Chapter used with permission from D. Moss, A. McGrady, T. Davies, & I. Wickramasekera (Eds.) (2003), *Handbook of Mind Body Medicine for Primary Care*. Thousand Oaks, CA: Sage.

Mind Body Medicine, Evidence-Based Medicine, Clinical Psychophysiology, and Integrative Medicine

Donald Moss, Ph.D.

Abstract: *The author introduces the concepts of mind-body medicine, evidence-based medicine, clinical psychophysiology and biofeedback, integrated care, and integrative medicine. The chapter emphasizes a mind-body approach, recognizing the unitary psychophysiological nature of both illness and of healing. Many common medical problems are functional disorders or chronic disorders, exacerbated by life-style, situational stress, and psychosocial factors. Such disorders require behavioral change if symptoms are to be managed or reduced. Mind-body medicine offers the patient an active role in recovery and health maintenance. Scientific research offers a guiding "evidence-based" light in designing the optimal mind-body treatment plan. Together biofeedback and clinical psychophysiology offer powerful tools for mind-body medicine. The mastery of self-regulation skills is a primary tool for health. Today's health problems require an integrated care model, involving a partnership of physician, nurse, psychologist and other behavioral health professionals. This partnership delivers behavioral interventions directly into primary care settings, integrates complementary and conventional therapies, and modifies treatment paradigms, to benefit larger numbers of patients in primary care settings.*

Mind-Body Medicine

"Mind/body medicine … should be an integral part of evidence-based, cost effective, quality health care" (Sobel, 2000. p. 1705).

Mind-body medicine is a revolutionary twenty-first century approach to health care that includes a wide range of behavioral and lifestyle interventions, on an equal basis with traditional medical interventions. *The patient in mind-body medicine is understood as a totality of body, mind, and spirit. Interventions are*

directed at each of these aspects of the person. The medical conditions linked with human suffering today, in the affluent societies of the developed world, are caused as much by lifestyle, dietary habits, activity level, and life-stress, as they are by such traditional causes of disease as infection, virus, bacteria, and physical trauma. The mind-body medicine approach creates a partnership among practitioners of the medical and mental specialties, including physicians, nurse practitioners, and psychologists, as well as mind/body specialists, such as biofeedback practitioners, chiropractors, nutritionists, spiritual counselors, and yoga teachers. The result is an integrated team of caregivers who address mind, body, and spirit with each patient.

The acute care medical model has provided tremendous advances in the health of human beings. The acute care model is a mechanistic model of disease and treatment, based on a dualistic dichotomy of body and mind. The model emphasizes the use of a diagnostic symptom-oriented interview, extensive laboratory work, and sophisticated imaging studies, to identify a specific disease or condition causing the patient's complaints (Cassell, 1997). The corresponding treatment model places a heavy reliance on pharmacology, and a lesser emphasis on surgical intervention. Although most physicians acknowledge the importance of life-stress, diet, and exercise, these factors are largely addressed when conventional therapeutic strategies have failed. Psychological specialists are regarded as secondary and tertiary caregivers, to be utilized when the primary care physician has been unable to provide relief, or when no physical

cause can be identified for a disorder. In many cases the patient's condition has become more severe and chronic before such a referral takes place, and less amenable to behavioral intervention.

The education physicians receive in medical school often does not prepare them well for the typical patient in primary care (See Chapters Six and Thirty-Three). Patients are more likely to present with symptoms that fall into several overlapping categories: somatization disorder, "undifferentiated complaints," psychophysiological disorders related to psychosocial stress, symptoms of chronic disease, and somatic symptoms of psychiatric disorders. The mismatch between the health needs of the typical patient, and the standard medical response, produces a waste of medical resources, frustration for patient and physician, and the danger that acute conditions become chronic.

Mind-body medicine includes behavioral and psychosocial interventions among the first line of interventions. The patient is given an active role from the beginning in developing a treatment plan, and takes more responsibility for directing the psychosocial and lifestyle aspects of that plan. Mind-body medicine emphasizes patient education and patient self-management as integral parts of clinical practice, from the first day of well-care (Blonshine, 1998; Nakagawa-Kogan, 1994; Kotses, Bernstein, Bernstein, Reynolds, Korbee, Wigal, Ganson, Stout, & Creer, 1995). Smoking cessation is another area for patient education, addressing the number one current manageable risk factor, with

dramatic consequences for morbidity and mortality. One in five Americans dies as a result of complications related to smoking (U.S. Department of Health and Human Services, 1994). Research has shown that relatively brief and inexpensive mind-body interventions can improve the patient's recovery process, speed healing, shorten inpatient stays, and reduce the cost of treatment (Sobel, 2000; Blanchard, Andrasik, Appelbaum, Evans, Jurish, Teders, Rodichok, & Barron, 1985).

Challenging Problems in Primary Care

This section will highlight some of the most challenging patient groups in primary care.[i] Each of these patient groups requires a shift in paradigms. These patients can be frustrating for medical professionals, unless they are treated within an integrated mind-body approach from the first date of treatment.

Somatization disorder. Somatization disorder involves the translation of emotional distress into physical symptoms, when no significant organic basis has been identified for the complaints. The tendency to develop physical symptoms often begins at an early age and continues for many years, even decades (Quill, 1985). Physicians may contribute to the genesis of somatization disorder by failing to detect signs of the "somatization" process, and aggressively pursuing diagnostic testing (X rays, CT scans, blood tests), which confirms the patient's

preconception that some serious disease is lurking undetected (Groth-Marnat & Edkins, 1996).

