Research and Clinical Initiatives for Integrated Pain Management Strategies: Transformation to a Model of Patient-Centered Care in Department of Defense and Veterans Health Care Systems

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The challenges of changing from a medical model of care to a patient-centered model of care are similar for Department of Defense (DoD), Veterans Health Administration (VHA), and civilian health care systems—with one strong exception. The urgent call for change in our DoD and VHA systems is dominated by the voices of patients and family members who, after almost a decade of war, are desperate for help with continuing issues of pain, sleep disturbance, stress, and other conflict-related symptoms. Every day, our providers hear stories of patients who seek more treatments of a different sort than our traditional medical system typically offers. Facilities that use a patient-centered approach offer comforting environments and improved outcomes. Increases in staff and patient satisfaction, fewer medication errors, decreased mortality rates, and improved postoperative recovery rates are just a few of the positive outcomes that emerge when the change from a traditional medical system to a patient-centered system of care is implemented.

This paper presents 2 synergistic processes that are fueling the paradigm shift under way in the DoD and VHA from a conventional medical model system to a patient-centered care approach. The first is the systematic process of implementing patient-centered care in the VHA. The second describes individual research studies to highlight the strength of evidence to support providers in guiding patients toward self-healing.

The Shift Toward Patient-Centered Care

The conventional model of patient care throughout our country can best be described as provider-centric and disease-focused. Patient care is reactive to illness and directed at finding the problem (diagnosis) and prescribing a treatment to "cure" it. Medical education and practice have promoted this system, in which access to health care is based on the constraints of large, complex health care systems. These systems provide only limited access to medical providers, within a patient appointment system that accommodates sporadic visits based on degree of illness and pain. Patients are seen as passive agents in this process and are often expected to comply with mandated treatment plans without consideration of what is important to the individual.

In contrast, an integrative medicine model reflects a focus on health and prevention and brings the orientation for care back to the needs and wants of the patient (Table 1). In this model, the focus is on a continuum of health and wellness in which providers and patients partner to define individual goals of health and risk management that meet the quality of life (QoL) needs of the patient. Such care addresses the whole person and his

Table 1. Conventional vs Patient-Centered Care

Conventional care:	Patient-centered care:
• Provider-centric	• Patient-centric
• Disease-oriented	• Health-oriented
• Driven by diagnosis and cure	• Seeks to identify and minimize risk
• Biomedical intervention	• Whole-person focus
• Reactive to illness	• Proactive to health
• Sporadic	• Ongoing, lifelong
• Enacted by patient	• Patient choices supported
• System-centric	• Patient desire-centric

or her lifestyle, rather than the illness of the physiologic system. Integrative medicine returns to the basics of self—self-responsibility, awareness, and belief. The role of the health care provider becomes one of support, helping patients clearly identify their needs and choices. One of the most important roles of the health care provider is to help patients remember how to heal themselves and to point them to new promising methods, even as we conduct research to seek definitive answers.

Because patient-centered care is focused on creating environments that optimize healing in individual patients, converting to such an approach requires a massive cultural transformation that will spread throughout the organization, given the right growth medium. We believe this culture shift benefits not only patients but caregivers as well. Our experience has been that when we move into a stronger patient-centered focus, the work environment becomes very positive and we see higher staff satisfaction and less turnover.

Beginning the Transformation of the Largest Health Care System in the United States

Transforming care for a system as large as the Department of Veterans Affairs, with 173 hospitals and hundreds of outpatient clinics providing care throughout the entire country, is a massive undertaking that requires changes in the approach to both assessment and treatment. When care is truly patient centered, the patient's wants and needs are continually assessed. The provider's role is to help patients identify the options that are best for their life and situation and then honor and support their decisions, even when they may conflict with corporate goals and performance measures. This would be difficult in any large United States health care system but is especially challenging for the VA, which continually monitors approximately 450 provider performance measures.

Sometimes patients in a patient-centered care model will make choices that are at odds with providers' performance metrics. For example, a patient diagnosed with diabetes may make life choices to increase exercise and refuse oral agents, which may result in higher levels of hemoglobin A1C for a longer period of time. This could be recorded as failure to meet one of the hospital performance measures and may negatively affect a provider's evaluation, but may actually produce healthier results for the patient in the long run.

