Spinal Health: The Backbone of Chiropractic's Identity

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ABSTRACT

Objectives: The purpose of this commentary is to explore the concepts underpinning professional identity, assess their relevance to chiropractic, and propose a model by which a strong identity for the chiropractic profession may be achieved.

Discussion: The professional identity of chiropractic has been a constant source of controversy throughout its history. Attempts to establish a professional identity have been met with resistance from internal factions divided over linguistics, philosophy, technique, and chiropractic's place in the health care framework. Consequently, the establishment of a clear identity has been challenging, and the chiropractic profession has failed to capitalize on its potential as the profession of spine care experts. Recent identity consultations have produced similar statements that position chiropractors as spinal health and well-being experts. Adoption of this identity, however, has not been universal, perpetuating the uncertainty with which the public regards the chiropractic profession.

Conclusion: To gain public and professional acceptance, chiropractic must be unequivocal in declaring its scope, expertise, and intent. Failure to do so will lead to obscurity as other professions acquire necessary skills and position themselves as the custodians of spine care. (*J Chiropr Humanit* 2016;23:22-8)

Key Indexing Terms: *Chiropractic; History*

INTRODUCTION

Identity is that which defines us as individuals. The product of genetics, parenting, environment, social circumstances, and acquired attitudes, beliefs, and behaviors, identity represents those intrinsic and extrinsic factors that make us exceptional. When we share parts of our identities with others, we form social groups, bonded by common features and recognizable by cultural traits such as language, gestures, customs, and rituals.

Professional identity presents an enigma where people from different social groups come together to deliver a service. Although they may exhibit a general commonality of purpose, their attitudes to the provision of that service are informed by myriad other factors. In addition to how a profession may see itself, the public will develop its own perceptions of professional identity informed by what it

sees, hears, reads, and experiences. This may be creative or destructive, and any profession that is not mindful of its public persona may risk the ignominy of having an identity imposed on it.

For an idiosyncratic profession such as chiropractic, it is not difficult to see why few papers have been written on the subject of its professional identity. Its unsteady trajectory, punctuated by periods of external persecution and internal conflict, has meant that how it has presented itself to the world has been far from consistent.

DISCUSSION

As a collector, Daniel David Palmer's accumulation of human specimens was one of his more macabre. At a time when philately was taking off, and bespectacled enthusiasts painstakingly mounted their precious postage stamps into prized albums, the founder of chiropractic had developed a fascination with osteology and began to amass a collection of human bones at his Palmer Clinic and Infirmary in Davenport, Iowa.¹ As much to attract visitors as to serve as an educational tool, Palmer's exhibition of human skeletons and spinal columns, exhibiting all manner of grotesque deformities and pathologic conditions, drew visitors from far and wide, helping to secure his reputation as a fountain of knowledge on all things osteologic.

D. D. Palmer's discovery of chiropractic in 1895, courtesy of his acquired knowledge and his legendary adjustment of

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Harvey Lillard,² focused his attention on the importance of the spine as it related to the nervous system and to health and disease. Although he encouraged manual joint adjustment of all joints of the body, it was the correction of displaced joints of the spine by hand and the theory of functional restoration of the nervous system that gave chiropractic its distinct identity at a time when other proposed methods of curing disease were far from cogent.

D. D. Palmer's son, Bartlett Joshua Palmer, devoted his life to advancing the chiropractic profession as an art, science, and philosophy. Having acquired the osteologic collection from his father, B. J. Palmer grew it over a period of 15 years to more than 20 000 specimens, comprising virtually every bony anomaly and pathologic condition known to exist in the early 1900s. Professors of anatomy from medical schools throughout the United States were regular visitors to Davenport, Iowa, to view the unique display. By 1927, the Council on Medical Education was proclaiming the Palmer exhibition to be "without doubt, the best collection of human spines in existence."¹

B. J. Palmer undoubtedly understood the value of identity. As the "Developer of Chiropractic," he used marketing tactics and entrepreneurial skills that positioned chiropractic as a distinct healing art with expertise in spinal health and well-being.³ Neither the Palmer School of Chiropractic nor other schools that had been established to satisfy the growing desire for chiropractic education promoted chiropractic as a means of treating back and neck pain but focused on the removal of vertebral subluxation to facilitate health and well-being and treat disease. This approach gave form to the chiropractic profession during a time of rapid medical advancement and organized hostility to the nonmedical health professions.

