

FEATURE

Holistic Care in the US Military I—The Epidaurus Project: An Initiative in Holistic Medicine for the Military Health System, 2001-2012

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ABSTRACT

This article describes the history and findings of the Epidaurus Project, a Uniformed Services University-affiliated project to bring holistic care and evidence-based design into the Military Health System (MHS). A distinguished group of civilian thought leaders contributed. The 2005 Base Realignment and Closure process offered a chance to implement the Epidaurus agenda. A new integrated healthcare delivery system, centered around the Walter Reed National Military Medical Center at Bethesda, Maryland, was the result. These facilities will be templates for a new generation of MHS “healing environments” and a model for innovative systems of healthcare nationwide. The Epidaurus Project represents a significant collaboration between civilian medicine and the military in times of war.

摘要

本文说明 Epidaurus 项目的开展历史和研究发现, 该项目由统一服务大学 (Uniformed Services University) 开展, 旨在为军队卫生系统 (Military Health System) 提供全面护理和有根据的安排。一群具有平民思想的杰出领导人作出贡献。2005 年的基地改组与关闭(Base Realignment and Closure) 流程为施行 Epidaurus 项目提供了机会。结果建成了一个新的综合性医疗服务体系, 并以位于贝塞斯达的沃尔特·里德国家军事医疗中心 (Walter Reed National Military Medical Center) 为核心。这些设施将是新一代军队卫生系统 (MHS) “康复环境”的典范, 亦是全国创新医疗体系的范例。Epidaurus 项目体现了民用医药与军队在战争期间的重要合作。

SINOPSIS

Este artículo describe la historia y los hallazgos del Proyecto Epidaurus, un proyecto en colaboración con la Uniformed Services University (Universidad de Servicios Uniformados), para incorporar la medicina holística y el diseño basado en la evidencia en el Military Health System (Sistema de Salud Militar). A ello contribuyó un grupo distinguido de líderes intelectuales civiles. El proceso de Realineamiento y Cierre de Bases del 2005 ofreció una oportunidad para implementar el programa Epidaurus. El resultado fue un sistema nuevo e integrado de asistencia sanitaria, centrado alrededor del Walter Reed National Military Medical Center de Bethesda. Estas instalaciones serán el modelo para una nueva generación de “entornos de salud” MHS y para sistemas de asistencia sanitaria innovadores a nivel nacional. El Proyecto Epidaurus representa una colaboración destacada entre la medicina civil y los militares en tiempos de guerra.

American medicine faced a crisis at the turn of the millennium. The Institute of Medicine (IOM) described major defects in the system and urged a turn toward process integration and patient-centeredness.^{1,2} Within federal medicine, the Military Health System (MHS), a large organization with more than 9 million beneficiaries, confronted the casualties of the Iraq War. These patients, including many with traumatic brain injury (TBI) and psychiatric syndromes, needed care beyond the usual approaches, particularly in the realms of wellness and quality of life.³ All these factors called for an increased focus on holistic (or whole-person) aspects of care.

Holism in medicine may be defined operationally. Any intervention directed at the “whole person” rather than an organ system may be considered holistic. Holism

and reductionism have been a central problem of Western philosophy since at least the 17th century.^{4,5} In the medical realm, these terms express two different ways of understanding the human body. Following Descartes and the approach of science generally, reductionism considers the body through division into manageable parts (ie, the organ-system approach). The success of these methods is shown by the powers of medical technology. Reductionist knowledge is rational, reproducible, and measurable by mathematical physics. However, such thinking makes it difficult to conceptualize “whole person” issues, including personal suffering, overall wellness/ill health, and public-health concerns.⁶⁻⁸ In particular, multidisciplinary care integration, patient- and family-centered care, and wellness programs (eg, diet, exercise, complementary and alternative medicine)

are all holistic approaches.⁹⁻¹¹ The built environment is also a holistic intervention because it seeks to change the whole person via immersion in a healing milieu.¹²

