was then constructed using items representing these risk factors. Thus, this measure is closely associated with the SCS and spinal surgery outcome research.

In contrast, the prototype versions of two other MIR scales (Primary Risk and Rehabilitation Risk) were developed in our 2009 review paper3. In this paper, we began by reviewing the research on psychological predictors of spinal surgery and spinal cord stimulation outcome note above. Additionally though, these measures were constructed based on the “vortex theory” of biopsychosocial outcome variables, and attempted to assess a broader set of risk for poor medical outcome from a broader set of treatments. This review generated a list of about 40 psychometric predictors, including depression, suicidality, substance abuse, personality disorder, psychosis, childhood trauma and so on. Based on that, we developed the original versions of the Primary Risk score and the Rehab Risk score. However, in this paper we then hypothesized that the risk factors we identified would likely interfere with most all forms of medical treatment, and tested this on 1254 patients. If you think about it, if the patient is severely depressed, is dependent on opioids, suffers from a personality disorder, hates physicians and hallucinates, what medical treatment would the patient likely do well at? Consequently, we then tested these risk scales on multiple patient groups. This included patients who were, a) undergoing spinal surgeries, b) undergoing arm or leg surgeries, c) in treatment for chronic pain, d) in acute physical therapy, e) worker compensation patients, f) medical litigation claimants, and g) patients undergoing treatment for brain injury. In almost all cases, these two scales were consistently significantly associated with both subjective and objective outcomes across all of these various groups. Thus, this supports the hypothesis that these scales are broadly applicable across medical diagnoses and treatments.

Q: Some of the pain clinics are now asking for an assessment for candidacy for successful opioid treatment. Can this be used for that too?

A: Yes. Although the original BHI has a Substance Abuse scale, the best BHI 2 measures for the purpose you mentioned would be the Addiction History and Addiction Potential scales on the MIR. As discussed in the webinar, the Addiction History scale identifies patients with a history of substance abuse, associated with anti-social behavior, incarceration, driving while intoxicated, failed substance use treatment, polysubstance abuse, etc. For patients high on this scale, opioids could become their next drug of choice. Note, however, that the Addiction History scale contains a lot of information that
is socially undesirable. If a patient is low on the Self-Disclosure validity scale on the BHI 2, then they might be concealing important information here. Thus, if a patient is very low or extremely low on Self-Disclosure, it would be good to review medical records or ask the patient’s family about addictive history to verify this.

On the other hand, a high Addiction Potential score identifies patients with extreme pain, poor coping, unreasonable expectations, high distress and medication craving. Elevations on either of these two measures indicate concerns. Elevation on both is more concerning.

Q: How significant of a factor is involvement in the workers’ compensation claim? Some studies have been very negative about his contextual factor.

A: Workers’ compensation is a unique payer system, where secondary gain is present. Patients who are symptomatic are often provided with disability pay without having to go to work. Additionally, if they do badly in treatment, they may get a larger settlement at the end as a reward. This can reduce motivation in treatment and incentivize patients to report more symptoms.

That being said, in our opinion some articles overly vilify workers’ compensation patients. If you fall off a roof and shatter your leg, you should get the same medical treatment, regardless of whether or not you were at work when the accident happened.

We conducted a very large study of workers’ compensation patients. This was a study of 29 million injured workers, over a period of 15 years. In this study, we tested the effect of using a biopsychosocial model like the one we discussed in this webinar. This study compared workers compensation patients who received aggressive biopsychosocial care, versus those worker compensation patients that received more traditional biomedical care. This study found that in one year, the use of a biopsychosocial approach with workers’ compensation patients in one state saved that state almost a billion dollars, while reducing disability.4

If you are using the BHI 2 MIR, and you are assessing a workers’ compensation patient, make sure to list in the demographics that it is a workers’ compensation patient, the date of injury, tobacco use and whether or not the patient has an attorney. If you do, those facts will be included in the MIRs risk algorithm calculations. Additionally, note that the BHI 2 “Biopsychosocial Vortex” theory2 was adopted as the theoretical paradigm for the ACOEM Pain Treatment Guidelines, which is the national worker compensation pain treatment guidelines.5

Q: What would a “good” workers’ compensation patient look like if being considered for an SCS? What is a deal breaker?

A: Research on medical treatment outcomes shows that workers’ compensation status is a “yellow flag” risk factor for SCS and other medical treatment outcomes. On the MIR report, if you select workers’ compensation as the payer, it calculates in workers’ compensation as a risk factor with all of the other risk factors, when calculating the
overall recommendation. Thus, workers’ compensation is “baked in” to the MIRs algorithms. Additional related risk factors are also calculated in, including the presence of litigation, cognitive compensation focus, medical entitlement, depression, widespread pain, perception of disability, relationship with physicians and so on. All of these risk factors are “yellow flags,” and as more are present the risk of poor outcome increases. The “deal breaker” is not the presence of any single risk factor. The “deal breaker” has to do with the number of yellow flag risk factors being present.