Questioning of chiropractic's professional identity is by no means new. Almost from the naissence of the profession, an internal dichotomy emerged comprising "straights"—whose metaphysical and vitalistic approach confined chiropractic to the removal of vertebral subluxation and the restoration of Innate Intelligence (a life force considered by vitalists to be responsible for the organization and healing of the body)—and "mixers"—whose methodology was broad scope and mixed diagnostic, treatment, and philosophical constructs drawn from a range of health professional approaches and attitudes.⁴

Historically, mixers did not subscribe to a single cause of disease and employed a diverse range of treatment approaches, which included but were not limited to the correction of vertebral subluxation. Fierce debates ensued between straights and mixers. B. J. Palmer, a proponent of straight chiropractic, at one time even claimed that any practice not following his "hole-in-one" adjustment of the upper cervical spine, regardless of any other techniques employed, sullied the identity of chiropractic.⁵

The development of the scientific method transformed health and health care. The late 19th and early 20th

centuries saw dramatic advances in medical knowledge, and its application saved millions of lives.⁶ Causes of disease were identified. Because of measures such as sanitation, the provision of clean drinking water, and improved nutrition, housing, and working conditions, premature death rates fell, and diseases that had killed millions were brought under control through health education and vaccination programs.

Groundbreaking discoveries, technological advances, and the pursuit of knowledge led to relentless progress in health care delivery. Science flourished, and within a few generations, beliefs about health and disease were transformed. Gone were the beliefs that disease was a form of punishment from higher powers,⁷ replaced by germ theory and modern scientific methodology.⁸ Incontrovertible evidence meant that medical training evolved, catalyzed by the damning Flexner Report of 1910,⁹ which harmonized training and cleaned up medical schools across the United States. Investment in scientific research, the emergence of evidence-based practice, and the harnessing of technology all served to transform the practice of medicine.

Although not immune to scandal, the medicine of today is unrecognizable from that of 100 years ago. Its practitioners are among the most trusted individuals in society, and the cultural authority of biomedicine has long been secured. Whether such trust and authority is fully deserved is not the subject of this paper. Other commentators have exposed collusion with big pharma, ruthless acts of protectionism, and systematic attempts to contain and eliminate other nonmedical health professions.¹⁰ Nevertheless, harmonized education, a willingness to be self-critical, and the acceptance of evolutionary change has been coupled with a cultural shift from medical paternalism to patient autonomy.¹¹

It is erroneous to consider health simply as a medical matter. The provision of health in societies is as much political, ethical, economic, and social as it is about the delivery of care to populations. In establishing an identity for any health profession, consideration of wider societal concepts is necessary to provide context. Chiropractic is no exception.

For more than 120 years, chiropractic has survived against the odds. Outside the United States, it remains a relatively small player in the health care market, and within the United States, its practitioners and proponents have been abused, persecuted, discriminated against, and imprisoned for their beliefs and practices.¹² It may be said that during the period of chiropractic's development, its identity (or to be more precise, its identities) has served as a testament to its enduring appeal to those seeking a drug- and surgery-free solution to spinal disorders.

Despite its survival, the chiropractic profession remains fractured. The scientific proponents of the profession insist on the adoption of modern science and evidence-based practice to inform their clinical decision making and patient

care.¹³ At the same time, there remains a vocal but minority faction (thought to be less than 20%) defending the vitalistic construct and retention of the traditional values of the profession, distinct from medicine, where the removal of vertebral subluxation to facilitate optimal expression of health is the focus of care.¹⁴

In the presence of such distinct paradigms, some may argue that the prospect of establishing a robust identity for the profession is an exercise in futility. Yet without a clear identity, chiropractic risks descending into obscurity as other manual therapy professions adopt methods used in chiropractic and attempt to claim them as their own.