Undifferentiated complaints. Michael Balint pointed out that many patients in primary care present “undifferentiated complaints” (M. Balint, 1964; E. Balint & Norell, 1973). Undifferentiated complaints are vague presentations of symptoms that have not yet developed into clear-cut physical or medical illnesses. Kroenke and Mangelsdorf (1989) observed that only twenty per cent of visits to primary care physicians involve discoverable organic causes, and only ten per cent are clearly psychological disorders without confounding physical symptoms. The complaints most commonly presented in the family practitioners office today include: chest pain, fatigue, dizziness, headache, edema, back pain, dyspnea, insomnia, abdominal pain, numbness, impotence, weight loss, cough, and constipation (Blount, 1998, p. 6). The first ten complaints in this list account for forty per cent of all visits. For patients with these complaints, only ten to fifteen per cent were determined, after one year, to have a clear organic diagnosis (Blount 1998, pp. 6-7).

According to Balint (1964), the majority of primary care patients’ complaints lie in a twilight zone between body and mind, marked by overlapping psychosocial stress, physical discomfort, relationship conflicts, life-stage dissatisfaction, and unfulfilled aspirations. The response of the physician is critical, because unless the patient is assisted to identify psychosocial aspects of their distress, the

patient will continue to shape his or her complaints in the direction of an established somatic disorder. There is a significant risk with such patients of a harmful "over-medicalisation" (Smith, 1995). Balint suggested using the doctor-patient relationship as a tool to enable the patient to become aware of the non-medical aspects of their distress and thus avoid the somatization process. (Chapter 2 describes the High Risk Model of Threat Perception, which provides guidance for steering in this "twilight zone," by identifying specific psychosocial factors that increase risk for somatic symptoms, trigger symptoms, or buffer against symptoms.)

Psychophysiological disorders. Many of the just-mentioned "undifferentiated complaints" also qualify as psychophysiological disorders. They involve measurable modifications in physiology, but worsen under the influence of situational stress or internal cognitive distress (Gatchel & Blanchard, 1993). Sternbach's stress-diathesis model states that each human being shows certain response stereotypy—responding physiologically to situations in a particular way. Some individuals are cardiovascular responders, some musculoskeletal, some gastrointestinal, and some cognitive responders. Then, if the individual's coping resources don't keep his/her physiology within bounds, new life-stressors will produce new somatic symptoms (Sternbach, 1966). If one adopts a broadened focus, identifying complaints which are not clear-cut psychiatric disorders, but are "psychological in some way," one discovers that seventy-five to eighty per cent of primary care patients present evidence of at least some psychosocial or

psychophysiological component in their symptom presentation. Many of these patients benefit greatly from education in stress management and self-regulation skills.

Post-traumatic conditions. Many patients who present in primary care settings suffer delayed consequences of physical and sexual abuse, traumatic experiences, and losses A prospective study of 1,007 members of a Michigan HMO reported that a history of Post-Traumatic Stress Disorder (PTSD) was associated with significantly more somatic symptoms in general, and with an increased incidence of somatization symptoms (Andreski, Chilcoat, & Breslau, 1998). In many cases neither the patient nor the physician recognize the connection between current symptom and earlier emotional trauma. Research by van der Kolk, Pelcovitz, Roth, Mandel, McFarlane, and Herman (1996) shows that PTSD, dissociation, and somatization are highly interrelated. Those individuals with childhood trauma show the greatest vulnerability to somatization, although individuals with adult trauma or loss also show heightened incidence of somatization. Lingering “unconscious trauma” involves measurable physiological arousal patterns. As Wickramasekera (1988, 1998) observed, individuals can push trauma out of their minds, but not out of their bodies. Biofeedback and clinical psychophysiology provide useful tools in this context, monitoring autonomic nervous arousal through such modalities as heart rate, skin conductance, and peripheral temperature, and detecting traumatic memories, in the course of assessment (See Chapters Two and Eight).

Somatic symptoms of psychiatric disorders. Unrecognized psychiatric disorders account for a large portion of the complaints in primary care. Patients with anxiety and depressive disorders present physical symptoms in primary care in both primary care and specialty clinics. An estimated sixty-five per cent of individuals with an anxiety-related disorder seek treatment from primary care physicians (Danton, Altrocchi, Antonuccio, & Basta, 1994). A study of patients with acute chest pain showed that 17.5 per cent had panic disorder and 23.1 per cent had depression (Yingling, Wulsin, Arnold, & Rouan, 1993). Patients with panic disorder or depression were much more likely to have made an emergency room visit in the preceding twelve months, than the patients without psychiatric conditions.

In a study of 1,000 primary care patients, DeGruy examined the relationship between the occurrence of fifteen common physical symptoms and the presence of psychiatric disorders. The more physical symptoms were present, the higher the likelihood of a psychiatric disorder (DeGruy, 1994). The relationship between physical symptoms and mood problems is reciprocal. Anxious and depressed individuals are more vulnerable to develop functional symptoms, and persons who suffer a variety of medical complaints are more vulnerable to the onset of depression and anxiety (DeGruy, 1996). Kroenke argues for an equal emphasis on the identification of anxiety, depression, and somatization disorders, and highlights the commonalities of the three disorders (Kroenke, 2000).

Depressed individuals seek help most often in primary care settings, yet they are often neither well-diagnosed nor well managed in primary care. Rost, Zhang, Fortney, Smith, Coyne, and Smith (1998) identified 98 adults with current major depression. Thirty-two percent of these primary care patients with current major depression remained undetected for up to one year. Simply identifying patients with anxiety and depression already comprises a breakthrough service in any primary care clinic.