THE EPIDAUROS PROJECT

The Epidaurus Project was initiated in 2001 by Dr Fred Foote (primary author of this article, at the time a commander in the Navy Medical Corps) as an effort to advance holistic care in the MHS via the built environment.¹³ The goal was to obtain, via small group symposia of national experts, the answer to 2 questions: (1) What principles define patient-centered care? and (2) What features of the built environment embody or facilitate patient-centered care? The latter would define the holistic “hospital of the future.” The intent was to build this facility in the MHS, though no such opportunity was evident at that time. An ideal site would be the National Naval Medical Center (NNMC), Bethesda, Maryland, whose beautiful woodland campus showed promise as a healing environment. It evoked the ancient Greek medical campus of Epidaurus, where holistic and rationalistic care coexisted in harmony.¹⁴

Early Days of the Epidaurus Project

The Epidaurus working groups were created by culling the literature, selecting the most prominent civilian experts, and inviting them to join the project. Travel costs were paid at first from the organizer’s personal funds (later supplemented by grants from the Nathan Cummings Foundation, the Rothschild Foundation, and the Institute for Integrative Health). Members would donate their time and ideas gratis as a service to America’s Wounded Warriors. Seldom was this invitation declined, and many members worked for years on the project without pay. The Epidaurus Project was therefore a significant effort by civilian medicine to provide advanced idea sets to the military in a time of transition. Historically, such exchanges have been common in times of war and have been important drivers of healthcare innovation in the United States.¹⁵

Epidaurus followed a care principles-based approach. Because hospital design is really a type of holistic care, care principles determine design features and should be developed primarily. Our first working group, examining principles of patient-centered care, met monthly through 2001 and 2002. Core members included Eric Cassell, MD (Cornell University); Barbara Mittleman, MD (National Institutes of Health [NIH]); Lieutenant Commander Miles Barrett, CHC, USN; and this article’s authors. Meeting each month in Father Barrett’s apartment (Figure 1), we debated the nature of patient-centeredness. Mornings were spent in formal presentations, afternoons in spirited discussion (fueled by Fr Barrett’s plentiful wine).

After a year of work, in 2002, we completed a consensus statement. It defined patient-centered care according to 4 principles:

1. Integrity of the clinical encounter. The encounter



Figure 1 Early days of the Epidaurus Project, 2002. Left to right: Edmund Pellegrino, MD; Eric Cassell, MD; Frederick Foote, MD. Not pictured: Roger Bulger, MD; Barbara Mittleman, MD; Fr Miles Barrett.

is a meeting with a healer in hopes of being healed. It is covenant-based, not contractual, in nature. The care setting must be designed to optimize a healing interaction.

2. Empowerment of the patient. Care should be safe, transparent, and subject to patient control. Hospitals should be built on a human scale and should be easily accessed, navigated, and influenced by patients and families.
3. Focus on the relief of suffering. Suffering is the perceived threat to the integrity of a whole person.⁷ Its relief is a universal goal of all patients. To achieve this, care plans should be both comprehensive (addressing all aspects of a whole person) and individualized. Elements of art, beauty, and nature should be incorporated into hospital and clinic designs.
4. Promotion of lifelong health and wellness. Care should cover the whole lifespan in a seamless manner. Multidisciplinary care integration should be achieved through artful design. Diet, exercise, spirituality, family engagement, and other aspects of wellness should be included in plans of care.^{13,16}

These principles were developed with a view toward realization through architecture. They became the foundation for the second Epidaurus working group, which covered healthcare architecture and design (2002-2005). Wayne Ruga, PhD (Caritas Project); Susan Frampton, PhD (Planetree, Derby, Connecticut); D. Kirk Hamilton, FAIA (Texas A&M University, College Station); Yosaf August (Bedscapes, Inc); and Stephen Verderber, PhD (Clemson University, South Carolina) were the core members. As time went on, other experts, many affiliated with the Center for Health Design,¹⁷ were added. The group translated care principles into architectural features (Table 1) with 12 pages of detail. As recorded in the Epidaurus design consensus statement of 2005,¹⁸ it was one of the earliest systematic expositions of evidence-based design (EBD). Key members of the various Epidaurus working

Table 1 Patient-centered Care and Design Principles of the Epidaurus Project Consensus Statements, 2002-2005

Patient-centered Care Principles	Design Principles
1. Integrity of the clinical encounter	Suggestion of a healing focus Expression of core values Use of evidence-based design
2. Empowerment of the patient	Human scale Residentialism Single patient rooms with family sleepover Family support facilities Legible wayfinding Ease of use
3. Focus on the relief of suffering	Care of the whole person Incorporation of nature, art, and spirituality Relief of stress with positive distractions
4. Creation of a lifelong healing relationship	Co-location of related clinics Interdisciplinary clinic designs Imbedded wellness facilities “Green” design Experimental Therapeutics Unit (later NiCoE) Design for change

groups are listed in Table 2.