Development of a Veteran-Centered Care Model

Much of the pioneering work in patient-centered care can be attributed to Planetree, a nonprofit organization that promotes the development and implementation of innovative health care models that focus on healing and nurturing. Founded in 1978, Planetree uses a model incorporating 10 attributes of a patient-centered, holistic approach to health care that emphasizes that individuals deserve the opportunity to participate and make choices for their own health (1).

The VHA expanded on the Planetree model to create a 12-attribute model for veteran-centered care (2) that reflects the longitudinal needs of patients rather than the expertise of specialized clinicians, as determined through an interdisciplinary process of shared decision-making (Table 2). The VHA model includes the attributes especially relevant to the VA population such as *providing for physical comfort and management of pain*. Two other attributes address the importance of nutrition and the use of alternative medicine.

The importance of nutrition for patients who are ill cannot be overstated. Most people can easily picture (and smell) their comfort foods and the kitchens where they are prepared. For hospitals, this means undertaking the challenge to make certain foods available to patients or providing kitchen areas on units for patients and their families to prepare their own foods. Incorporating complementary therapies such as acupuncture, massage, yoga, meditation, and other mind-body modalities into the treatment plan also promotes patient-centered care.

Table 2. Veteran-Centered Care: 12 Key Attributes from the Universal Service Task Force Report (2)

1. Honor veteran's expectation of safe, high-quality, accessible care.
2. Enhance the quality of human interactions and therapeutic alliances.
3. Solicit and respect the veteran's values, preferences, and needs.
4. Systematize the coordination, continuity, and integration of care.
5. Empower veterans through information and education.
6. Incorporate the nutritional, cultural, and nurturing aspects of food.
7. Provide for physical comfort and management of pain.
8. Ensure emotional and spiritual support.
9. Encourage involvement of family and friends.
10. Provide an architectural layout and design conducive to health and healing.
11. Introduce creative arts into the healing environment.
12. Support and sustain an engaged workforce as key to providing VCC.

Throughout the VA, clinical administrative systems are also being redesigned to become patient-centric, allowing greater ease of interaction and access. The work of redesigning these systems to be more effective has been under way in select VHA hospitals for some time. Some of the large tertiary care hospitals in the VA Healthcare Networks are well on their way to creating patient-centered, healing environments. One of VA's large Integrated Services Networks, the VA Desert Pacific Healthcare Network with hospitals in Las Vegas, San Diego, Los Angeles, Long Beach, and Loma Linda, made the commitment 3 years ago to transform all its hospitals to patient-centered care simultaneously.

Translational medicine integrates scientific research with clinical practice, with the goal of transforming and optimizing patient care.

Efficiency of outpatient visits is a good example for demonstrating how care processes can be transformed to better serve the veteran. In the typical health care model, patients generally check in with a clerk, see an initial nursing assistant or Licensed Vocational Nurse (LVN) for assessment of vital signs, and then meet with a registered nurse (RN) for education on health promotion and recording of performance measures in the medical record. Only then do patients see their provider, for less time than the combined steps just described. The patient may be sent to radiology, the laboratory, or the pharmacy, and there is often a waiting period between each of these steps (see Figure 1). This mapping of a typical outpatient visit was an important step in redesigning the system. The VA learned that veterans primarily valued the face time with the provider, which represented the smallest part of the entire visit. Goals were then set to redesign the process to extend the patient-provider communication time as much as possible and to make that interaction a quality experience for both the patient and provider.