Chronic conditions. Patients with chronic illness account for between forty-six and seventy-fiive percent of costs in health care. This includes such diverse conditions as diabetes mellitus, arthritis, hypertension, and chronic heart disease. Lifestyle, diet, exercise, habits such as smoking, and situational stress play a major part in both the etiology and course of such conditions. Medical management via medication is a losing battle unless these behavioral factors are addressed. Once the chronic conditions progress to a more advanced stage, treatment is palliative and not curative, and both patient and physician are forced to modify expectations. On the other hand, targeted behavioral services can reduce needless suffering, and successfully reduce medical costs by eighteen to thirty-one per cent for individuals with such chronic conditions as diabetes and hypertension (Lechnyr, 1992).

When the patient's condition is chronic or complex, and involves chronic irreversible changes in anatomy and physiology, the acute care model clearly reaches its limits. In frustration, physicians typically add medication after medication, to manage the ever-multiplying list of complaints. The use of poly-pharmacy then produces an array of interactive adverse effects, typically including fatigue, lethargy, weight gain, inactivity, and loss of any sense of internal control over body and health. The individual with a chronic condition eventually comes to see him or herself in a passive patient role, submitting to tests and procedures, and awaiting the physician's next decision or intervention. The patient's life style frequently becomes organized around a never-ending series of medical visits, lab tests, and the taking of medications. The secondary effects of the more sedentary inactive lifestyle are interactive with the original disease or condition, producing a loss of muscle tone, loss of aerobic conditioning, and general loss of vitality. Treatment compliance becomes a major issue for the physician, because the patient often shows little "ownership" in the medical care plan. The individual often struggles with whether to accept a diagnosis, cooperate with prescribed medication, or resist the diagnosis and the prescribed treatment.

In many chronic conditions personal choices and life style play a role in initiating and maintaining the illness (McLellan, Lewis, O'Brien, & Kleber, 2000). These psychological factors interact with genetics and familial/cultural factors in the onset of the disorder. The decision to drink the first drink and the habit of regular

excessive drinking interact with the genetic vulnerability to alcohol dependence to create the chronic illness of alcoholism and the eventual end-state condition of liver disease. Similarly, salt-sensitivity is an inherited risk factor for hypertension, yet individual dietary choices and familial salt use patterns influence which individuals end up with hypertension. Voluntary, lifestyle, and familial variables also contribute to creating some of the strongest health risk factors such as obesity, stress level, and inactivity, which exacerbate many chronic conditions. (McLellan, et al, 2000).

Evidence-Based Medicine

Evidence-based medicine is a systematic effort to bring science and research-based knowledge into the heart of clinical practice (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). The clinical judgment of health care providers is easily distorted by coincidental improvements in a handful of patients (Jonas, Linde, & Walach, 1999). Research tests the efficacy of treatments for a specific condition in a systematic fashion, with methodological safeguards to produce reliable conclusions (Geyman, Devon, & Ramsey, 2000). Evidence-based medicine at its best rates new interventions and therapies on both the *direction* and the *level* of the evidence: in other words first on whether a therapy is empirically supported therapies, and second on how strong the evidence for or against the therapy is (Ernst, Pittler, Stevinson, & White, 2001). Research can weigh the relative benefits, costs, and risks of interventions, providing practical

information relevant in treatment planning. One of the relatively common objections in mainstream medicine to complementary and alternative therapies is the lack of extensive outcomes research on these interventions (Grollman, 2001).

Jonas, Linde, & Walach (1999, p. 73) asserted that six kinds of knowledge should ideally be considered in the course of reaching evidence-based treatment decisions:

1) Patient preferences and meaning.
2) Mechanisms of action.
3) Safety and efficacy.
4) Treatment effect probabilities in the open clinical setting from observational and outcomes research.
5) Precise estimations of effects through systematic summaries and calculation of confidence intervals when possible.
6) Demonstration of utility and benefit under normal health service conditions examining the impact of access, feasibility, and costs.

Under typical conditions, fortunately, the same authors concede that it is sufficient to weigh "clinical expertise, patient relevance, and research evidence," providing a three-legged foundation for evidence based practice (Jonas et al, 1999, p. 74).

Under evidence-based medicine, the process by which the patient's condition is assessed and treatment is selected becomes a collaborative process in which both physician and patient make decisions together based on up to date knowledge about the relative efficacy and risks of available treatment options. Following evidence-based medicine means that new patients will not all be given

the same treatment interventions, regardless of their complaints. The provider's preference for a specific modality does not justify the use of that modality, if current outcome research shows that another modality has a clear advantage in effectiveness, cost-effectiveness, or reduced risk to the patient.

If the patient presents with a panic disorder, for example, there is strong outcome data showing the efficacy of cognitive-behavioral therapy, alone or combined with medication (Barlow, Gorman, Shear, & Woods, 2000). There is also an increasingly strong literature showing the presence of hyperventilation and other dysfunctional breathing patterns in panic disorder (Wilhelm & Roth, 1998), and the effectiveness of biofeedback training in diaphragmatic breathing, in moderating both the abnormal breathing and the panic. No such research supports the use of intensive psychoanalytic therapy for panic disorder. Therefore, the provider would violate the patient's right to an effective, inexpensive, and non-harmful treatment were he or she to follow personal preference and deliver psychoanalytic therapy.

On the physical medicine side, it is clear that a patient should not be steered into a cardiac bypass surgery risking life, inflicting pain, and requiring weeks of healing and rehabilitation, if outcome data show that patients with similar angiograms do equally well on medication. In mind-body medicine, the evidence-based principle means that providers should consider which modalities and treatment strategies hold up best in research, which are available in the

locale, and which are available given the patient's means and health insurance coverage. Then the patient's response to each intervention reopens the decision-making process.

Another challenge in evidence-based medicine is paradigm shifting. When a condition is medical, the most effective intervention may nevertheless be behavioral. The federal Health Care Finance Administration (HCFA) recently recognized that biofeedback should be the first line treatment for urinary incontinence (Perry, 2000). Biofeedback uses electromyographic (EMG) sensors to monitor pelvic floor muscle activity, and the patient learns better muscular control. Yet medical caregivers still frequently think in terms of medication or corrective surgery for this disorder.