Q: With what other clinical populations can this instrument be used?

A: The BHI 2 and BHI 2 MIR were designed for use with the following populations.

1. Half of the BHI 2 patient normative sample reported chronic and half acute conditions. The majority of these patients had pain/injury, but some did not. Any patient where pain is a problem is appropriate for assessment.

2. The patients in the BHI 2 norm group were further stratified into those with acute pain, chronic pain, headache pain, neck pain, arm pain, back pain, and leg pain groups. The BHI 2 headache pain group was comprised of about half TBI headache pain and half non-TBI headache pain.

3. Because of the Job Dissatisfaction scale, the BHI 2 norm group had an upper age range at age 65. Clinically, we have found that the BHI 2 patient norms are useful for patients older than that, although we are more cautious with those interpretations. An important consideration here is if the test subject is a frail elderly patients who has deteriorating health. In the later stages of life, patients may develop multiple serious medical conditions that tend to elevate their responses to health psych inventories generally. All health psychology tests need to be interpreted with this in mind.

4. While the BHI 2 development was more closely associated with pain associated with injury, some of the scales and measures were specifically designed for illness-related pain. For example, the death fears scale was designed to assess patients with conditions such as cancer-related pain. However, if a patient with an ankle sprain is afraid of dying from that, it is a phobia!

5. The BHI 2 also provides extensive assessment for somatic symptom/somatoform-type disorders, such as somatization, conversion disorders, somatic symptom disorders, etc. In this webinar, the slides associated with “the psychological fallacy” very briefly addressed a few of the features associated with the BHI 2 assessment of somatic symptoms other than pain.

6. The BHI 2 also assesses pain associated with physical or psychological trauma (Survivor of Violence assesses adverse child and adult experiences).
7. The BHI 2 also has a community sample and using that sample can also access health risk factors in patients who did not have a medical condition. Although the BHI 2 is used less often for this, this is also a potential use.

Validity Assessment and Decisions

Q: Does the BHI 2 have a validity scale?

A: The BHI 2 has multiple validity measures.

1. First of all, the BHI 2 contains four very bizarre items. Almost 99% of those taking the test will respond in a certain way to them. Patients who endorse two or more of these items may be responding randomly, have literacy problems or have very bizarre ideation.

2. Secondly, the BHI 2 has a scale called Defensiveness. This scale was developed by recruiting 00 pain patients, and paying them to subtly fake good and subtly fake bad (e.g. subjects were told that if they faked in an extreme way they would get caught, so they should be subtle about it). All of these patients were then administered 600 questions, and the ones they answered differently from non-faking patients were used to develop the Defensiveness scale. It was later cross validated by repeating this process with second group of 100 pain patients.

3. Third, the BHI 2 also has a scale called Self-Disclosure. This is composed of items having to do with personal information about dysfunctional thoughts, feelings and behavior. This measure estimates the degree to which a patient is willing to disclose personal information about his/herself. Both the Defensiveness scale and the Self-Disclosure scale are bi-directional, meaning that they can both be unusually high, or unusually low.

4. While the above are the three main validity scales, the BHI 2 also examines more specific ways that patients may bias information. For example, with only a couple of exceptions, all of the BHI 2 scales are bi-directional, and in some cases this is particularly significant. If a patient has an extremely low Hostility score, it may be that s/he has difficulty recognizing or expressing angry feelings. This is important as somatizers, by definition, under report their emotions, and over report physical symptoms.

5. Lastly, while some tests are invalidated if more than x number of items are left blank, on the BHI 2, blank responses invalidate one scale at a time if ≥ 25% of items on that scale are left blank. For example, if a patient refuses to answer most questions about his or her family, and leaves 60% of the items on Family Dysfunction scale blank, this will invalidate the Family Dysfunction scale. However, all of the other
scales on the BHI 2 will be interpreted, as they were not affected by this pattern of blank responses.

Thus, on the BHI 2, all of these methods can be used to understand how a patient presents him/herself.

![BHI 2 Validity Scale Profiles]

**Q:** What do you do with an invalid BHI 2 (MIR) result due to faking good/bad?

**A:** This is an excellent question, although a complex one. As above, there are different types of invalidity conditions, many circumstances in which they can occur, and differing implications. Here are a few thoughts:

1. As noted above, BHI 2 scales are invalidated by blank responses one scale at a time. Sometimes scales are invalidated because the patient has privacy issues, and does not want to disclose anything about the family, past trauma, feelings about the employer, etc. In some cases, the patient’s rationale for this is understandable.
2. Sometimes patients achieve an invalid BHI 2 profile due to responses to the extreme validity items. In this case, the patient is either illiterate, is having a visual-motor problem (e.g. forgot their glasses, marks dot on wrong line), responding randomly, or has very bizarre ideation. While patients with paranoid psychosis sometimes score high on these extreme items and their responses are meaningful, generally endorsement of two or more validity items means that the patient’s responses to the entire test are not valid.