Therefore, identity is fundamental to chiropractic's future development as a separate and distinct health profession. To ignore the issue of identity would be foolhardy in the extreme, and any complacent suggestion that chiropractic will survive just because it has lasted as long as it has will lead to a near-certain demise. Chiropractic must therefore emerge from the adolescent chrysalis, within which its key characteristics have been unclear, and confidently assert itself under the unequivocal mark of a universally adopted identity.

Concepts of Professional Identity

The 20th-century philosopher Erik Erikson (1902-1994) said, "In the social jungle of human existence, there is no feeling of being alive without a sense of identity."¹⁵ With these words, Erikson encapsulated the essence of identity as both a relationship and an individual human issue. The essential nature and interdependence of identities define our uniqueness, and history has shown that the forced imposition of new identities by oppressors has often met with fierce opposition and tragedy.

Those in the social sciences and philosophy have long studied the concept of identity in the general context of a person's interaction with his or her fellows at different stages of life. Thus, human identity often has been described as a dynamic concept depending on the stage of psychological and biological maturation.¹⁶ The transition from childhood into adolescence, then into maturity, and finally old age is accompanied by features that give each stage of human existence its own characteristics.

Likewise, human identity is formed by genetic, family, cultural, educational, environmental, and social factors. These intrinsic and extrinsic factors produce a complex interaction that determines our attitudes, values, beliefs, and behaviors and our overall sense of self and respective place in the world. When conflicts occur, nations are invaded, and a sense of identity is lost, tragic consequences often ensue. On the other hand, harmony with our environment and a clear sense of identity produce confidence, satisfaction, and purpose.

Professions are related social institutions, where individuals with specialist knowledge and skills come together under an organizational banner to provide services to

individuals and society.¹⁷ Professions are defined by an identified function, whether this be the provision of, for example, health care, education, or law. Collectively, members of a profession possess a body of knowledge and a culture comprising a repertoire of skills and behaviors that would not normally be possessed by someone who is not in that professional group.¹⁸

Members of a profession, by virtue of their knowledge and skills, are empowered to make decisions in the interests of the clients they serve. It is expected that professionals update their skill set in accordance with developments in principles and practice, research, standards, and ethics. In health care, this is ensured by continuing education, although blurring of boundaries between continuing education for the benefit of providing the professional service and business training for individual gain has thrust a spotlight on what may qualify as professional development in the public interest.

The respect gained by professions within society is garnered by the establishment of minimum educational and performance standards to accept members and to continue their membership. The concept of, and insistence on, lifelong learning is a feature of all established health professions by virtue of their commitment to patient-centered values. Professions also command trust and confidence in society as a consequence of providing services markedly beyond those that would otherwise be expected. Professionals must be individually accountable for their actions not only to the clients they serve but also to society.

In view of these aspects of profession, it necessarily follows that professional identity encompasses not only those characteristics of professions but also a strong sense of individual expertise and uniqueness that distinguishes one profession from another. Although there may be similarities, there must also be an exclusive attribute for which that profession becomes recognized, derives status, and becomes distinctive.

For the chiropractic profession, the acquisition of a professional identity has been influenced by a multitude of factors. A fierce sense of individuality, a fear of being subsumed, a determination to uphold the traditions and philosophy of chiropractic, and a history of persecution have all contributed to chiropractic's persona. However, internal division and disagreements over philosophy have prevented a clear sense of professional authority from emerging.¹⁹ All too often, external criticism of the chiropractic profession has led it to "circle the wagons and fire inward," much to the delight of its detractors. With the public seeming to care little about whether their caregivers are subluxation-based or hold strong scientifically oriented viewpoints, it is therefore time for chiropractors to set aside their historical differences and focus on a professional identity that assures policymakers, economists, the media, and the public that chiropractors are members of a safe, effective, organized, and respectable profession, deserving of professional status and authority.