Similarly, the outcome research on irritable bowel syndrome shows that cognitive behavioral therapy, hypnosis, and biofeedback are all effective, non-invasive, and cost-effective (Blanchard, 2001; Palsson & Collins, in press). Medication remains more widely used, yet is less effective. Choosing within behavioral approaches should be guided by research and access. The outcome research is strongest on hypnosis and cognitive-behavioral therapy, so one would lean toward choosing these modalities. However, the unavailability of a qualified hypnotherapist or cognitive-behavioral therapist, and the availability of a qualified biofeedback practitioner might steer the decision differently. Similarly, if the patient has a religious bias against hypnotism, and a brief education about

medical hypnotism does not dispel the misgivings, then such personal or cultural factors would play a role in the selection of a treatment.

Evidence-based practice recognizes the powerful role of faith and placebo in the healing process. Non-specific factors play a major role in the patient's response to treatment. The use of interventions widely regarded as efficacious increases the patient's faith (Wickramasekera, 1999; Ader & Cohen, 1993). Similarly complementary and alternative therapies that have the cachet of something new and powerful are useful in eliciting this non-specific healing effect. Trousseau's old comment is apt, that one "should treat as many patients as possible with the new drugs while they still have the power to heal" (Trousseau, 1854, cited by Wickramasekera, 1999, p. 1a). Current research on the placebo as a form of conditioning improves one's ability to use this non-specific effect, while continuing to practice within the framework of evidence-based practice (Ader, 1988).

Finally, evidence-based medicine has to adapt the relatively black and white guidelines of outcome research to the realities of a given human individual. Outcome research is largely based on homogeneous samples of patients with a given disorder, and many individuals are excluded from such studies due to co-morbid conditions, the use of other confounding medications, or the chronicity of their conditions. In the world of clinical practice, one is faced with individuals with complex and chronic conditions, multiple co-morbid problems, already utilizing a

variety of medications and other therapies. *The science of evidence-based medicine must serve the art of clinical practice*. The health care provider weighs each of the individual's medical and psychological conditions when a new treatment intervention is selected and delivered.

Biofeedback and Clinical Psychophysiology

Biofeedback is an evidence-based treatment paradigm that opens up a broad avenue for the mind-body approach (Moss, 1998, Schwartz & Associates, 1995). The biofeedback instrument measures a biological process such as muscle tension by means of a sensor, and provides an immediate visual or auditory display of this signal to the subject (Lawlis, 2001). The *feedback* of the biological signal increases the individual's awareness of his or her own body, and enables the individual to establish control over the physiological system (See Figure 1).[ii] The modality of biofeedback supports a philosophy of self-regulation and the acquisition of voluntary controls over one's own body and life. The individual gains "self-efficacy" by learning control over a muscle, brain wave, or other physiological process, by reducing the severity of symptoms, and by increasing a sense of participation in personal wellness. Self-efficacy, the inner conviction that one can do something and this will make a positive difference, often generalizes into a more active personal mastery over psychosocial and relationship problems.

Chapter 8 by Gilbert and Moss overviews the procedures and applications of biofeedback, and several chapters in this book highlight the applications of biofeedback to common medical and emotional disorders. Biofeedback has proven to be effective in controlling many physiological processes, including muscle tension, skin temperature, respiration, autonomic nervous tension, heart rate, electrical wave activity in the brain, and brain blood flow. Biofeedback has applications in health care, mental health, rehabilitation, education, sports psychology, and the performing arts. Within primary care, there is a broad range of documented applications, from headache to asthma to hypertension to chronic pain (see Chapter 8). There are also well-documented applications to mental health problems, including anxiety, depression, attention deficit disorders, alcoholism and addictions, and general psychotherapy (Moss, in press a, in press b).

Biofeedback is a useful tool to teach individuals to understand the mind-body linkage. The biofeedback display shows the patient vividly how memories or thoughts induce an immediate physiological change. Biofeedback practice rests on the "psychophysiological principle" that mind and body are so delicately interwoven, that any change in the bodily state will evoke a psychological change, and any change in the mind will evoke a physiological change (Green, Green, & Walters, 1970, p. 3). Biofeedback quickly teaches heightened body awareness, as the instrument detects the individual's subtle physiological reactions, and the individual learns to consciously feel what had been automatic

and below awareness. Biofeedback speeds the acquisition of relaxation skills. Biofeedback also serves as a "Trojan Horse," accepting the patient's somatic orientation, gaining the patient's trust for a seemingly medical and physiological approach, while leading the patient to an understanding of mind-body linkages (See Chapter Two; Wickramasekera, 1988; Wickramasekera, Davies, & Davies, 1996).

Finally, biofeedback enables the individual to strategically modify key physiological variables relevant in their disease or suffering, with measurable health consequences. Chapter Three in the present volume explores the role of physiological mechanisms and behavioral change in healing and recovery (McGrady, in press).

Biofeedback is not practiced in isolation; rather it is part of a comprehensive mind-body approach called *clinical psychophysiology*. Clinical psychophysiology uses current knowledge of behavior change skills and as understanding of physiologic functioning to produce simultaneous changes in mind and body. Practitioners typically design a customized behavioral treatment package for each patient, which may include:

1) education about physiology relevant to the presenting symptoms,
2) relaxation skills training, including progressive muscle relaxation, autogenic training, and diaphragmatic breathing,
3) stress-management to buffer the family or job problems exacerbating physical symptoms,

4) cognitive restructuring to modify thought patterns that maintain physical tensions,
5) behavior therapy to reduce maladaptive or self-defeating behavior, and/or
6) physiological monitoring during psychotherapy, utilizing autonomic nervous system arousal to identify implicit emotional issues (Wickramasekera, 1988, 1998).