3. A third type of validity question arises when there is an extreme bias detected by the Defensiveness or Self-Disclosure scales. Note that both Defensiveness and Self-Disclosure can range from extremely high to extremely low scores. However, extreme scores on these two scales do not invalidate the BHI 2. Rather, they only tell you that the patient may have presented in one extreme way or the other, and they may do that for different reasons. These profiles are interpreted.

   a. The Defensiveness scale assesses the tendency to distort the portrayal of one’s life and circumstances. Highly defensive patients will describe their life as “great.” In contrast, patients who “drop their defenses” will get a low Defensiveness score, suggesting that they are describing their lives in highly negative terms.

   b. The Self Disclosure scale assesses the degree to which a patient will reveal information about any personal dysfunctional tendencies. A low score suggests the patient is being very private and does wish to share his/her thoughts and feelings with you. In contrast, patients with a high score may be either accurately describing a high level of psychological dysfunction, or describing themselves in an overly negative fashion.

   c. Sometimes patients who appear to be “faking bad” may be trying to exaggerate their complaints in order to get what they want. Thus, a patient may exaggerate their distress saying, “My pain is so bad that I can never do any kind of work again.” Alternately, if the reason for the referral is that the patient is suing for a million dollars for pain and suffering, a biased type of profile might be the report of extreme physical symptoms while claiming to be extraordinarily virtuous. So, the context can change how the test results are interpreted. If Self Disclosure is extremely high, the patient may be motivated to exaggerate psychological distress, either for compensation or as a “cry for help”. Related to this, patients with extremely low Defensiveness scores are “lowering their defenses” so as to report more negative information about life and circumstances. As the scores move further from the mean, there is increased risk that the patient is using the extreme reports to create a certain impression. Whenever scores are extreme, it is good to ask “Is this patient biasing the responses to get something or avoid something?” That something
could be a stimulator, opioids, disability pay, or light duty at work, and the interview helps you to understand the context.

d. On other occasions, sometimes patients present as extremely psychologically healthy (extremely low on Self Disclosure), feeling that if they reveal any psychological weaknesses, their medical symptoms will be taken less seriously. This is more likely to occur in an SCS evaluation if the referring physician sets them up to believe this. Some physicians will refer a patient by saying, “You are an excellent candidate for surgery X. Unfortunately, the evil insurance company will make you jump through this hoop of going through a psychological evaluation. You have to show that you are not crazy, and that the pain is not in your head.” (Some physicians actually say things like this). Thus, if patients comes into the evaluation expecting some kind of psychological inquisition to invalidate their claim, it sets them up to appear highly defensive, and to distort their portrayal of their life in a highly positive manner. Unfortunately, low and very low Self Disclosure scores will create “yellow flags” on the MIR, and extremely low Self Disclosure scores (below the first percentile) will create a “red flag” on the MIR.

e. If you think that the physician is preparing the patient for the psych eval in a problematic way, you may wish to offer the MD some instruction. For example, you could say to the physician something like this:

If you were referring the patient for an MRI, you wouldn't tell the patient “While you're in the MRI tube, try to move around as much as possible.” Obviously, that would create MRI results that are unusable. Similarly, it is possible to give instructions for a psych eval referral that renders the psych testing unusable as well. If you tell a patient that “The insurance company wants to prove you are crazy so they can deny coverage for the spinal cord stimulation.” If you do that, on psychological testing the patient will tend to describe themselves as psychologically perfect. Patients who are clearly biasing their report will appear to be untruthful on psychometric measures of validity, and this tends to make the patient look bad, as if they are faking. Additionally, if the patient portrays him or herself as happier than 99% of the healthy population, and as having no risk factors whatsoever, why would you ever do surgery if the patient was that extraordinarily happy with things they way they are? So, those instructions are problematic, and increase the risk that the patient will fail the assessment. A better way to refer the patient for the psychological evaluation is as follows: “As your physician, I'm concerned about your pain, and I'm concerned about your stress and emotional welfare as well. In order to understand what treatments might be best for you, I'd like you to undergo this behavioral evaluation. I fully expect that you have some stress in your life, anybody with chronic pain has stress. This psychological evaluation will help me to better understand your better, and help me select
the best treatments for you.” The patient who is told something like that is more likely to cooperate with the psych eval, and less likely to exhibit a “fake good” profile.