- (a) Ability to improve function in the neuromusculoskeletal system and overall health and quality of life;
- (b) Specialised approach to examination, diagnosis and treatment based on the best available research and clinical evidence and with particular evidence on the relationship between the spine and the nervous system;
- (c) Tradition of effectiveness and patient satisfaction;
- (d) Without use of drugs and surgery, enabling patients to avoid these where possible;
- (e) Expertly qualified providers of spinal adjustment, manipulation and other manual treatments, exercise instruction and patient education;
- (f) Collaboration with other health professionals;
- (g) A patient-centred and biopsychosocial approach, emphasising the mind-body relationship in health, the self-healing powers of the individual, individual responsibility for health and encouraging patient independence.

Fig 1. *Distinguishing features of chiropractic's professional identity (WFC Identity Statement, 2005).*²¹

Spine Care Experts: An Identity for the Chiropractic Profession

In 2005, the World Federation of Chiropractic (WFC) concluded an exercise that was one of the most challenging in its history. Charged with directing and facilitating an inclusive and comprehensive consultation, more than 40 academics, politicians, practitioners, researchers, and lay members from 7 world regions contributed to an international WFC Identity Task Force.²⁰

This effort was a bold undertaking. No attempts had previously been made to develop an international identity for the chiropractic profession. The profession was known to be divided over key issues. With a commitment to be as representative as possible within the profession, stakeholders representing all quarters of the profession were invited to participate and took part. An electronic survey of grassroots members of the profession was conducted, resulting in feedback from 54 countries. Marketing experts were consulted. Meetings of the Task Force were held to consider the findings and develop a series of recommendations focusing on a central pole, grounds that should support it, and an overall personality that the profession should endeavor to promote.

To ensure that it was successful and effective, the Task Force determined that the professional identity should be applicable in all countries, relevant to all populations, and acceptable to members of the profession. Furthermore, it was agreed that there was a need to contextualize the statement and ground it with qualifying pillars. Finally, the Task Force determined that the essential qualities of chiropractors should be clearly articulated.

At the WFC's 8th Biennial Congress in 2005 in Sydney, Australia, the identity statement was unanimously passed by the Assembly. With the overarching statement that chiropractors should be "the spinal health care experts in the health care system," the Task Force qualified the statement with 7 distinguishing features (Fig 1).²¹

With amendment from the WFC Council at the time, it was further agreed that, within the context of its

professional identity, the personal characteristics of chiropractors should include a combination of the following: professional, ethical, knowledgeable, accessible, caring, human, and positive.

In addition to the adoption of this professional identity, the WFC funded and delivered a communications strategy to disseminate the key messages. In 2012, Palmer College of Chiropractic produced its own identity statement that was similar in many respects to that approved by the WFC Assembly in 2005. Palmer's statement was that the chiropractor was "the primary care professional for spinal health and wellbeing."²² It also set out chiropractic's fundamental pillars (Fig 2).

The synergy between the WFC Identity Consultation and the Palmer Identity Statement provides a persuasive argument for accepting the premise that chiropractic has spinal health expertise as its core tenet. It is important to note, however, that this premise does not equate to chiropractic's professional identity being about back pain, neck pain, and headaches. Both statements speak to far more than simply pain-based care and emphasize the role of chiropractors as evidence-based providers of spinal health who embrace holistic care and a biopsychosocial approach and promote a culture of wellness.

Both the WFC and Palmer in their spine-centered identities retain the traditional values of chiropractic, such as holism and naturalism, while recognizing the need to embrace the health care needs and demands of today's society. In doing so, they deliver an identity that can satisfy the philosophies of all stakeholders and, most importantly, patients who struggle to articulate the nature and intent of chiropractic in the face of mixed messages from the profession. The statements are consistent with the philosophy, art, and science of chiropractic.

Barriers to Acceptance

There will be those who will fiercely resist any attempt to create a unified professional identity for chiropractic.

- (a) Integrate evidence, clinical experience, and patient values and preferences
- (b) Deliver expert chiropractic adjustments, manipulation and other manual treatments
- (c) Embody a tradition of caring, effectiveness and patient satisfaction
- (d) Collaborate and coordinate care with other health professionals
- (e) Enhance patient quality of life and performance
- (f) Promote vitality, wellness and patient empowerment
- (g) Improve quality of life without drugs or surgery
- (h) Offer readily accessible care

Fig 2. *Chiropractic pillars (Palmer Identity Statement, 2012).*²²

Whether by outright disagreement with the sentiments articulated or by a preference for an alternative focus away from the spine, individuals and groups may mount strong opposition to a chiropractic identity with the spine at its core.