Biofeedback and clinical psychophysiology provide a model for mind-body medicine, because they form a three decades old mind-body approach, founded on scientific research and dedicated to enlarging the human being's control over body and mind.

Integrated Care

"The patient of the future will encounter an integrated system of behavioral and medical care, involving a partnership of behavioral practitioners, physicians and nurses, in 'one house' and 'one system'" (Cummings & Cummings, 2000).

The ideal of integrated care requires that the full range of mind-body interventions are included from the first day of any patient's health care, and remain a part of each successive episode of treatment (Nadeau & Moss, 1999). This means that simple and inexpensive counseling on life style change and the use of nutritional and habit change procedures are made available to each patient at each visit, wherever they may serve to prevent the onset of illness or alleviate current symptoms. Similarly, every patient entering surgery should receive at least a brief educational session with an office nurse, a written handout

depicting the surgical procedure and its impact on the body, and a relaxation skills training tape including visualization and hypnotic-type suggestions of rapid healing. Research has shown that such pre-surgical education can reduce blood loss, speed wound healing, and reduce days admitted (Kiecolt-Glaser, Page, Marucha, MacCallum, & Glaser, 1998; Dreher, 1998).

For over four decades authors in behavioral medicine and psychosomatic medicine have criticized the Cartesian mind-body split in medical thinking. In 1977 George Engel proposed a unitary biopsychosocial model for all of medicine (Engel, 1977). Most medical researchers today agree that clinical disorders are better understood from a unitary and integrative mind-body perspective. However, the physical organization of medical practice, including the sharp division between physical medicine and the mental health specialties, has continued the mind-body split in an equally destructive fashion. Physical medicine specialists throw up their hands and declare, "This problem belongs in psychiatry." The patient arrives in the psychiatric specialty clinic hurt, bitter, and discouraged, declaring that "My doctor thinks my problem isn't real," or that "my doctor says the symptoms are in my head, but I know they are not."

When physicians and behavioral specialists attempt to create truly integrated care, many obstacles intervene. There are significant differences in education and professional culture between physicians and behavioral specialists (Haley, McDaniel, Bray, Johnson, Lu, Reed, & Wiggins, 1998). Practitioners in each

group think, behave, and approach problems differently in their daily clinical practice. As a result, medical institutions frequently exclude or limit the scope of practice of psychologists and other behavioral professionals. Sample differences in professional culture include: Physicians are more authoritarian in interpersonal style, operate on a faster pace, and arrive at decisions rapidly by objective criteria. Psychologists tend to be more egalitarian and team-oriented in interpersonal style, gather information over a longer time frame, and often rely on intuition and global impressions as much as objective criteria (Haley, et al, 1998).

The organization of reimbursement also creates numerous barriers to integrated care. Behavioral practitioners are frequently informed that they cannot be reimbursed for the treatment of physical disorders, such as gastric ulcers, diabetes, or even pain disorders. They must identify a psychiatric diagnosis if they wish to be reimbursed. Similarly, many insurance companies only reimburse bills for certain diagnoses, such as chronic pain, when the services are billed on a hospital billing form that outpatient mental health providers cannot utilize.

Finally, many managed care companies utilize a “mental health carve-out.” The treatment of all psychiatric diagnoses falls under a separately managed budget, which is capitated separately. The effectiveness of the gatekeeper is judged solely on the funds within this mental health carve-out. Thus, authorizing psychotherapeutic or behavioral services for a patient with multiple somatic complaints may save money by reduced use of medical services, but the mental

health gatekeeper receives no recognition for these cost savings, because they are not credited to his or her budget.

One positive step addresses some of these reimbursement barriers: Foxhall (2000) reports that the American Medical Association committee on Current Procedural Technology (CPT) codes has approved six new codes covering psychosocial and behavioral services for patients with physical health diagnoses. This includes two codes for health and behavior assessment and four codes for health and behavior intervention services.

Integrative Medicine: The Use of Complementary and Alternative Therapies

"Integrated care" means that behavioral health providers are present in the primary care office, to provide psychosocial, educational, and psychophysiological interventions as part of the primary intervention to address the patient's distress. This step is an implementation of what research has long supported. Many of the typical patient complaints have more to do with the patient's psychosocial problems than with diagnosable diseases, infections, injuries, or pathophysiological processes.

"Integrative medicine" takes this model one step farther. The integrative model says that the entire range of alternative and complementary interventions should be made available within the primary care clinic. Today complementary and

alternative medicine (CAM) interventions range from acupuncture to nutritional therapies to Eastern disciplines such as yoga to prayer and spiritual healing (See Figure 2). Biofeedback, herbal supplements, acupuncture, and chiropractic therapies lie at the more widely accepted end of the spectrum for health care providers, because a significant number of research studies and case reports show efficacy. Research today is accumulating showing the efficacy of many other CAM interventions (Jonas & Levin, 1999; Ernst, Pittler, Stevinson, & White, 2001). The general public in the United States already shows a readiness to accept and spend large amounts of personal funds on CAM therapies, regardless of documented efficacy (Eisenberg, Davis, Ettner, Appel, Wilkey, Van Rompay, & Kessler, 1998). Similar trends are evident in the use of alternative therapies by individuals with disabilities (Krauss, Godfrey, Kirk, & Eisenberg, 1998). This book emphasizes those elements within mind-body medicine and CAM that have the best empirical documentation.