4. One of the ways we try to prevent biased responding is when we prepare the patient for psychological assessment. We explain to the patient our commitment to the “best practice model,” which is that our goal is to find the best treatment for that particular patient. Sometimes patients are looking for a magical solution, such as a surgery that will “cut the pain out of me,” a treatment that will not require any effort or change on their part. We try to explain to patients that in order for us to provide them the best treatment, we need for them to do their most accurate job of describing their symptoms. Based on that report of symptoms, we will try to identify the best treatments for them. For patients who present themselves in extreme ways, we process that with them afterward if they are treating with us. If they presented in an extremely defensive/positive way, we explore any privacy concerns they may have, and state that it would help us help them better if we understood them better. If patients present in an extremely negative way, we explain to them the nature of catastrophizing. If everything in their life seems absolutely horrible now, they are more likely to focus on the negative aspects of their surgical outcome later on.

5. For patients who have a red flag due to extremely low Self Disclosure, it indicates that the patient is going to extreme lengths to reveal nothing. This creates a primary risk factor, as you don’t know what the patient is concealing. This pattern can be seen in patients with severe somatic symptoms/somatoform disorders who are characterlogically prone to over-reporting physical symptoms, and under-reporting psychological symptoms. These patients tend to be alexithymic, and have a reduced level of emotional awareness. On the other hand, in some cases this extremely low Self Disclosure score can be observed if either the referring physician, SCS manufacturer rep or someone else conveys to the patient that this psych eval is very adversarial, is intended to prove that the patient is crazy and that the symptoms are “all in your head,” and that any psychological weaknesses that the patient admits to will be used to deny treatment. If we believe the second scenario is the case, we offer the to give the patient a “mulligan” and allow them to retake the test. We may say something like this to the patient:

“It looks like you were concerned about disclosing much information on the questionnaire. Maybe you were concerned about privacy, or that any thing you said would be used against you. Unfortunately, this makes you look impossibly happy, and like your life is perfect despite your pain, even more way more happy than healthy people. If you are really that happy, why would we put you through a stressful surgery? But I am guessing that this was probably about you being concerned about disclosing information. Our job is to help you, and in order to give you the best treatment, we need to understand how you are doing, and know about your pain, symptoms, emotional stress and frustrations. Do you want me to turn in
the report as is, or do you want to give it another try?” Note that we would never do this in a forensic evaluation, but might in a treatment evaluation.

6. Occasionally, extreme scores are seen when the patient is refusing to cooperate with the evaluation. This scenario has been relatively rare for us, but occurs sometimes when the evaluation is perceived in highly adversarial terms by the patient.

Test Comparisons

Q: What other measures do you include in your assessment?

A: For SCS, spinal surgery and pain evaluations, over the years we have come to rely primarily on the BHI 2 and BHI 2 MIR. Actually, the reason for the name Battery for Health Improvement was our attempt to create one measure to replace the battery of tests that we used to administer for assessing pain, injury and somatization, with the hope of developing a treatment plan to help patients get better. However, sometimes we do include other assessments. If we suspect a personality disorder, and we want to know more about which type, the MCMI-IV is a good choice. If there is a forensic context and the patient is in litigation for large amounts of money, an MMPI-2RF offers excellent validity measures. If we want to know more about a patient’s coping styles, we might also administer and MBMD. Lastly, if we wonder about cognitive impairment, we might do some cognitive screening or a brief assessment with a MOCA or an RBANS, respectively.

Q: If you could only use the BHI 2 or the BHI 2 MIR, which would you chose?

A: It depends on what we are trying to do. If the goal of the evaluation is to identify the risk level for a medical treatment, we would administer the BHI 2 MIR. If the goal was to develop a psychotherapeutic treatment plan, the original BHI 2 has more information about psychological constructs that would be helpful in treatment. Pearson offers a “package” price for these two reports, which makes it easy to use both.

Q: How is the BHI 2 related to the BBHI 2?

A: The BBHI 2 items are a sub-set of the BHI 2 items. While the BHI 2 has 18 scales, the BBHI 2 has six. Being shorter, the BBHI 2 takes only 9 to 10 minutes to take. In our 2009 article, we developed the original versions of the primary risk scale, and the rehabilitation risk scale. These scales were developed for both the BHI 2, and the BBHI 2. While these two scales are now included in the MIR report, they are not yet included with BBHI 2 scores. However, these scores can be hand-scored currently for the BBHI 2, using a worksheet. While hand-scoring is less convenient, and while the BBHI 2 versions of the scales are shorter and less reliable than the BHI 2 MIR versions, this BBHI 2 testing method only takes a few minutes.
Q: Will you comment on the differences between the BHI 2 and the MBMD (Millon Behavioral Medicine Diagnostic)?

