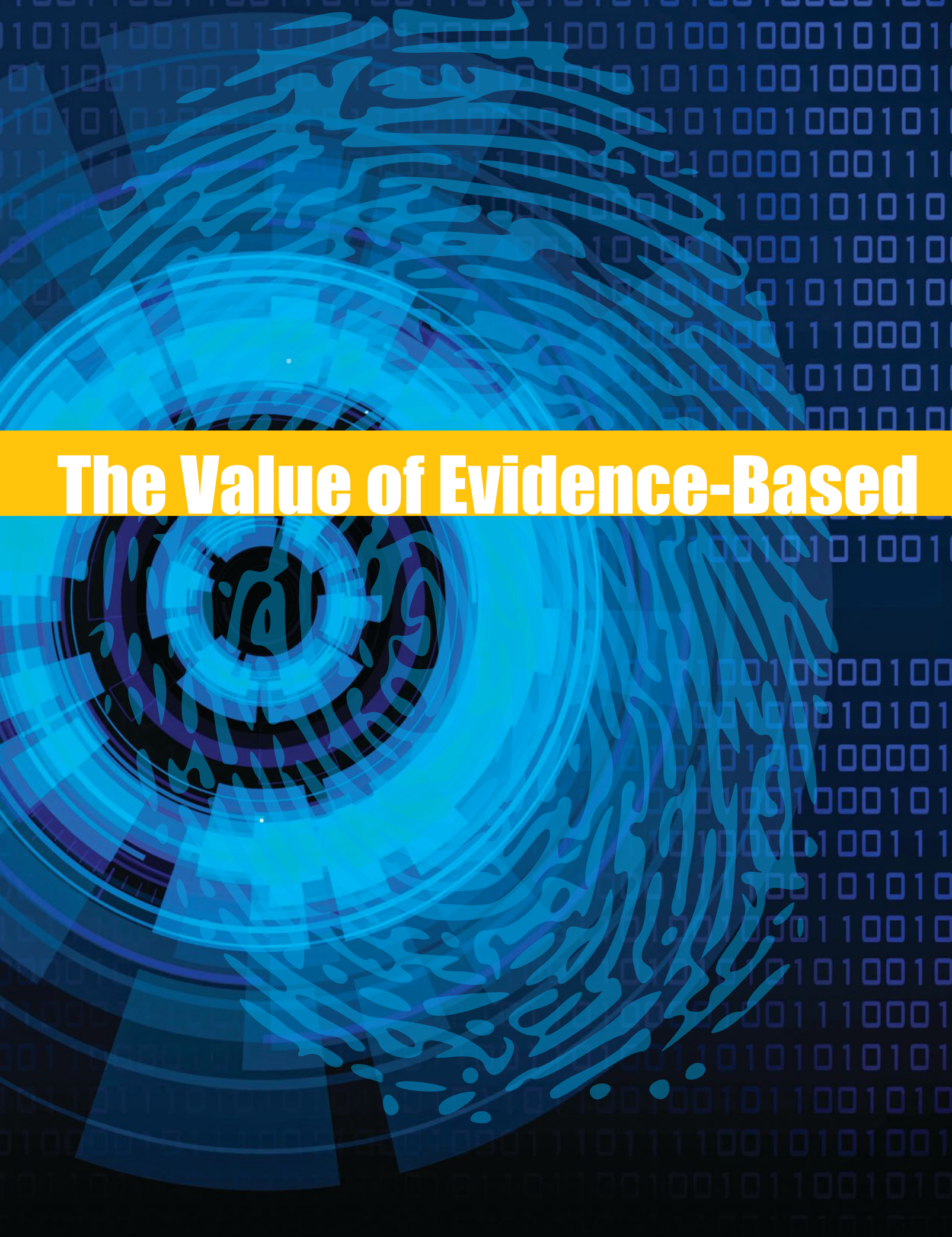


The Value of Evidence-Based

By James J. Lehman, DC, and Robert C. Jones, DC

An ACA survey completed by 544 doctors of chiropractic (DCs) during 1999 demonstrated that 70 percent of the respondents supported the integration of "evidence-based care" into their practices and chiropractic education.[1] If a group of DCs were to discuss the use of "evidence" in chiropractic medicine, would the DCs share similar opinions regarding evidence-based care? Would they agree on the use of evidence-based health care, evidence-based practice, evidence-based clinical practice and evidence-based medicine?