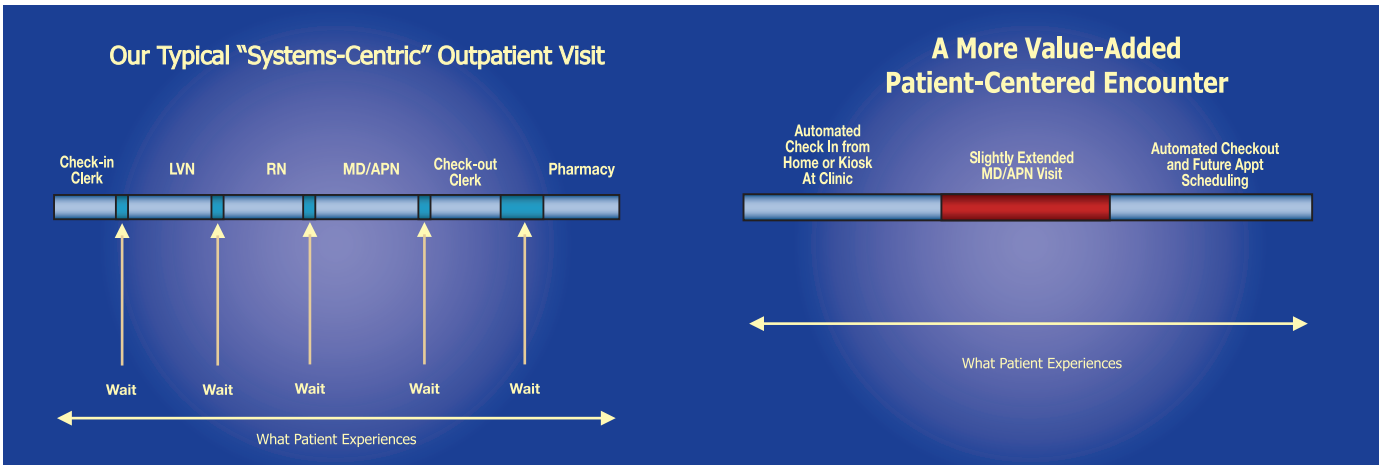
The initial steps in the process to transform the VHA system to a patient-centered care model will occur over a 3-year period. As individual care delivery venues transform their approach, field-based demonstration centers will be identified, where staff and representatives from other health care systems can experience patient-centered care firsthand. The VA is also developing an array of metrics to monitor its progress and document the ongoing impact of the nation's largest health care transformation.

Translating Evidence into Practice

Translational medicine integrates scientific research with clinical practice, with the goal of transforming and optimizing patient care. Changing the philosophy and practice of any medical system requires a change in the behavior of providers and the beliefs and attitudes of patients and families. This process involves staff commitment as well as incorporation of system-wide, evidence-based modifications.

We propose a change from the language of "alternative medicine" to a more accurately descriptive term, "integrative medicine," which provides a more effective platform for improving health, supporting current treatments, and avoiding the political and financial battles of an alternative system. We aim to augment current treatments by integrating science-based self-care

Figure 1. Transforming a Typical Outpatient Visit to a Patient-Centered Encounter



treatments that improve health and healing and promote personal active energy. We envision DoD and VHA health care systems focused on creating optimal healing environments within and outside our medical facilities.

As the number of soldiers unable to return to duty grew, the level of pain, stress, and frustration intensified, and both patients and providers looked for alternative treatments to provide symptom relief.

Case in Point: Pain Research and Practice

In managing pain, for example, research can be used to guide clinical practice toward treatments that promote individual involvement. This work began with the recognition that clinicians and researchers need to partner with patients to alleviate pain and associated conditions. As Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) became intense battlegrounds in 2003 with an average of 117,000 soldiers deployed (3), reports from our service members and the case managers caring for them began to emerge through newly instituted case management (CM) programs. These CM programs were developed to meet the functional medical needs of soldiers as they returned from deployment, and quickly expanded to help service members and their families cope not only with the physical but also the emotional, financial, and untold consequences of war (4). As the number of soldiers unable to return to duty grew, the level of pain, stress, and frustration intensified, and both patients and providers looked for alternative treatments to provide symptom relief. One of the early integrative projects was a pilot study designed to test the feasibility of a yoga medical intervention as a complementary and alternative medicine (CAM) chronic pain management program for injured soldiers who had been deployed. The program uncovered an unmet need, with more than 50 soldiers asking to participate in a class designed for only 20. Among these, 67% reported pain management issues, 29% had unresolved stress, and 21% complained of sleep disturbances (5,6).

Pain quickly became a resounding theme in the DoD and VHA. In a prospective descriptive study at Brooke Army Medical Center (BAMC) to assess pain and sleep disturbance in soldiers with extremity trauma sustained during service in OEF or OIF, 96% reported having pain 6 weeks after discharge from a military facility and 71% reported sleep disturbance more than 3 nights per week (7).