These consensus statements were supplied to the office of the Assistant Secretary of Defense for Health Affairs (ASD/HA), the director of the MHS.¹³ The Epidaurus care principles were ultimately adopted as guidelines for the MHS,^{13,19} and the architecture report was used in the generation of formal EBD guidelines for MHS health facilities.^{13,19-21}

Adoption by the Uniformed Services University of the Health Sciences

In 2002, Epidaurus was adopted by the Uniformed Services University of the Health Sciences (USUHS), Bethesda, Maryland, at the instigation of Vice Admiral (ret) James Zimble, the President of the University at that time. The first National Conference of the Epidaurus Project was held at USUHS in May, 2003.²² The full range of care and design ideas for our “hospital of the future” were expounded by the luminaries of the project. The audience of 150 represented most of the planning agencies of the MHS and federal medicine, including many senior leaders.²² The conference also showcased the possibility of uniting Walter Reed Army Medical Center (WRAMC), Washington, DC, with NNMC, USUHS, and the NIH, into a model National Medical Center, based on advanced care and design.^{13,22,23} In this early conception, the 3 main facilities were to be linked with a monorail. Subsequent USUHS conferences in 2006 and 2009 provided further support for this agenda.^{24,25}

Development of the Medical Facility

Epidaurus was mainly of academic interest until 2005. In that year, the Base Realignment and Closure (BRAC) process recommended closing WRAMC and combining it with NNMC in a new Walter Reed National Military Medical Center Bethesda (WRNMMCB) on NNMC's Bethesda campus. This would produce a benchmark academic medical facility, “to rival Johns Hopkins,

Table 2 Core Nonmilitary Members of the Epidaurus Project, 2001-2011

Bioethics, Advanced Care, and Administration

Herbert Benson, MD (Harvard University)
Ann Berger, MD (NIH)
Brian Berman, MD (University of Maryland)
Roger Bulger, MD (Association of Academic Health Centers)
Eric Cassell, MD (Cornell University)
Barbara Cohoon, RN (National Military Families Association)
Jay Gershen, DDS, PhD (University of Colorado)
Bev Johnson, RN (Institute for Family-centered Care)
David Lary, PhD (University of Texas at Dallas)
David Leach, MD (ACGME)
Rob Mayer, PhD (Rothschild Foundation)
Barbara Mittleman, MD (NIH)
Paul Nebenzahl (Nebenzahl Associates)
Edmund Pellegrino, MD (Georgetown University)
John Porretto (University of Texas Health Science Center at Houston)
Ken Shine, MD (Institute of Medicine)
Perry Skeath, PhD (NIH)
Esther Sternberg, MD (NIH)
Judith Stearns (National Military Families Association)
Julian Thayer, PhD (Ohio State University)

Healthcare Architecture and Design

Paul Alt (AIA)
Yosaif August (Bedscapes Inc)
Barbara Dellinger, IIDA, AAHID (HDR Inc)
Susan Frampton, PhD (Planetree)
Robin Guenther, FAIA
D. Kirk Hamilton, FAIA, FACHA (Texas A&M University)
Barbara Huelat, ASID/IIDA, AAHID Regent
David Kamp, FASLA
Bruce Komiske (Northwestern University)
Debra Levin (Center for Health Design)
Brett McNish (Smithsonian Gardens supervisory horticulturist)
Joe Parimucha, AIA
Ray Pentecost, PhD, AIA, ACHA
Annette Ridenour (Aesthetics, Inc)
Wayne Ruga, PhD, AIA, FIIDA
Roger Ulrich, PhD (Texas A&M University)
Stephen Verderber, PhD (Clemson University)
Craig Zimring, PhD (Georgia Tech University)