A: This is a complex question. Additionally, as we are authors of the BHI 2, this biases our perception. However, in the information below, we will try to stick to objective differences between the two tests. We see them as follows:

1. First of all, a similarity between the BHI 2 and MBMD is that they the two most prominent multidimensional health psychology inventories. They both assume that the subject being assessed is a medical patient and the intent of the assessment is to facilitate interdisciplinary treatment methods. Despite the fact that these are both health psychology inventories, they are significantly different, so much so that we do not think it would be redundant to administer both.

2. The BHI 2 and MBMD were developed from different theoretical perspectives. The MBMD has as its theoretical underpinning Millon’s theory of personality types, and all of his coping style scales are derived from that. Thus, the MBMD was developed in the context of trying to assess how a patient copes with chronic disease. The MBMD manual points out that all of these coping styles are thought to be non-pathological, but are a vehicle for understanding the way that different types of people cope with a serious disease. In contrast, the BHI 2 was developed on a biopsychosocial theory called “Vortex Theory.” This is a theory about how multiple biological, psychological and social risk factors may combine to produce a poor outcome. The following statements are a gross oversimplification for both tests, but if we had to reduce it into a nutshell, the MBMD trends toward trying to understand how the typical person copes with the onset of disease, while the BHI 2 tries to assess the risk factors regarding why the patient may fail to respond to treatment for chronic pain, injury, or somatoform/somatic symptom disorders.

3. The MBMD manual states that when this test was constructed, 91% of the development sample of patients were diagnosed with chronic diseases classified as neurological, cancer, diabetes, cardiology and HIV, with the remaining 9% being pain patients. In contrast, the BHI 2 was constructed using a population that was being treated for chronic pain and/or injury. As the development of the BHI 2 focused on chronic pain, injury and somatic distress, the BHI 2 has many more scales and measures of pain than does the MBMD. In contrast, the MBMD contains many more scales about coping styles, as that came out of its theory.

4. The emphases of the BHI 2 and MBMD are different. In the MBMD report, there are more sentences describing the patient’s strengths than in the BHI 2. In contrast, on the BHI 2, there is a greater emphasis on the assessment of patient vulnerabilities. For example, the BHI 2 is based on a considerable amount of research about patient dangerousness to self and others, addiction, adverse childhood experiences (ACE), and adult trauma, and other more serious concerns.
5. The MBMD and the BHI 2 differ somewhat with regard to how they assess pain patients presurgically. There are currently two major clinical methods for performing presurgical psychological evaluations. One method of assessing presurgical risk was developed by Andrew Block using the MMPI-2. The other method of assessing presurgical risk was the “Vortex Theory” method, using the BHI 2. The MBMD pain report utilizes predictive risk assessments that use Block’s method in one section and the Vortex method in another section. On the BHI 2 MIR, the scale that is the most similar to Block’s score is Rehabilitation Risk. During the validation of the MIR, we discovered that the BHI 2 Rehab Risk score correlated .78 with Block’s MMPI-2 based risk score. While all of these measures attempt to assess risk in these patients, each one does it somewhat differently. Note that guidelines recommend that when possible, two tests should be used for presurgical assessment, especially when the risk of adverse events is high.

Beyond assessing spinal surgery risk, the BHI 2 MIR differs in that it also has risk scores applicable to other clinical concerns such as response to non-spinal surgery (Rehab Risk), risk of dependence on prescription medication (Addiction History, Addiction Potential), risk of not responding to interdisciplinary care (Rehab Risk), risk of coping poorly (Catastrophizing), risk of not responding to physical therapy (Kinesiophobia, Rehab Risk), risk of dangerousness to self or others/ severe psychopathology (Primary Risk), and risk of patient litigation or retribution (contained in the MIR Primary Risk narrative). The MIR malpractice litigation algorithms were based on our research studies of predicting patients who had thoughts of filing a malpractice lawsuit. However, we also believe that this algorithm identifies patients who are at risk for filing a board complaint or trashing doctors online. Note that the patient’s anger at physicians may or may not be justified. This is just about how the patient feels.

6. Lastly, the metrics of the BHI 2 and MBMD are different. The BHI 2 uses standardized T-scores, percentile ranks and ratings (high, very high, extremely high, etc.). In contrast, the MBMD uses “base rate scores,” which are a little more difficult to explain, but we will use a hypothetical example. Suppose 10% of the population was depressed and 5% of the population was anxious. If that was the case, then a “high” base rate score for depression should identify 10% of the population, while a “high” base rate score for anxiety should identify 5% of the population. Thus, a base rate score tells you something different than a T-score. Because of the nature of the base rate scores, however, there is no mathematical means of converting a base rate score into a percentile rank. As risk scores are generally expressed in terms of percent probability of occurrence though, the MBMD pain report lists base rate scores on one chart and percentile ranks on another. This provides two different ways (“metrics”) of determining whether a patient’s score is elevated on a particular scale. However, the challenge here is that when using two different metrics, a patient’s scale score can be high on one chart and low on the other. While there is a reason why that happens, it is more complicated to explain. Overall though, the
Psychometric methods used by the BHI 2 and the MBMD are quite different: Standardized T-scores on the BHI 2 versus base rate scores on the MBMD.