Practice

This article seeks to reduce confusion about the use of "evidence" by offering current definitions. We discuss the effects of evidence-based medicine on the chiropractic profession and pose serious questions to the chiropractic institutions that educate and credential professional students pursuing a chiropractic education. We demonstrate the need to utilize evidence to improve patient care. We attempt to reduce the negative impact of "evidence enchainment" by insurance companies and enhance the opportunity to integrate as valuable members of the health care team. We provide an example of how to read and critically evaluate a research article.

Definitions

If chiropractic medicine intends to offer high-quality health care treatments that serve the needs of its patients, DCs must engage in evidence-based practice. To accomplish the transition from traditional chiropractic practice to one based on the evidence, it is necessary to become familiar with the most common definitions for evidence-based health care, evidence-based clinical practice, evidence-based practice and evidence-based medicine.

Evidence-Based Health Care

Evidence-based health care (EBHC) involves the conscientious use of current best evidence in making decisions about the care of individual patients or the delivery of health services. Current best evidence is up-to-date information from relevant, valid research about the effects of different forms of health care, the potential for harm from exposure to particular agents, the accuracy of diagnostic tests and the predictive power of prognostic factors.[2]

Evidence-Based Practice

Evidence-based practice (EBP) involves complex and conscientious decision-making, based not only on the available evidence, but also on patient characteristics, situations and preferences. It recognizes that care is individualized and ever changing and involves uncertainties and probabilities.[3]

Evidence-Based Clinical Practice

Evidence-based clinical practice is an approach to decision-making in which the clinician uses the best evidence available, in consultation with the patient, to decide upon the option that suits that patient best.[4]

Evidence-Based Medicine

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.[5]

James J. Lehman, DC, MBA is director of health sciences postgraduate education and associate professor of clinical sciences at the University of Bridgeport College of Chiropractic. He is chairperson of the Chiropractic Research Committee at the University of Bridgeport.

Robert C. Jones, DC, APC, is the president of the New Mexico Chiropractic Association and ACA's delegate to New Mexico.

The following authors contributed to this article: Drs. Tom Hyde, William Doggett, Kelli Pearson and A.W. Dykeman.

We suggest that competent DCs are providing evidence-based chiropractic medicine services, but they may not completely comprehend the "evidence" definitions, which espouse the following:

1. Clinical expertise and experience are essential;
2. Patient values and preferences must be considered by the clinician; and
3. Integration of the best available clinical research completes the process.

All three of these components are important for clinical success, and no single component is more important than the other two. Delving into research studies will not improve patient-care outcomes if you have poor clinical skills and do not understand what is important to your patient.

Why Evidence-Based Chiropractic Medicine?

Although the No. 1 reason to embrace an evidence-based practice is to provide patient-centered care, we offer other pragmatic reasons to consider this model.

Health Care Reform

On March 23, 2010, President Obama signed the Patient Protection and Affordable Care Act (PPACA). The law puts in place comprehensive health insurance reforms that will roll out over four years and beyond, with most changes taking place by 2014. President Obama believes a focus on prevention will offer our nation the opportunity to not only improve the health of Americans, but also to control health care spending. By concentrating on the underlying drivers of chronic disease, the PPACA helps move from today's sick-care system to a true health care system that encourages health and well-being.

The PPACA is landmark health legislation because it creates the National Prevention Council and calls for the development of the National Prevention Strategy to realize the benefits of prevention for all Americans' health. The National Prevention Strategy is critical to the prevention focus of the PPACA and builds on the law's efforts to lower health care costs, improve the quality of care and provide coverage options for the uninsured. The strategy provides evidence-based recommendations for improving health and wellness and addressing leading causes of disability and death.[6]

Insurance Company Use of Evidence

What do DCs think of "evidence-based practice" based on using the evidence to determine the value of chiropractic care, to reduce reimbursements or prevent access to chiropractic services? This question probably generates some disparaging thoughts by chiropractic physicians. It is not a secret that chiropractic clinicians attempting to relieve the suffering of their patients, while appeasing the never-ending requests for medical documentation from third-party payers, must avoid frustration with the process.[7]

Maybe another question is more interesting to chiropractic physicians: "How does the evidence affect the practicing DC?" It is common for insurance companies to use studies supporting evidence that reduces cost of care by limiting the number of chiropractic treatments based upon medical necessity and documentation.