Abbreviations: AAHID, American Academy of Healthcare Interior Designers; ACGME, Accreditation Council for Graduate Medical Education; ACHA, American College of Healthcare Architects; AIA, American Institute of Architects; ASID, American Society of Interior Designers; FACHA, Fellow of the American College of Healthcare Architects; FAIA, Fellow of the American Institute of Architects; FASLA, Fellow of the American Society of Landscape Architects; FIIDA, Fellow of the International Interior Design Association; IIDA, International Interior Design Association; NIH, National Institutes of Health.

Mayo Clinic, and other top-rated centers.”²⁶ A new community hospital, to be built at Fort Belvoir, Virginia, would be aligned with the Bethesda facility. (A third BRAC project, the San Antonio Medical Center in Texas, is outside the scope of this article.) Here was the chance to realize the Epidaurus concepts on a grand scale. Rear Admiral Adam Robinson, then Commander of NNMC (later Navy Surgeon General), encouraged our group to become involved in the BRAC designs.

This was the time of the EBD revolution, which showed how building features could improve clinical outcomes.¹² Other MHS colleagues had become interested in healing environments. One group, headed by Eileen Malone (Noblis Corp, Falls Church, Virginia) and Clay



Figure 2 Front façade of the new Fort Belvoir, Virginia, Community Hospital. *Image courtesy of HDR.*

Boenecke (TRICARE Management Activity, Falls Church), had been tasked with drawing up new specifications for MHS hospital designs. The Epidaurus care and design documents were among the source materials used for this report, which appeared in 2007 and was promptly translated into improved building standards.^{21,27}

Direct involvement in the BRAC designs came in late 2006, when Dr Foote was invited to deliver a brief on the Epidaurus ideas to Vice Admiral John Mateczun, head of the Department of Defense (DoD) Medical Office of Transformation. Dr Foote enlisted the heads of the armed forces healthcare planning agencies (who had also warmed to the new ideas) to join this briefing in support.^{13,28} Admiral Mateczun was impressed and recommended us to the Assistant Secretary of Defense for Health Affairs, William Winkenwerder, Jr, MD. The result was a formal endorsement of “patient-centered and evidence-based design” for all future construction in the MHS and an assignment of the briefing group as advisors to the BRAC design teams.^{19,27} This involvement has continued to the present day. The new Walter Reed and Ft Belvoir hospitals were completed and opened on September 15, 2011, “our 9/11” for the MHS.

The new Ft Belvoir Community Hospital (HDR/Dewberry, joint architects; Figure 2) sets the national standard for facilities of its type. At 1.28 million sq ft, it is one of the largest and most advanced community hospitals in the United States.²⁷ EBD features include 100% single rooms, decentralized nursing units, ultrafiltered air, an advanced noise control via absorbent materials, and a noiseless paging system. “Green” features achieve a LEED (Leadership in Energy and Environmental Design) Silver rating. There are no fewer than 8 gardens, and a light-filled promenade outfitted with art and other “positive distractions” runs the length of the façade. Due largely to the impact of design on infection, injury, and error rates, we anticipate a 50% decrease in hospital morbidity and mortality, compared to previous facilities.^{12,27}

The new Walter Reed National Military Medical Center Bethesda (WRNMMCB, HOK/HSSM/HKS,



Figure 3 The Walter Reed National Military Medical Center Bethesda.

architects), comprising more than 2 million sq ft of new construction and renovation, is one of the great academic medical centers of the United States (Figure 3).²⁹⁻³¹ More than a dozen new buildings have been added to the Bethesda campus, with more planned before 2015. In addition to many features present at Ft Belvoir (including single patient rooms with family sleepover accommodations), new and renovated areas include such features as enhanced lighting, noise control, exposure to nature, large and technologically advanced operating rooms, and 100% outside air ventilation in the new clinical buildings. Unique outpatient clinic floor plans operationalize interdisciplinary care and bring wellness interventions (such as nutrition, exercise, mind-body medicine, and complementary and alternative medicine [CAM]) to the routine clinic encounter. Outpatient services have adopted a “Medical Home” model (Captain Kevin Dorrance, USN, Project Director), including team medicine, patient self-management, proactive care, and data-driven quality analysis, to improve access and outcomes. An inspirational scheme of wayfinding and interior design, termed “Celebrate America,” has been developed for the WRNMMCB.