For example, those who manage special populations, such as pediatrics, may not see resonance with an overt spine care identity. Others who see the essence of chiropractic as being more bound to the neurologic system than the musculoskeletal system may oppose the lack of reference to the role of the central, peripheral, or autonomic nervous systems. However, a utilitarian approach to identity is required that will meet the needs of the vast majority of the profession. The WFC's identity statement satisfies this approach and is aligned with the bulk of practicing chiropractors around the world.

For any statement of professional identity to be effective, it requires widespread adoption by the profession. The identity must be accepted by chiropractic educational institutions and instilled in the minds of graduates. National associations must incessantly promote a strong and consistent identity that their members may in turn advocate in their practices. Communication with the public must be clear, consistent, and unequivocal to ensure recognition of a unified identity.

The profession should be prepared for its detractors and sceptics to try to counter professional identity statements with allegations that they are false or unrepresentative. Widespread acceptance of professional identity by chiropractors signifies a profession uniting behind clear messages. This is inconsistent with the wishes of those opposed to chiropractic, who prefer to see fragmentation and civil war.

There may also be those who, although not disagreeing with the principles of the published identity statements, feel that they may have something better. It is important to note, however, that identity is closely linked to consistency and congruency, and any inadvertent blurring of the profession's key characteristics will detract from its potency.

Future Considerations

Progress is an inevitable fact of life. In health care, that progress has been inexorable. Although western civilization has long since addressed disease brought about by urbanization, overcrowding, and harsh working conditions, the world's

poorest countries have only recently seen infant mortality decline and life expectancy rise. Public health interventions have produced significant reductions in preventable disease, and vaccination programs have saved millions.²³

However, the overwhelming effects of noncommunicable diseases continue to impose an enormous burden on society.²⁴ Included within this group, musculoskeletal disorders continue to dramatically affect the health of nations. The economic impact of such disorders is an estimated \$213 billion annually amid claims that costs are continuing to rise.^{25,26} With regard to spine care, many parts of the world remain woefully underserved.

As health systems are forced to transform to meet the demands of an aging population and escalating costs of technology, policymakers will seek to incorporate those interventions that are associated with minimal risk, minimal cost, and maximum benefit. The Global Burden of Disease studies have repeatedly reported low back pain to be the biggest single cause of disability, leading to increases in years lost through disability.²⁷

To confine our consideration of chiropractic's potential impact to simply addressing back pain would be to overlook the far wider implications of poor spinal health. Isolation, social exclusion, and comorbidities such as depression, heart disease, diabetes, and obesity all may occur secondary to disability and a lack of mobility caused by spinal disorders.^{28,29} The opportunity exists for chiropractors to be real agents for change as experts committed to enhancing spinal health and well-being through assessment, treatment, management, and prevention.

Currently no other profession has adopted the identity of spine care experts in the health care system. Experts have predicted that the opportunity to fill the gap in the spine care expert marketplace is within our grasp. However, without a strong commitment to a clear identity, other health professions that are already adopting chiropractic techniques will assume the role of spine care experts.³⁰

CONCLUSION

Authority is granted to a profession by the public based on perception. Perceptions are strongly associated with professional identity. The way that chiropractic communicates its

messages and its professional characteristics will therefore drive the attainment of authority within society.

However, such authority is not a right; it is a privilege conferred on a profession through trust and confidence that it has the interests of society at its heart. Professional identity shapes a profession and guides it to attaining authority. Not only does identity communicate personality and value, but it also provides a framework by which its members can coalesce, work collaboratively, and advance the profession through a shared vision.

The chiropractic profession can choose to adopt a professional identity and unite under its banner, or risk society thrusting an identity on it. To allow this to happen will risk confusion and a fragmented image that lacks cohesion and a clear international image of professionalism and unity. In many ways, the public has already defined chiropractors as “the spine people.” Our role as spinal health experts has been adopted within high-profile arenas, including government and elite sports, and in many respects chiropractic is being gifted the opportunity to capture the burgeoning market in spine care and be seen as the authority in this field.