If coverage for chiropractic care is available, the following conditions of coverage apply. CIGNA covers chiropractic manipulation and adjunct therapeutic procedures/modalities (e.g., mobilization, therapeutic exercise, traction) as medically necessary when ALL of the following conditions are met:

- *A neuromusculoskeletal condition is diagnosed that may be relieved by standard chiropractic treatment in order to restore optimal function.*
- *Chiropractic care is being performed by a licensed doctor of chiropractic who is practicing within the scope of his/her license as defined by state law.*
- *The individual is involved in a treatment program that clearly documents all of the following:*
  1. *a prescribed treatment program that is expected to result in significant therapeutic improvement over a clearly defined period of time*
  2. *symptoms being treated*
  3. *diagnostic procedures and results*
  4. *frequency, duration and results of planned treatment modalities*
  5. *anticipated length of treatment plan with identification of quantifiable, attainable short-term and long-term goals*
  6. *demonstrated progress toward significant functional gains and/or improved activity tolerances.* [8]

Manipulation Under Anesthesia

Third-party payers are using published studies to form their coverage guidelines for chiropractic services. One company decides that it will not cover manipulation under anesthesia (MUA) of the spine done by a DC but accepts MUA of the knee by an orthopedic surgeon.[9]

Aetna considers spinal manipulation under anesthesia (MUA) experimental and investigational. This pro-

cedure has not been established as either safe or effective for the treatment of musculoskeletal disorders such as neck and back problems. Critical issues such as selection criteria, outcome assessments and long-term benefits need to be addressed by well-designed studies before this procedure can be considered as an essential part of conservative therapy. In this regard, the Guidelines for Chiropractic Quality Assurance and Practice Parameters published from the proceedings of a consensus conference commissioned by the Congress of Chiropractic State Associations declared that chiropractic involvement in manipulation under anesthesia is a new area of special interest that needs further investigation.

MUA is considered medically necessary (for) arthrofibrosis of the knee following total knee arthroplasty, knee surgery or fracture in persons having less than 90 degrees range of motion 4 weeks to 6 months after surgery or trauma.

Such limitations utilized by insurance companies may be of less consequence for the clinician who focuses treatment on neuromusculoskeletal conditions, documents medical necessity for care and uses the evidence to provide best practices health care. Yet, the same guidelines supported by evidence might restrict a chiropractic specialist with advanced clinical training who intends to provide conservative, primary care.[10, 11]

Because of perceived insurance company abuse of the evidence, many DCs share jaded opinions of evidence-based medicine and have little interest in exploring the use of evidence-based practice. As practitioners of a valid health care discipline, we must accept the evolution of chiropractic medicine based upon science. After all, according to Triano, *being "evidence based" was never intended to be "evidence enchained."*[12] Dr. Triano challenges the chiropractic profession to become engaged in the process for the benefit of all stakeholders.

Chiropractic has failed its constituent members—patients, doctors and policy makers—by running from evidence-based care rather than engaging it, guiding it and minimizing negative effects on the duty to care for individuals while taking advantage of improving the quality of professional performance.[13]

Evidence in Chiropractic Education

The purpose of chiropractic professional education is to provide the student with a core of knowledge in the basic and clinical sciences and related health subjects sufficient to perform the professional obligations of a DC. The neuromusculoskeletal examination is the foundation of the chiropractic approach toward evaluating the patient. DCs commonly care for patients with complaints or health problems associated with the spine and extremities. The spine and its relationship to nervous-system function are also viewed as an important factor in the patient's general health.[14]

An integral component of the curriculum in chiropractic schools is differential diagnosis. One of those components within differential diagnosis is the orthopedic examination. Simpson and Gemmell define an orthopedic test as a procedure designed to place functional stress on isolated tissue structures thought to be responsible for the patient's pain or dysfunction.[15] The professors at University of Bridgeport College of Chiropractic teach that an orthopedic test is most often a provocative maneuver that reproduces the patient's pain with stretching, compressing or contracting in order to identify the involved/painful tissues.