Adjacent to the hospital, the National Intrepid Center of Excellence (NICoE; Smithgroup, architects), a 65 000-sq-ft freestanding clinical brain research center, will address the problems of TBI and posttraumatic



Figure 4 The National Intrepid Center of Excellence.

stress disorder (PTSD), the 2 “signature injuries” of the Iraq/Afghanistan Wars (Figure 4).^{32,33} This advanced facility was built through the philanthropic generosity of the Intrepid Fallen Heroes Foundation directed by Arnold Fisher. Full patient cohorts began arriving in March 2011. NICoE provides advanced assessments and care plans for 20 Wounded Warriors and their families per month in a state-of-the-art clinical environment. More than 100 fulltime staff members are engaged with these patients. In-house facilities include advanced imaging and virtual reality suites, arts and family therapy spaces, an indoor “Central Park” (Figure 5), and a spacious and comfortable patient lobby (Figure 6). After completing the 1-month program, patients return with their care plans to their home locations. NICoE tracks implementation remotely and conducts research on the results. The goal of the NICoE is to revolutionize outpatient care by fully combining holistic and conventional/scientific medicine, achieving integrated care management, and discovering new biomarkers and therapies for TBI and PTSD (Figures 4-6).^{3,31-33}

The holistic medicine program at NICoE covers the full range of available modalities. Specially designed clinical “pods” facilitate multidisciplinary care integration. Family intervention follows an 8-session model called Families Overcoming Under Stress (FOCUS), a well validated program of family strengthening and education.³⁴ Families also receive intensive wellness training. NICoE Wellness program staff members (including full-time employees in nutrition, exercise/recreation, CAM, and arts therapy, as well as a chaplain and an integrative medicine program manager) produce detailed wellness plans for each patient and fam-

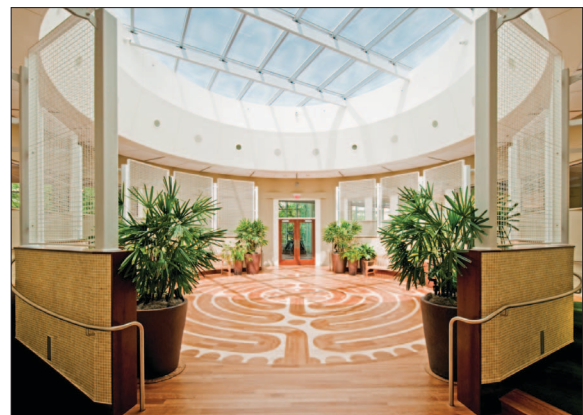


Figure 5 The National Intrepid Center of Excellence’s “Central Park.”



Figure 6 The National Intrepid Center of Excellence’s patient lobby.

ily. Trial interventions are conducted to tailor the plan to the person. Arts activities include intensive art therapy, a writing program conducted by the National Endowment for the Arts, and involvement with the wide-ranging arts activities at the adjacent Walter Reed Army Medical Center. In addition to general “healing environment” features, the NICoE building is specifically tailored to facilitate these program components.³⁵ Dr Foote and other Epidaurus Project members were heavily involved in the design and care programming of the NICoE.³⁴⁻³⁶

A research program as ambitious as NICoE’s takes time to develop, and the facility has been operating for only about a year. Significant improvements already have been shown in TBI/PTSD symptom scores and in patient self-reports over the 4-week NICoE stay (J. Reed, MD, oral communication). More definitive studies, including data on the persistence of therapeutic effects in the remote home location, should be available in the near future.