Acupuncture	**Hypnotherapy**
Aromatherapy	**Manual Therapies**
Biofeedback	**Massage Therapy**
Bioenergetics	**Nutritional Counseling**
Chiropractic	**Prayer**
Exercise Therapies	**Spiritual Healing**
Feldenkrais Technique	**Tai Chi, Qi Gong**
Herbal Therapies	**Yoga**

Figure 2. Complementary and Alternative Medicine Therapies

Jonas and Levin (1999), Freeman and Lawlis (2001), Whorton (1999), and Jonas (in press) have overviewed current trends in complementary and alternative medicine. We can identify a distinctive CAM paradigm, including:

1) Emphasis on a holistic and unitary view of mind, body, and spirit.
2) Treating the patient as a unique human being and person.
3) Emphasis on a more personal, supportive relationship between the CAM healer and patient.
4) Attribution of an active role to the patient in the healing process.
5) Belief in the inherent healing power of the living organism.
6) Prescription of life-style and habit changes to optimize health.
7) Emphasis on interventions that elicit the body's healing powers.
7) Distrust of invasive treatments that crush disease but harm the patient as a whole.
8) Belief in eclecticism and empiricism.
9) Readiness to accept unconventional interventions and unorthodox theoretical models that appear to work.
10) Openness to prayer, meditation and spiritual practices as supportive for healing and health.
11) Integration of physical, psychological and spiritual practices.

The majority of patients today want health care that has some or all of the above elements. Patients want their health care provider to know them as human beings, not just as cases, and they resent a lack of such personalism in medicine. They want holism as well. They don't want to be referred off to a psychiatrist with the implication that their problem is "in their head," yet they want their physician to pay attention to and care about their life problems. Harold Koenig has remarked that "Patients want to be seen and treated as a whole person, not as diseases. A whole person is someone whose being has physical, emotional, and spiritual dimensions. Ignoring any of these aspects of humanity

leaves the person incomplete and may even interfere with healing" (Koenig, 2000, p. 1708).

The general public is sometimes drawn to CAM therapies for the same reasons that arouse the objections of health care professionals (Beyerstein, 2001, p. 230). The origin of many CAM procedures in pre-modern religious and medical systems lends them a mystique with the public and stirs skepticism in the professional community. Qigong is a branch of Traditional Chinese Medicine, as is acupuncture, and Ayurvedic medicine originated in India's ancient Vedic religious traditions (Xiangcai, 2000; Dugliss, in press). Research continues to accumulate showing that regardless of origins, many traditional interventions have efficacy for specific disorders (Jonas & Levin, 1999). Integrative medicine involves a systematic effort to cull the active and effective elements within traditional medicine, demonstrate their efficacy through modern scientific research, and educate the professional community and public about discriminate use of CAM therapies.

The integration of CAM therapies in mainline medical clinics may seem to strain the bounds of clinical medicine too far. Yet outcome research is accumulating showing positive efficacy for a number of CAM therapies for specific disorders (Jonas, in press; Jonas & Levin, 1999). If a Tai Chi class will reduce the number of falls and hip fractures in elderly individuals, for example, then why shouldn't that class be offered within the internal medicine clinic (Wolf, Barnhart, Kutner, McNeely, Coogler, & Xu, 1996)? The physician-patient relationship is a powerful motivational tool to increase patient compliance with such CAM practices.

Current research tells us that patients are already utilizing CAM therapies in enormous numbers (Eisenberg, et al, 1998). Further, 60 % of these patients are not telling their primary care physicians about their use of CAM (Eisenberg, et al, 1998). As a result the patient's health care is fragmented, and the possibility for adverse interactions among CAM therapies and conventional therapies is

increased. Wayne Jonas, who headed the federal Office of Alternative Medicine, advocates that health care providers become cognizant of CAM and utilize the available online data bases to identify those CAM therapies for which clinical efficacy has been documented.iii He emphasizes a four-step process, the "Four P's," in which the physician first *protects* the patient from potentially harmful CAM remedies, second *permits* the patient to utilize any harmless and inexpensive remedy, even when efficacy has not been established, in hopes that non-specific placebo effects will be mobilized, third *promotes* proven CAM practices, that is encourages any safe and proven CAM therapies, and fourth *partners* with any outside CAM therapists that one's patients are utilizing (Jonas, in press). These guidelines open the door to a medicine that is once again whole.

References:

Ader, R. (1988). The placebo effect as a conditioned response. In R. Ader, H. Weiner, & A. Baum (Eds.), Experimental foundations of behavioral medicine: Conditioning approaches (pp. 47-66). New Jersey: Lawrence Earlbaum Associates.

Ader, R.; & Cohen, N. (1993). Psychoneuroimmunology: Conditioning and stress. Annual Review of Psychology, 44, 53-85.

Andreski, P., Chilcoat, H., & Breslau, N. (1998). Post-traumatic stress disorder and somatization symptoms: A prospective study. Psychiatric Research, 79 (2), 131-138.

Balint, E., & Norell, J. S. (Eds.). (1973). Six minutes for the patient; interactions in general practice consultation. London: Tavistock Publications.

Balint, M. (1964). The doctor, his patient, and the illness. NY: International Universities Press.

Barlow, D.H., Gorman, J.M., Shear, M.K., & Woods, S.W. (2000). Cognitive-behavioral therapy, imipramine, or their combination for panic disorder: A randomized controlled trial. Journal of the American Medical Association, 283 (19), 2529-36.

Beyerstein, B. L. (2001). Alternative medicine and common errors of reasoning. Academic Medicine, 76 (3), 230-237.

Blanchard, E. B. (2001). Irritable bowel syndrome: Psychosocial assessment and treatment. Washington, DC: American psychological Association.

Blanchard, E. B., Andrasik, F., Appelbaum, K. A., Evans, D. D., Jurish, S. E., Teders, S. J., Rodichok, L. D., & Barron, K. D. (1985). The efficacy and cost-effectiveness of minimal-therapist-contact, non-drug treatments of chronic migraine and tension headache. Headache, 25 (4), 214-220.