Conducting the SCS Psych Eval and Forming Opinions

Q: What if patient with sciatica has longstanding neurotic issues, and the MD refuses to try SCS because patient is a pain to work with. Ideas? Annoying patients have pain that could be substantially improved by the SCS. The pain itself is making them more anxious and irritable. What to do?

A: This is an excellent and very challenging question. This question has been the subject of extensive debate when developing science-based medical treatment guidelines, such as the Colorado Chronic Pain Treatment Guidelines or the ACOEM/MDGuidelines Chronic Pain Treatment Guidelines. Both of these guidelines adopt what is called the “Best Practice Model.” That is, the goal of treatment is to always do the “best thing.” These guidelines would then define the “best thing” by looking at the following criteria:

a) What treatments have the greatest evidence that they are effective?

b) What treatments have the lowest risk of mortality or morbidity/side effects?

c) What treatments place the lowest burden on the patient (i.e. is the treatment itself painful, or is the rehabilitation process long and difficult)?

d) As a tie-breaker, for treatments that are otherwise equal on points a, b and c above, and are thus equally safe and effective, which is the least expensive?

Overall, the decision tree that most guidelines have decided upon involve trying to begin with treatments that are effective, but are low risk, low burden and lower in cost.

When the current guidelines review the science, it turns out that psychological treatments, such as CBT have greater evidence of efficacy than does spinal cord stimulation. On the other hand, spinal cord stimulation, while effective for many patients, has a very significant level of complications that occur over time. Additionally, patients who are high in “neuroticism” are at an increased risk for being unhappy with the SCS results in the long-term, so if it is possible to reduce those risks beforehand with treatments such as CBT, that would be desirable.

Q: For those that you put off to use other interventions first, when do you re-asses for SCS?

A: That is one of the most important determinations to make as part of a treatment plan coming out of the evaluation. In the case in the webinar of the woman with the gunshot wound, the goal first of all is to help her to be safe, and to get her feelings of terror under control. Those are tangible goals, although it is often difficult to specify how many weeks
or months that might take. Note that on the MIR report, if the risk level is elevated, the report makes suggestions about treatments you could offer to reduce the risk level.

On the other hand, we have seen patients present for SCS treatment that had somatic delusions, who said things like, “You’d have pain too, if maggots were eating your spine.” Note that the patient had this medical belief despite multiple medical tests to the contrary. In this case, SCS is not a treatment for delusional pain and it is unlikely that the patient would ever be a candidate for SCS treatment.

Q: Do you assess cognition with these patients?

A: We can interpret this question two different ways, and so we will answer it both ways.

1. If SCS is being considered for an older person and dementia is suspected, we would recommend assessing the patient’s cognitive ability. That is because first of all, during a trial, a patient has to be able to reliably report changes in sensation produced by the SCS device. More importantly, following implantation, the spinal cord stimulator is operated by a remote. If a patient is unable to operate basic T.V. remote, they are probably unable to operate an SCS remote. This is important as it would be possible for a patient with dementia to turn the SCS device up to painful levels of stimulation and then be unable to turn it off. Thus, SCS is an unusual surgery, as it has certain cognitive requirements in order to operate a remote successfully.

2. This question could be interpreted with regard to whether or not the BHI 2 and MIR assess dysfunctional cognitions that could be targeted with treatment such as cognitive behavioral therapy. In that case, the BHI 2 assesses several types of dysfunctional cognitions. This includes catastrophizing, kinesiophobia, dysfunctional pain cognitions and dysfunctional somatic cognitions. Note that the BHI 2 catastrophizing scale is not a “pain catastrophizing scale.” That is because we decided that catastrophizing can be applied not only to pain, but to somatic symptoms and other concerns. Thus, elevations on both the catastrophizing and dysfunctional pain cognition scales would suggest pain catastrophizing, while elevations on the catastrophizing and dysfunctional somatic cognitions would suggest illness catastrophizing. Lastly, catastrophizing combined with kinesiophobia would suggest a patient catastrophizes about how badly he/she could be injured by exercises. All of those distorted cognitions could probably benefit from CBT.

Q: Do you make any categorical recommendations to surgeon? Yes with concerns, delays, etc.