From this valuable descriptive study, the transdisciplinary research team at BAMC realized there were many research questions and gaps in our knowledge of pain and sleep and their effects on deployment, recovery, and family relationships. Currently, this team is close to finishing a randomized controlled trial to measure sleep in a volunteer sample of soldiers before, during, and after deployment for OIF. The study also assesses the effectiveness of a sleep intervention to promote effective sleep and examines multiple variables associated with sleep disturbance, including combat exposure, stress, anxiety, anger, depression, and overall health status. The intervention in this study is a guided relaxation practice that soldiers can download onto their electronic devices and listen to therapeutic music that promotes slow breathing and sleep (8).

Using a diverse transdisciplinary team is a tremendous benefit for research studies and an absolute necessity to translate research into practice. The strength of combining research and practice led us to expand the vision at BAMC to create a Complementary and Integrative Medicine (CIM) Research Advisory Board in 2009 with clinical and research representatives from multiple disciplines and departments, and external collaborators, including Samueli Institute, which had already been a partner for integrative medicine research at BAMC since 2007. Since the inception of the CIM Research Advisory Board, 11 integrative medicine research studies are currently in progress or undergoing data analysis at BAMC, most with internal or external funding.

Thus, the initial recognition that providers could partner with patients to optimize individual care grew into a robust model designed to use transdisciplinary and multi-interventional approaches to promote the partnerships and funding needed to develop scientific studies that answer questions about healing. Indeed, our primary strategy, vision, and tactic can be described as a conscious effort to seize any opportunity that developed for collaboration, in research and practice, internally and externally, to ultimately improve resources and care for our service members, their families, and our staff who deliver the 24-hour health care mission. To successfully implement a multilevel strategy demands that the team has leadership approval, staff acceptance, and patient participation to garner multiple resources including funding, personnel, and necessary expertise.

Networking. It is rewarding to see the effectiveness of networking at conference meetings. During the initial yoga pilot study presentation, a meeting with Richard Miller, PhD, opened the door for 2 research studies evaluating his Integrative Restoration (iRest®) program with military populations (9). Working within the Society of Behavioral Medicine's Complementary and Integrative Medicine Special Interest Group led to collaborative work with Jill Bormann, PhD, RN, CS, who has studied the value of mantram repetition for veterans with PTSD (10,11). We are confident that the collaborations made at the American Academy of Pain Management will also lead to new frontiers for research.

Dr. Miller's initial visit to BAMC in 2008 gave him an opportunity to become familiar with the military medical mission and to see possibilities for research with a military facility. He provided 2 continuing education presentations for nurses, physicians, and behavioral health providers that ultimately led to a small pilot study. This study, funded by Samueli Institute, examined the effects of iRest on sleep, stress, and resilience in health care providers, and tested the feasibility and acceptability of using iRest in a military population (12). The success of the pilot study has led to funding for a prospective randomized clinical trial through the Defense Medical Research and Development Program. This study, to begin recruiting this year, will determine if participation in iRest by service members and their spouses improves resilience, as measured by a decrease in stress and sleep disturbance and improvement in marital adjustment.

Input from health care providers. Much of the inspiration, questions, and interventions for research come from our unsung heroes in the military, the health care providers. Data from a small qualitative study of journals from the battlefield (13) reveal the stress of providing 24-hour care in a combat zone. One provider expresses, *"I am angry all the time. I don't even know who I'm angry at."* Another describes the slow emotional withdrawal that can result from the intensity of caring. *"…You know it was just easy to shut down but it wasn't an active choice. It came slowly every day."*

Most of the research examples described in this paper come from grassroots efforts of caring clinicians and researchers. It is inspiring and motivating to also note that most of these examples do not come out of the large DoD infrastructure but from individual military facilities that have stepped up to help their patient populations.