These benchmark hospital facilities will be part of a unique structure of military command. Starting in 2011, all National Capital Medical Region (CAPMED) MHS facilities have been assigned to Joint Task Force (JTF)–CAPMED, which has authority over health facilities from all 3 services. JTF integration will greatly increase the efficiency, safety, and effectiveness of care in this region of the MHS.^{29,37} In addition, plans are on track for a new generation of military hospitals based on the Ft Belvoir and WRNMMCB designs in locations across the United States. In this way, the lessons of Epidaurus and EBD will carry forward into the future.¹⁹

The new WRNMMCB is across the street from the NIH, and there is interest in an expanded Veteran’s Administration (VA) presence on campus. Combining these entities would realize the original Epidaurus dream of a National Medical Center in Bethesda. Such a facility could provide training, standards, and knowledge generation to a variety of national configurations of civilian healthcare. Despite the organizational challenges involved, further movement along these lines seems likely to occur.^{26,38,39}

As “healing buildings” have been realized, the focus of Epidaurus has turned to advanced processes of care. As noted above, the NICoE has been developed as a laboratory where patient- and family-centered care, multidisciplinary care integration, enhanced wellness, and healing environment opportunities can be explored. A comprehensive healing art-making program for Wounded Warriors is underway at WRNMMCB. In addition, a “Green Road” project will develop a central parkland zone for respite and healing through nature (Figure 7). The Institute for Integrative Health (TIIH), TKF Foundation, Planetree, and CDMSmith, Inc, are among the sponsors of the Green Road, which will be executed in 2012-13. The half-mile-long project will provide wheelchair and foot transit through campus, a venue for engagement with art and nature, and a platform for education in holism

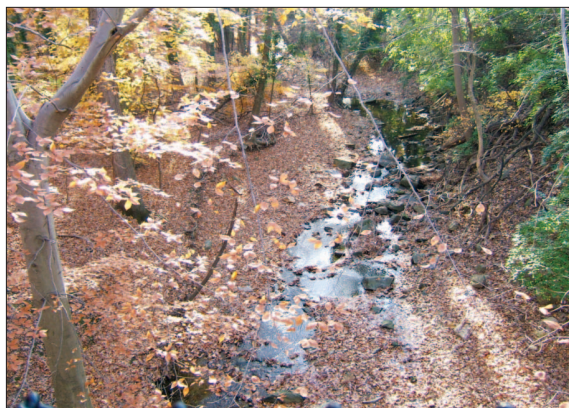


Figure 7 The Green Road site at Walter Reed National Military Medical Center Bethesda.

for the military and the nation at large. Small clinical care pavilions will eventually be included.

EPIDAUROS 2 PROJECT

One barrier to holistic care has been the lack of metrics to directly measure the whole-body effects of such interventions. To remedy this, the “Epidaurus 2” Project, funded by TIIH,⁴⁰ was launched in 2010. Participants include holistic clinicians and advanced mathematicians from across the United States. In monthly meetings since 2010, we have developed 5 core metrics that appear to measure whole-body healing effects.

The first metric (Esther Sternberg, MD, and Julian Thayer, PhD, developers) will combine heart rate variability, salivary cortisol, and neuroimmune biomarkers into a single expression to give a broader measure of allostatic load. Advanced mathematics, using successive mean difference and multilevel regression models, will be required. Initial data, measuring the healing effects of exposure to nature (at NICoE and on the Green Road project), will be collected in summer 2012.^{41,42}

The second metric (Herbert Benson, MD, and colleagues) involves whole-genome transcriptional analysis to identify changes in gene expression associated with holistic therapies. In civilian populations, these investigations have shown meaningful changes in gene expression with mind-body medicine practice, including progressive activation as one moves from nonpractitioner to novice to expert (Figure 8).⁴³ Genes regulating mitochondrial energy utilization and immune processes are among the complexes involved (Herbert Benson, MD, oral communication). Interestingly, many of these same genes are inversely activated in PTSD.⁴⁴ Initial data collection at WRNMMC measuring effects of the NICoE program, the healing arts program, and the Green Road will begin in late 2012.

The third holistic metric, Natural Language Processing (NLP; Ann Berger, MD, and Perry Skeath, PhD), prompts an artificial intelligence to analyze syntax and content of patient stories and self-reports to determine feeling states and propensities to action.