A: There are some cautionary matters to consider when making categorical statements about surgery. They are as follows:

1. Sometimes there are scope-of-practice issues with regard to psychologists making categorical statements about appropriateness of a patient for surgery. While some
surgeries are elective in nature and performed to alleviate subjective symptoms, in some cases there is a degree of surgical necessity. This matter is discussed in some detail in the BHI 2 MIR manual. For example, suppose a patient breaks his back during a suicide attempt and is suffering from cauda equina syndrome. On one hand, the patient is severely depressed and has primary risk factors in the form of being imminently suicidal. On the other hand, surgical necessity is present, as the patient is at risk for becoming a paraplegic if surgery is not performed in the near future. Thus, even though the patient may be at high risk psychologically, the surgical necessity in this case overrides psychological risk. In this case, the psychological risk factors will drive the post-surgical rehabilitation process. Thus, the psychologist performing these evaluations needs to remember that ultimately, the decision about whether or not ultimately to perform surgery rests in the hands of the surgeon, and that surgical necessity when present overrides psychological risk.

2. Presurgical psychological evaluations attempt to predict behavioral aspects of outcome such as will the patient be satisfied with care after the surgery, and will this treatment promote behavior change (e.g. reduction of opioid reduce and return to work)? To this extent, presurgical psychological evaluations can advise the surgeon with regard to whether or not this procedure is likely or unlikely to be successful. So, within that context, we might advise the surgeon that given the patient’s overall profile and risk factors, a patient might be extremely unlikely to be satisfied with the surgery. Even so, as above, sometimes there are biological reasons why surgery is necessary anyway. In many cases, we do suggest that if prior to SCS or surgery we could treat the patient’s depression, sleep disorder, distorted cognitions, etc., they would be more likely to respond favorably to the invasive treatment.

Q: I have completed SCS evaluations when working at a pain clinic. Are there panels that we can get on to conduct these SCS assessments?

A: With regard to Medicare, Medicare nationally requires presurgical psychological evaluations prior to spinal cord stimulation. So, if you are eligible to provide services under Medicare, you can provide those services to Medicare patients.

With regard to Medicaid, we cannot advise you, as every state is different. In every locality that we know of though, where SCS is an offered service, presurgical psychological evaluations are required. You will need to explore services under Medicaid in your region, however.

With regard to private payers, with most private payers, such as Blue Cross, United Behavioral Health, and so on, reimbursement for presurgical psychological evaluations is being conducted through the mental health payer, more often than the medical payer. Thus, with regard to private payers, you will need to explore getting onto the mental health panels for reimbursement. Also, your should explore getting on the worker compensation insurance panels as well. Note that we have a separate white paper about getting on insurance panels.
We have reviewed clinical and forensic guidelines for presurgical psychological assessments elsewhere.\textsuperscript{29} Mandates for pre-SCS psychological assessments are almost universal. These recommendations are based on scientific medical treatment guidelines such as those of the American College of Occupational and Environmental Medicine Pain Guidelines\textsuperscript{5,27}, the Colorado Medical Treatment Guidelines\textsuperscript{30,31}, and the Official Disability Guidelines.\textsuperscript{32} Additionally, many other guidelines and payer policy statements have adopted these recommendations. For example, this includes requirements for pre-SCS psychological assessments by payers such as the Centers for Medicare and Medicaid Services\textsuperscript{33}, BlueCross\textsuperscript{34}, Cigna\textsuperscript{35} and United Healthcare\textsuperscript{36}, and state medical treatment guidelines such as those in California\textsuperscript{37}, Colorado\textsuperscript{30,31}, Delaware\textsuperscript{38}, Louisiana\textsuperscript{39}, Minnesota\textsuperscript{40}, Mississippi\textsuperscript{41}, Montana\textsuperscript{42}, New York\textsuperscript{43}, Oklahoma\textsuperscript{44}, Rhode Island\textsuperscript{45}, and West Virginia.\textsuperscript{46} For example, the Centers for Medicare and Medicaid Services has the following policy about spinal cord stimulation treatments:

...Selection of patients for implantation of spinal cord stimulators is critical to success of this therapy...Patients must have undergone careful screening, assessment and diagnosis by a multidisciplinary team prior to implantation. Such screening must include psychological, as well as physical evaluation.\textsuperscript{33}

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\textbf{Billing and Coding}
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\textbf{Q:} Do you bill more than 90791 (and seek additional authorization for testing)?

\textbf{A:} First of all note that this is time sensitive information, and that billing and coding policies change over time. Secondly, note that billing and coding policies vary across payers. While we hope that the information here is helpful, we would strongly encourage you to consult a billing a coding expert who is familiar with your payers, and to always follow the rules. That being said, we currently bill for 96101 whenever we administer standardized tests, which are recommended or required by many guidelines. The exception is that when you bill for a psychological testing like 96101, this code should not be used for billing for screening measures, such as a PHQ9. However, all the other tests mentioned above, BHI 2, MBMD, MCMI IV or MMPI 2 are all standardized tests for which 96101 is appropriate for billing. Note that billing 96101 allows you to bill for non-face-to-face time, such as that in chart review or report preparation, and you can bill for more than one unit (1 unit = 1 hour) of this based on the time you spend. Also note that as you can use more than one unit of 96101, it uses a “rounding rule.” At 31 minutes of time you can bill one unit of 96101. At 91 minutes of time, you can bill for 2 units. Note that you get reimbursed the same amount for any session length from 31 to 90 minutes, so at 31 minutes you are making 3X more dollars per hour, etc.