Models of Success

The first military translational effort on a larger scale did not happen at the biggest or most recognized military facility but at William Beaumont Army Medical Center (WBAMC), Fort Bliss, Texas. Here, the first Center for Integrative Medicine in the DoD opened in 2003. The clinic first offered chiropractic care, monochromatic near-infrared light energy, and acupuncture services and has expanded to include biofeedback, massage, Reiki, movement therapies (yoga, tai chi, qi gong), cranial electrical stimulation, and mind-body modalities. COL Richard Petri is the Director of the DoD's Center for Integrative Medicine at WBAMC in El Paso, Texas, and he has watched his vision grow across the Army with other programs offering integrative medicine services. Dr. Petri admits that while his center and others offer integrative modalities, most are still not truly integrated into hospital practices. Hospitals for the most part are still focused on diagnosis, treatment, and cure of disease while integrative medicine emphasizes healing of the person—which may not always mean cure—through the person's involvement in the process.

One of the first research projects conducted at the Center for Integrative Medicine at WBAMC was a randomized controlled trial comparing the use of manual manipulation to the current standard of care for acute low back pain. The study was a collaborative effort between Palmer College Center for Chiropractic Research and Samueli Institute. The preliminary findings suggested that adding chiropractic care is beneficial for improving performance and decreasing pain at 4 weeks. Full data analysis has been completed and a manuscript is in preparation.

Another strong translational model for integrative care is the Tripler Army Medical Center (TAMC) Integrative Pain Management Center (IPMC). The IPMC was established in 2008 as a joint DoD/VA competitively funded initiative designed to provide integrative care with holistic, patient-centered, nonpharmacologic approaches to physical, emotional, and spiritual issues for service members and veterans suffering from musculoskeletal pain. A key component of this model of care is integrative functioning of a team of specialists, including conventional medical clinicians and complementary medicine practitioners representing the following disciplines: anesthesiology (pain management), internal medicine, psychology, nursing, occupational therapy, physical therapy, chiropractic care, therapeutic massage, acupuncture, nutrition, exercise physiology, chaplains, and traditional healers.

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A proposal has been submitted to expand the care team to include an orthopedic surgeon, a dentist, and administrative infrastructure to work toward reimbursement mechanisms for complementary care practitioners.

The mission of the Task Force was to recommend a comprehensive pain management strategy that would be holistic, multimodal, evidence-based, and focused on QoL.

The first surveys examining CAM modalities available in military health care facilities were pilot surveys conducted by WBAMC in 2005 and again in 2009 (manuscript under development). Fourteen large DoD medical centers were surveyed and results found that nearly 90% of these participating medical facilities offered one or more CAM modalities during 2005 and 2009. With support and collaboration from Samueli Institute, an expanded survey is currently being developed to identify the prevalence of CAM offerings in 543 DoD facilities. This large-scale survey is currently in the IRB approval process and projected to start data collection in 2011.

Changing Practice through Policy

Recognizing that pain management is a challenge for both civilian and military personnel, The Surgeon General of the Army, LTG Eric B. Schoomaker, chartered a pain management task force in 2009 under the leadership of Assistant Surgeon General, Force Protection Brigadier General Richard Thomas, to critically examine acute and chronic pain care in the armed forces. The mission of the Task Force was to recommend a comprehensive pain management strategy that would be holistic, multimodal, evidence-based, and focused on QoL. Comprising a small but comprehensive group of pain specialists from various disciplines, the task force also included representatives from the VHA, Air Force, and Navy. The final report of this task force, released in May 2010, includes a complete evaluation of pain management in the DoD, based on visits to multiple military and civilian facilities. The report contains 109 recommendations for a full-spectrum pain management approach, including 7 recommendations for integrating CAM into military pain management based on adopting an evidence-based, tiered approach to effectively assimilate integrative modalities (14).

After the report was released, LTG Schoomaker spoke of his concern with inconsistent standards across DoD in resources and structure and his goal for standardizing the capabilities and modalities across the Medical Command (MEDCOM) and further collaboration across DoD medical facilities (15). He stated, "We don't have a common or useful way to measure and look at the treatments of pain and we don't have a wide enough aperture that brings in other nonpharmacologic treatments of pain" (16). The first tier of recommended modalities includes acupuncture, yoga/yoga nidra, chiropractic care, therapeutic medical massage, biofeedback, and mind-body therapies including meditation and mindfulness (14).

In September 2010 the operational component of this report was released (17). This document provides a more detailed map of responsibilities for implementation to provide the consistency in standards and services mandated by the Surgeon General. Of significance for change are recommendations to 1) develop an advisory board of scholarly leaders in integrative medicine fields, and 2) request an evaluation of the Tier 1 modalities for inclusion as covered TRICARE benefits.