The clinical usefulness of a provocative orthopedic test is largely determined by the accuracy with which it identifies its target dysfunction.[16]

Orthopedic testing creates an avenue for the clinician to attempt to come forth with a working diagnosis. Of course, the history, neurological examination and diagnostic workups, which may include imaging, blood studies and more, are all designed to aid in producing a working diagnosis. Malanga and Nadler

EVIDENCE STATEMENTS

Three questions were posed to members of the ACA House of Delegates.

1. Do you use evidence-based practice?
2. Were you taught evidence-based practice in school?
3. What does evidence-based practice mean to you?

Below are a few of the responses.

1. *Yes, I try. (I pay particular attention to what has worked for me based on years of experience... when I am doing something new, I don't feel I am using evidence-based medicine!)*
2. *No*
3. *Do what is supported by the literature. In the absence of the literature, do what is taught. In the absence of that, do what works with the patient population, making sure you carefully document your progress and keep in your memory bank what "worked" for further reference. Kelli Pearson, DC*

EBP, to me, is the act of using research and common sense to make clinical judgments. I do "use it" and it was woven within the curriculum at Logan, just like I think it is at most chiro colleges. A.W. Dykeman, DC

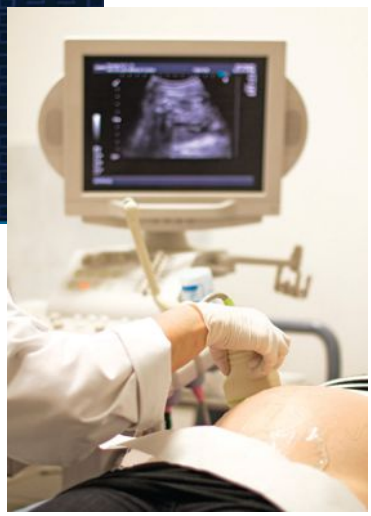
I prefer to use an evidence-informed type of practice that takes into consideration not only the research evidence, but my clinical experience and the patient's past response to various forms of treatment and therapy. Back in the olden days there was no such thing as evidence-based care so it was not taught in chiro college "way back then." William Doggett, DC

produced a text that addresses which orthopedic tests have undergone forms of testing that will give insight into their predictability. Many tests commonly in use have very poor specificity and sensitivity. According to these authors, *"Not only is there confusion, there is also misinterpretation of the clinical significance of these test maneuvers, which is compounded when they are not standardized. This has resulted in confusion in the medical literature, especially when attempting to demonstrate the scientific validity of these tests."*[17]

It has been argued that chiropractic colleges must invest in academic research and teach a regimen of evidence-based treatments to improve the cultural authority position of DCs.[18] We strongly recommend that all chiropractic institutions teach evidence-based chiropractic medicine and that practicing DCs improve their clinical skills with postgraduate training and use of the current literature.

Critical Evaluation of the Literature

One component of evidence-based practice is reading and evaluating the literature. Perhaps a pregnant woman wants to know if manual muscle testing will tell her the gender of her baby so she asks you if it is accurate. Rather than guess, you decide to check out the literature. The first step is to form a PICO question (Patient, Intervention - or substitute D for Diagnostic technique, Comparison, Outcome) to pick out your keywords. If you were looking for information on muscle testing for predicting fetal gender, you would use the following:



P - pregnant women
D - manual muscle testing
C - ultrasound
O - correct fetal gender

One article that is found is entitled, "A case series evaluating the accuracy of manual muscle testing for predicting fetal sex." The conclusion in the abstract states, "Manual muscle testing is no better than chance for predicting gender." However, abstracts can occasionally be misleading, so it is important to read and review the full paper to determine if it truly matches the patient and situation, and whether or not the data back up the authors' claim.