The CPT code 90791 refers to a “psychiatric diagnostic evaluation.” This code is task-based not time based, as unlike psychotherapy codes no time frame is specified. How fast can you get it done? There are different ways that 90791 and 96101 codes can be used together. Presurgical psychological assessments can be longer or shorter in length.
depending on a variety of factors including the complexity of the case, the risk of adverse events due to the surgery, and guideline recommendations. Note that some guidelines suggest that presurgical psychological evaluations should include both a health psychology test and a psychiatric test.\textsuperscript{27,28} In some practice settings though, psychologists may be under considerable pressure to perform these evaluations more quickly, there may be limitations in payer reimbursement, etc. In those cases, the psychologist will need to make decisions about how to best address the referral questions in the time available. Note that we have published book chapters on billing and coding\textsuperscript{47,48}, and on how to conduct psych evals for medical patients.\textsuperscript{2,29,49-51}

Q: In submitting claims to third party payers, what diagnoses do payers accept for patients without a psychological diagnosis?

A: Payers have all different policies about what they cover, but we can make some general statements for consideration.

1. We often use the code F45.42—Pain Disorder. While this is a code that was in DSM IV, it is not in DSM 5. However, this code remains in ICD 10 and is still a valid code, and is commonly used for patients with chronic pain. This code may be paid by mental health payers, as it is still classified as a behavioral disorder.

2. In contrast, there is a code G89.4—Chronic Pain Syndrome. The descriptor of that condition is very similar to that of F45.42—Pain Disorder. However, G89.4 is classified under Neurology and thus is typically reimbursed by medical payers.

3. If you are using the health and behavior CPT codes to bill (96150: one or more 15 minute units), you can bill for treating any medical diagnosis ranging from herniated lumbar disc, to diabetic peripheral neuropathy. Often, there is no single “right” way to bill and code these services, and sometimes different payers, such as Medicare, Medicaid and private payers have different rules. It will be important to consult a billing and coding expert in your region and to always follow the applicable rules.

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**Case Vignette**

Q: How do you approach feedback with a patient who is very focused on pain reduction and is not happy with the suggestion to focus on the “yellow flags” first? (i.e., “If my pain was lower, I’d be less anxious/depressed, angry/etc.).

A: We are going to estimate that half or more of our patients arrive for our first session saying something like, “I don’t need to be here. I am not crazy; this is not in my head. If my pain was lower, I would not be so frustrated.” We then allow the patients to start talking about their frustrations and often when they start talking about how frustrated they are, they don’t want to stop. So the key is to find ways to engage these patients.
Somatizers, by definition, under report their psychological symptoms. Unconsciously, they may be trying to find a surgery that will cut out their unhappiness.

We think it is extremely important to frame psychological services to patients in a helpful way, as a referral to a psychologist can be threatening. The psychological referral can become framed as a moral judgment. That is, the patient may fear that what the psychologist is thinking is, “I am going to psychologically evaluate you, to see if you are psychologically worthy of us doing surgery on you, or if you are so psychologically screwed up that you don’t deserve these treatments.” Even though this is not the way these treatments were intended, sometimes patients misperceive it this way. We think it is important to frame these presurgical evaluations in a more positive way, in that we are trying to recommend treatments that the patient is most likely to be satisfied with. We tell patients that we are committed to giving them the best care, and then try to explain what that care is based on science.

Another matter to consider is that the “psychological clearance model” of SCS referrals is often frustrating for patients. In this model, patients are simply “cleared” to proceed with surgery or not. For those patients who are not cleared, it can be extremely disheartening if nothing else is offered. In contrast, in the “best practice model” the purpose of the SCS psych eval is to seek the best treatment for the patient. If the patient is at high risk to be disappointed with or fail to benefit from SCS, what would you suggest? For patients who “can’t take the pain one more minute” Dialectical Behavior Therapy has helpful methods of improving frustration tolerance.
Links

Watch the webinar/view the slides


healthpsych.com spinal cord stimulation page and related links

http://www.healthpsych.com/scs.html
http://bit.ly/SCS_QandA
(more Q&A about SCS)

Getting on insurance panels


Coding diagnoses for pain


Billing and coding

(best strategies for reimbursement, potential for trainee reimbursement)

healthpsych.com YouTube channel

(videos for pain assessment)
References