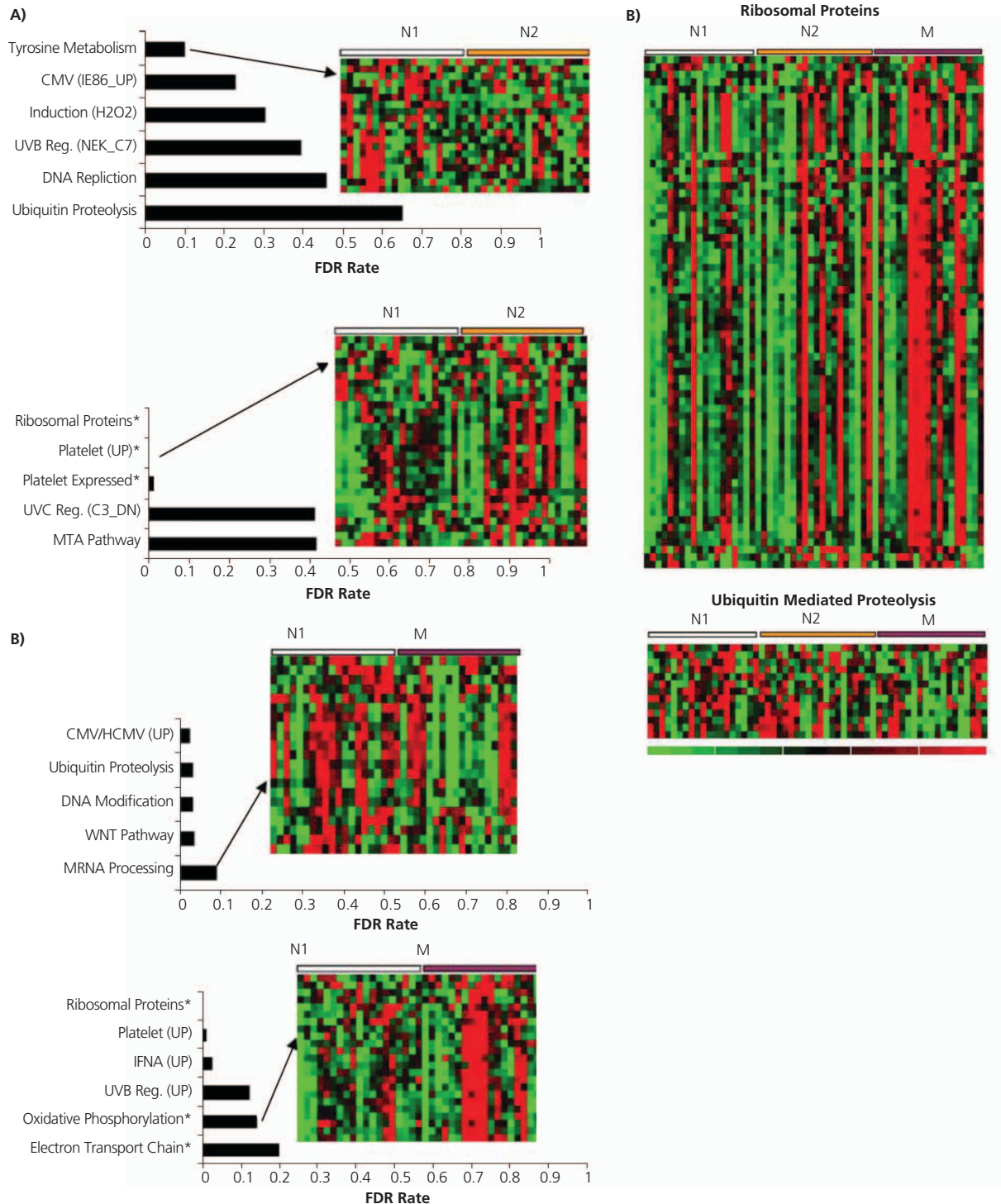


Figure 7 Patterns of gene activation (red) and suppression (green) in subjects practicing the relaxation response. Abbreviations: M, master (long-term) practitioners; N1, nonpracticing controls; N2, novice practitioners.⁴³ Reprinted with permission from Herbert Benson, MD.

Useful findings have been reported in various settings, including advertising and the analysis of suicide notes.⁴⁵⁻⁴⁷ We will study patient journals and self-descriptions generated at NICoE or on the Green Road beginning later this year.