Blonshine, S. (1998). Patient education: The key to asthma management. Home Care Providers, 3 (3), 153-159.

Blount, A. (Ed.). (1998). Integrated primary care: The future of medical and mental health collaboration. New York: W. W. Norton.

Cassell, E. J. (1997). Doctoring: The nature of primary care medicine. New York/Oxford: Oxford University Press.

Cumming, N., & Cummings, J. (2000). The essence of psychotherapy. Reinventing the art in the age of data. San Diego,CA: Academic Press

Dams, P.-C. (1997). Providing effective interventions may not be enough: The importance of cost analysis in the behavioral health system. Behavior and Social Issues, 7 (2), 141-152.

Danton, W. G., Altrocchi, J., Antonuccio, D., & Basta, R.. (1994). Nondrug treatment of anxiety. American Family Physician, 49 (1), 161-166.

DeGruy, F. (1994). Physical symptoms in primary care. Predictors of psychiatric disorders and functional impairment Archives of Family Medicine, 3 (9), 774-9.

De Gruy, F. (1996). Mental health care in the primary care setting. Washington DC: Institute of Medicine, National Academy Press.

Dreher, H. (1998). Mind body interventions for surgery: Evidence and exigency. Advances in Mind-Body Medicine, 14, 207-222.

Eisenberg, D.M, Davis, R.B., Ettner, S., Appel, S., Wilkey, S., Van Rompay, M., & Kessler, R.C. (1998). Trends in alternative medicine use in the United States, 1990-1997: Results of a follow-up national survey. Journal of the American Medical Association, 280, 1569-1575.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. Science, 196, 129-136.

Ernst, E., Pittler, M. H., Stevinson, C., & White, A. (2001). The desktop guide to complementary and alternative medicine: An evidence-based approach. St. Louis, MO: Mosby.

Foxhall, K. (2000). New CPT codes will recognize psychologists' work with physical health problems. Monitor on Psychology, 31 (10), 46-47.

Freeman, L. W., & Lawlis, G. F. (2001). Mosby's Complementary and alternative medicine: A research based approach. St. Louis, MO: Mosby.

Gatchel, R. J., & Blanchard, E. B. (1993). Psychophysiological disorders: Research and clinical appliocations. Washington, D.C.: American psychological Association.

Geyman, J. P., Deyon, R. A., & Ramsey, S. D., (Eds.). (2000). Evidence-based clinical practice: Concepts and approach. Boston : Butterworth-Heinemann.

Gilbert, C., & Moss, D. (in press). Basic tools: Biofeedback and biological monitoring . In D. Moss, A. McGrady, I. Wickramasekera, T. Davies, & A. McGrady (Eds.), Handbook of mind-body medicine for primary care. Thousand Oaks, CA: Sage.

Green, E., Green, A. M., & Walters, E. D. (1970). Voluntary control of internal states: Psychological and physiological. Journal of Transpersonal Psychology, 2, 1-26.

Grollman, A. P. (2001). Alternative medicine: The importance of evidence in medicine and medical education. Academic Medicine, 76 (3), 221-223.

Groth-Marnat, G., & Edkins, G. (1996). Professional psychologists in general health care settings: A review of the financial efficacy of direct treatment interventions. Professional Psychology: Research and Practice, 27 (2), 161-174.

Haley, W. E., McDaniel, S. H., Bray, J. H., Frank, R. G., Heldring, M., Johnson, S. B., Lu, E. G., Reed, G. M., & Wiggins, J. G. (1998). Psychological practice in primary care settings: Practical tips for a clinician. Professional Psychology: Research and Practice, 29 (3), 237-244.

Jonas, W. B. (in press). Advising patients on the use of complementary and alternative medicine. Applied Psychophysiology and Biofeedback.

Jonas, W. B., & Levin, J. S. (Eds.). (1999). Essentials of complementary and alternative medicine. Philadelphia, Baltimore, New York: Lippincott, Williams, & Wilkins.

Jonas, W. B., Linde, K., & Walach, H. (1999). How to practice evidence-based complementary and alternative medicine. In W. B. Jonas & J. S. Levin (Eds.), Essentials of complementary and alternative medicine (pp. 72-87). Philadelphia, Baltimore, New York: Lippincott, Williams, & Wilkins.

Kiecolt-Glaser JK, Page GG, Marucha PT, MacCallum RC, Glaser R (1998). Psychological influences on surgical recovery. Perspectives from psychoneuroimmunology.. American Psychologist, 53 (11):1209-18.

Koenig, H. (2000). MSJAMA: Religion, spirituality, and medicine: Application to clinical practice. Journal of the American Medical Association, 284 (13), 1708.

Kotses, H., Bernstein, I. L., Bernstein, D. I., Reynolds, R. V., Korbee, L., Wigal, J. K., Ganson, E., Stout, C., & Creer, T. L. (1995). A self-management program for adult asthma. Part I: Development and evaluation. Journal of Allergy and Clinical Immunology, 95 (2), 529-540.

Krauss, H.H., Godfrey, C., Kirk, J., & Eisenberg, D.M. (1998). Alternative health care: its use by individuals with physical disabilities. Archives of Physical Medicine and Rehabilitation, 79 (11), 1440-7.

Kroenke, K. (2000). Somatization in primary care: It's time for parity. General Hospital Psychiatry, 22 (3), 141-143.

Kroenke, K., & Mangelsdorff, A. D. (1989). Common symptoms in ambulatory care: Incidence, evaluation, therapy, and outcome. American Journal of Medicine, 86 (3), 262-266.

Lawlis, G. F. (2001). Biofeedback (pp. 196-224). In L. W. Freeman, & G. F. Lawlis (2001). Mosby's Complementary and alternative medicine: A research based approach. St. Louis, MO: Mosby.