The military has adopted the powerful term "Total Force Fitness" to reflect the needs of our military service members, including physical, environmental, medical, spiritual, nutritional, psychological, behavioral, and social domains.

Military and veterans' health care agencies are responding to our patients' needs with changes in care models and assimilation of integrative medicine modalities not only for pain management but also for health management. These 2 health care systems represent a huge part of our national health care platform. The DoD, VHA, and our national workforce want their people to be healthy and perform at their highest level. We maintain that a patient-centered, active, responsible system of care promotes a healthy workforce, families, and communities, and an engaged retired community. We believe the vision and work of transdisciplinary research and clinical teams have made and will continue

to make a difference in improving care for our patients. The military has adopted the powerful term "Total Force Fitness" to reflect the needs of our military service members, including physical, environmental, medical, spiritual, nutritional, psychological, behavioral, and social domains (18). With full support from the highest military leadership, a new model for total force fitness is under way that illustrates a paradigm shift beyond the health care facility environment, for full transformation to individual-focused health (19). ■

MONA BINGHAM, PhD, RN, recently retired as Colonel in the Army Nurse Corps. Her last assignment was as Chief of Nursing Research at Brooke Army Medical Center (BAMC) in San Antonio, Texas and Consultant to the Surgeon General for Nursing Research. Under her leadership at BAMC, nursing research services grew substantially and included collaborations with universities, other DoD agencies, the VHA, and Samueli Institute. Dr. Bingham also established and chaired the Complementary Integrative Research Advisory Board at BAMC to enhance healing and wellness for military service members and their families through integrative approaches. She is the recipient of multiple military and civilian awards. She is currently the Senior Scientific Director, Military Medical Research Programs, at Samueli Institute.

SALVATORE LIBRETTO, PhD, is a Senior Program Manager, Military Medical Research Programs, at Samueli Institute. Dr. Libretto received his doctorate in clinical psychology from Temple University. He has worked in numerous clinical settings including VA medical centers, hospital inpatient units, addiction treatment facilities, and university counseling centers. He has extensive experience in research design, data analysis, program evaluation, and survey construction. Dr. Libretto is currently the principal investigator (PI) on a DoD-funded study evaluating a skills-based resilience training program for soldiers and he recently served as the PI on a United States State Department-funded project to evaluate substance abuse training in Vietnam and Colombia.

JOAN WALTER, JD, PA, is Samueli Institute's Chief Operating Officer and Vice President, Military Medical Research Programs. She received her law degree from Rutgers University and her physician's assistant degree from Touro College/SUNY Stony Brook. Before joining Samueli Institute, Joan's work experience included positions in clinical research and research management in the neurosciences, including traumatic brain injury and pain research with the military; law and business development; and translating research initiatives into business objectives in the private sector. Ms. Walter's current research portfolio includes several acupuncture projects, mixed-methods program evaluations, and systematic reviews, all related to healing and wellness.

RICHARD PETRI, MD, is the Director of the Department of Defense's Center for Integrative Medicine at William Beaumont Army Medical Center (WBAMC) in El Paso, Texas. COL Petri is a physiatrist who has advanced training in medical acupuncture and mind-body medicine. He was selected as a DoD reviewer of Andrew Weil's program in integrative medicine and served as the only DoD representative to the VA's CAM Advisory Group. COL Petri has been awarded several grants to study integrative medicine in the military, and is working toward developing The Institute for Integrative Health and Healing, a DoD Center of Excellence. COL Petri was recently selected to be an integrative medicine consultant to the Army Surgeon General's task force on pain and integrative medicine for NATO.

RONALD NORBY, MN, is currently the Deputy Director for the Orange County Health Care Agency in Orange County, California, a position he has held since September 2010. Prior to serving in this position, he was Director of the Veteran's Affairs Desert Pacific Healthcare Network, which is responsible for providing integrated health care services for approximately 1.8 million veterans who reside in Southern California and Nevada. Over his distinguished health care career, Mr. Norby has served on many national committees and has led many efforts in health care reform, systems redesign, and creative approaches to patient-centered care.

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