The fourth metric, “star glyphs” (Jim Deleo, PhD), involves plotting patient indices as diameters on a circle, with the patient’s score represented as a dot on the

line. Connecting the dots produces a geometric shape. Interestingly, specific disease states may have characteristic shapes.⁴⁸ Progression toward a “normal” shape, or fluctuation about a patient’s personal norm, can be captured by combining multiple time-sequenced glyphs into a film.⁴⁹ In addition to conventional laboratory or assessment data, several of our other holistic metrics could be represented as star glyphs.

Table 3 Holistic Medicine Projects at Walter Reed Bethesda/ Ft Belvoir Involving the Epidaurus Project 2011-2012

Project	Completion/ Delivery Date
Evidence-based Design	
Single rooms with family sleepover accommodations	Sep 2011
Advanced ward configurations	Sep 2011
Green design (light/air/noise/toxins/sustainability)	Sep 2011
Interdisciplinary outpatient clinics	Sep 2011
Inspirational interiors/wayfinding	Sep 2011
Advanced Therapeutics Facility (NICoE)	Jun 2011
Improved Wounded Warrior housing	Sep 2011
Care Process Reengineering	
Multidisciplinary Care Integration (NICoE, Medical Home)	Sep 2011
Family-centered care	Ongoing
Embedded wellness programs and CAM	Sep 2011
Advanced Holistic Care	
Holistic Metrics Project	Oct 2011
Healing Art Making Program	Feb 2012
Green Road Project	Oct 2013

Abbreviation: CAM, complementary and alternative medicine.

The fifth metric, machine-based learning (David Lary, PhD) uses the presentation of large data sets to an artificial intelligence program to identify nodes of meaning not apparent to the human observer. Our initial intent is to analyze deidentified records of TBI/PTSD patients to establish more valid subgroupings for these conditions. Afterward, “before/after” testing of specific holistic interventions can be pursued.

All these metrics will eventually be used to study the therapeutic effects of the NICoE, healing arts, nature exposure, and other holistic medicine programs at the new WRNMMC. Such parallel use also allows progressive validation of the metrics themselves. Clearly, the new hospital, with its advanced programs and comprehensive databases of longitudinal patient data, is an ideal site for this process. Though data collection is only just beginning, all the metrics appear promising, and we expect significant findings in the next 1 to 2 years. Once fully developed, these holistic metrics can be combined with conventional organ system–based measures in a more unified conception of medical care.

The success of the Epidaurus Project was made possible by the dedicated efforts of many people. A large group of civilian authorities in bioethics, clinical care, healthcare architecture, mathematics, informatics, and integrative medicine have contributed since 2001 (Table 2). Because Epidaurus is a volunteer project, these individuals donated their ideas and worked many hours without pay, often for many years. The nation and the MHS owe them a profound debt of gratitude for their contribution to the welfare of our troops and our healthcare system. Special thanks is owed to Galen Barbour, MD, of USUHS and his staff for the vital support they provided over the years. Table 3 shows the range of projects that have been involved.

WHY HOLISTIC CARE?

Some may ask, “Why this sudden interest in holistic care by the military, which is known as a conservative and bureaucratic organization?” The answer lies in the clinical challenge of TBI and PTSD, the signature injuries of the Iraq and Afghanistan Wars. Our lack of detailed knowledge of brain function has limited the effectiveness of conventional scientific medicine in these disorders, while holistic care seemed to offer unusual promise. Fortunately, evidence is starting to show, particularly at NICoE, that the holistic care investment was justified. These data are still mainly observational or self-reported (J. Reed, MD, oral communication), but more definitive findings are not far off. The Epidaurus 2 metrics may prove especially useful in these determinations. As is so often the case in the history of medicine, the need to relieve the wounded of war has led to groundbreaking innovation.

We mentioned previously that the Greek site of Epidaurus was an inspiration for this project. Duplicating Epidaurus means combining modern science with a new flowering of holistic approaches. This melding can produce the medicine of the future, a healing capacity unimaginable in the past. If the present is predictive, MHS will lead this transformation to the benefit of the armed forces and the people of the United States.

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