Lechnyr, R. (1992). Cost savings and effectiveness of mental health services. Journal of the Oregon Psychological Association, 38, 8-12.

McGrady, A. (in press). Physiological and behavioral approaches to primary care problems. . In D. Moss, A. McGrady, I. Wickramasekera, T. Davies, & A. McGrady (Eds.), Handbook of mind-body medicine for primary care. Thousand Oaks, CA: Sage.

McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness. Journal of the American Medical Association, 284 (13), 1689-1695.

Moss, D. (1998). Biofeedback, mind-body medicine, and the higher limits of human nature. In D. Moss (Ed.), Humanistic and transpersonal psychology: An historical and biographical sourcebook (pp. 145-161). Westport, CT: Greenwood.

Moss, D. (1999).

Moss, D. (in press a). Biofeedback. In S. Shannon (Ed.), Complementary medicine in mental health. San Diego, CA: Academic Press.

Moss, D. (in press b). The anxiety disorders: Identification and management. In B. Horowitz (Ed.), Performance anxiety: Origins and management. San Diego, CA: Singular Press.

Nadeau, M., & Moss, D. (in press for Summer 1999). Integrated health care: A provider's primer. *Biofeedback Newsmagazine*.

Nakagawa-Kogan, H. (1994). Self-management training: Potential for primary care. Nurse Practitioners Forum, 5 (2, 77-84.

Palsson, O., & Collins, R. (in press). Irritable bowel, incontinence, and other disorders of elimination. In D. Moss, A. McGrady, I. Wickramasekera, T. Davies, & A. McGrady (Eds.), Handbook of mind-body medicine for primary care. Thousand Oaks, CA: Sage.

Perry, J. (2000). HCFA decision sooner than expected. Biofeedback Newsmagazine, 28 (3), 6A.

Quill, T. E. (1985). Somatization disorder: One of medicine's blind spots. Journal of the American Medical Association, 254, 3075-3079.

Rost, K., Zhang, M., Fortney, J., Smith, J., Coyne, J., & Smith, G. R. Jr. (1998). Persistently poor outcomes of undetected major depression in primary care. General Hospital Psychiatry, 20 (1), 12-20.

Sackett, D. L., Straus, S. E., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (Eds.). (2000). Evidence-based medicine: How to practice and teach EBM. Edinburgh ; New York : Churchill Livingstone..

Schwartz, M., & Associates. (2nd edition, 1995). Biofeedback: A practitioner's guide. NY: Guilford.

Smith, S. (1995). Dealing with the difficult patient. Postgraduate Medicine Journal, 71 (841), 653-657.

Sobel, D. S., (2000). Mind matters, money matters: The cost-effectiveness of mind/body medicine. Journal of the American Medical Association, 284 (13), 1705.

Sternbach, R. (1966). Principles of psychophysiology: An introductory text and readings. San Diego, CA: Academic Press.

U.S. Department of Health and Human Services. (1994). Healthy people 2,000: National health promotion and disease prevention objectives. Washington, D.C.: U.S. Government Printing Office.

van der Kolk, B. A., Pelcovitz, D., Roth, S., Mandel, F. S., McFarlane, A., & Herman, J. L. (1996). Dissociation, somatization, and affect dysregulation: The complexity of adaption to trauma. American Journal of Psychiatry, 153 (7 Suppl), 83-93.

Whorton, J. C. (1999). The history of complementary and alternative medicine. In W. B. Jonas & J. S. Levin (Eds.), Essentials of complementary and alternative medicine (pp. 16-30). Philadelphia, Baltimore, New York: Lippincott, Williams, & Wilkins.

Wickramasekera, I. (1988). Clinical behavioral medicine: Some concepts and procedures. NY: Plenum.

Wickramasekera, I. (1998). Secrets kept from the body but not the body or behavior: The unsolved problems of identifying and treating somatization and psychophysiological disease. Advances in Mind-Body Medicine, 14, 81-98.

Wickramasekera, I. (1999). The faith factor, the placebo, and AAPB. Biofeedback Newsmagazine, 27 (1), 1A-3A.

Wickramasekera, I., Davies, T., & Davies, M. (1996). Applied psychophysiology: A bridge between the biomedical model and the biopsychosocial model in family medicine. Professional Psychology: Research and Practice, 27, 221-233.

Wilhelm, F. H., & Roth, W. T. (1998). Taking the laboratory to the skies: Ambulatory assessment of self-report, autonomic and respiratory responses in flying phobia. Psychophysiology, 35 (5), 596-606.

Wolf, S. L., Barnhart, H. X., Kutner, N. G., McNeely, E., Coogler, C., & Xu, T. (1996). Reducing frailty and falls in older persons: An investigation of Tai Chi and computerized balance training. Atlanta FICSIT group. Frailty and injuries: Cooperative studies of intervention techniques. Journal of American Geriatric Society, 44 (5), 489-97.

Xiangcai, X. (2000). Qigong for treating common ailments. Boston: YMAA Publication Center.

Yingling, K. W., Wulsin, L R., Arnold, L. M., & Rouan, G. W. (1993). Estimated prevalence of panic disorder and depression among consecutive patients seen in an emergency department with acute chest pain. Journal of General Internal Medicine, 8, 2315.

[i] Portion of this section are adapted with permission from an article published in the *Biofeedback Newsmagazine* (Moss, 1999).

[ii] Figure 1 reprinted from Moss (in press a) with the permission of Academic Press.

[iii] Jonas cites the National Canter for Complementary and Alternative Medicine database with over 100,000 citations (www.nccan.nih.gov/cci), the Cochrane Collaboration Database, available online, and the *British Medical Journal's* book, *Clinical Evidence*, available at www.clinicalevidence.com