A good place to begin is to determine if the article addresses a clear and specific question. In this case, yes, the study addresses the ability of manual muscle testing to predict fetal gender. You also want a clearly defined population. Here, the authors enrolled pregnant women in the Northwest United States over the course of about three and one-half years. There is not any reason to believe women in other parts of North America would be any more or less likely to experience different results. The authors excluded women who knew fetal gender from a previous ultrasound or genetic testing.

A valid study on a diagnostic technique requires a comparison to a gold standard for that diagnosis. Ultrasound technology (sonogram) determines fetal gender, and that is the reference used as the comparison in this article. The sonograms correctly predicted gender in the ten of twelve situations where genitalia were visible. Muscle testing predicted the correct gender only 13 of 27 times. It is also important to note that muscle testing preceded the gold standard ultrasound tests, so knowledge of the gold standard did not affect the muscle-testing results.

A review of the statistics backs up the conclusion by the researchers. They present likelihood ratios, specificity, sensitivity, positive predictive value and negative predictive value. All the statistics indicate an inability to predict fetal gender with manual muscle testing.

There would be two possible issues with this study. One drawback is that only 12 of the 27 participants underwent ultrasound. It would be better if all 27 used both tests, but since there is such a large disparity in accuracy in this study, that is probably acceptable. The second issue was the inability to completely blind the examiner to all the muscle tests because of the sequence. The examiner and the pregnant women were completely blinded to the gender of the fetus. Still, with the solid results, it is unlikely that these two issues had much bearing on the conclusion. Based on this study, manual muscle testing will not predict fetal gender.

Integration of Chiropractic Services

Reforms under PPACA have ended some of the worst abuses of the insurance industry. These reforms have given Americans new rights and benefits, by helping more children get health coverage, ending lifetime and most annual limits on care, allowing young adults under 26 to stay on their parent's health insurance and giving patients access to recommended preventive services without cost.

The PPACA will increase access to affordable care and rebuild the primary care workforce. To strengthen the availability of primary care, there are new incentives in the law to expand the number of primary care doctors, nurses and physician assistants, including funding for scholarships and loan repayments for primary care doctors and nurses working in underserved areas.

In order to improve quality and lower costs, PPACA encourages integrated health systems. This new law

provides incentives for physicians to join together to form "Accountable Care Organizations." In these groups, doctors can better coordinate patient care and improve quality, help prevent disease and illness, and reduce unnecessary hospital admissions.

The new law states, "No health plan or insurer may discriminate against any health provider acting within the scope of that provider's license or certification under applicable state law." This will ensure that insurance companies cannot unfairly exclude chiropractic physicians from practicing under the capacity of their training and licensure on a federal level.

DCs are potential members of Community Health Teams, which are integrated teams of providers that include primary care providers, specialists, other clinicians and licensed integrative health professionals. The language in the bill ensures that DCs can be included on these patient-centered, integrated and holistic teams. We suggest that DCs should become valuable members of these medical teams and integrate the health care systems of the future.

The Secretary of Health and Human Services (referred to in this section as the "Secretary") shall establish a program to provide grants to or enter into contracts with eligible entities to establish community-based interdisciplinary, interprofessional teams (referred to in this section as "health teams") to support primary care practices, including obstetrics and gynecology practices, within the hospital service areas served by the eligible entities. Grants or contracts shall be used to-

(1) establish health teams to provide support services to primary care providers; and

(2) provide capitated payments to primary care providers as determined by the Secretary.

(3) ensure that the health team established by the entity includes an interdisciplinary, interprofessional team of health care providers, as determined by the Secretary; such team may include medical specialists, nurses, pharmacists, nutritionists, dieticians, social workers, behavioral and mental health providers (including substance use disorder prevention and treatment providers), doctors of chiropractic, licensed complementary and alternative medicine practitioners, and physicians' assistants.[19]

Conclusions

We suggest that the American Chiropractic Association perform another survey of its membership to determine the profession's perceptions of evidence-based care. It is time for chiropractic colleges to teach and promulgate the use of evidence-based chiropractic medicine. This is the time for chiropractic clinicians to become valuable members of medical teams, which will serve patients within the health care systems of the future.

For the profession to move forward it must base its future on science and not ideological dogma.[20] ■

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