Ironically, it is voices within chiropractic that may prove the biggest barrier to the universal adoption of a robust professional identity. Whatever their reasons for resisting the concept of chiropractors as spine health care experts in the health care system or primary care professionals in spinal health and well-being, fundamentalist preachers of outdated dogmas expose the profession to ridicule and render it vulnerable to harsh criticism.

Thanks to forward-thinking educators, researchers, clinicians, and politicians, the chiropractic profession faces unprecedented opportunities. Far from diluting its identity, its involvement in collaborative health care teams is consistently strengthening its identity as valued experts in spine care. Contrary to the proclamations of some, such involvement is not the medicalization of chiropractic, but the coming together of attitudes, beliefs, and science in the best interests of the patients we serve.

With chiropractic firmly into its 13th decade of existence, the profession can celebrate areas of outstanding success and identify areas where further development is needed. A unified professional identity that does not dictate scope of practice, yet clearly articulates our expertise in spinal health and well-being, should define our status as well as our future direction.

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CONTRIBUTORSHIP INFORMATION

Concept development (provided idea for the research): R.B.

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Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): R.B.

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Practical Applications

- The public has long seen chiropractic as being inextricably linked to care of the spine.
- The identity of chiropractors as experts in spine care has been proposed in the United States and by international consensus and can be applied widely across the profession regardless of philosophical inclination.
- If the chiropractic profession does not collectively contribute to an agreed professional identity, society will impose an identity based on either realistic or flawed perceptions.

REFERENCES

1. Hynes R. *The Palmer Osteological Collection*. Available at: <http://www.palmer.edu/about-us/history/palmer-osteological-collection>. Accessed July 16, 2016.
2. Haldeman S. *Principles and Practice of Chiropractic*. New York, NY: McGraw Hill; 2005.
3. Keating JC. *BJ of Davenport: The Early Years of Chiropractic*. Rock Island, IL: Association for the History of Chiropractic; 1997.
4. Appleby K, Tarver J. *Medical Records Review*. 4th ed. Alphen aan den Rijn, Netherlands: Wolters Kluwer; 2006.
5. Wardwell WI. *Chiropractic: History and Evolution of a New Profession*. St. Louis, MO: Mosby; 1992.
6. Brandt AM, Gardner M. The golden age of medicine? In: *Common to Medicine in the Twentieth Century*. Abingdon, UK: Routledge; 2003.
7. Rivers WHR. *Medicine, Magic and Religion*. London: Taylor and Francis; 2013.
8. Herbst J. *Germ Theory*. Minneapolis, MN: Twenty-First Century Books; 2008.

9. Walsh K. *Oxford Textbook of Medical Education*. Oxford, UK: Oxford University Press; 2013.
10. Wilk CA. *Medicine, Monopolies and Malice*. New York, NY: Avery Publishing Group; 1996.
11. Coulter A. *The Autonomous Patient: Ending Paternalism in Medical Care*. London: Stationery Office (for the Nuffield Trust); 2002.
12. Kimbrough ML. Jailed chiropractors: those who blazed the trail. *Chiropr Hist*. 1998;18(1):79-100.
13. Brown RA. Darwin or dogma? Survival and selection in chiropractic. Paper presented at: Ontario Chiropractic Association Annual Conference; October 27, 2012; Toronto, ON, Canada.
14. McGregor M, Puhl AA, Reinhart C, Injeyan HS, Soave D. Differentiating interprofessional attitudes towards paradigms in health care delivery among chiropractic factions: results from a randomly sampled survey. *BMC Complement Altern Med*. 2014;14:51.
15. Roazen P. Erik H. Erikson: *The Power and Limits of a Vision*. Lanham, MD: Jason Aronsen; 1997.
16. Hatch M. The dynamics of organizational identity. *Hum Relat*. 2002;55(8):989-1018.
17. Tolbert PS, Hall RH. *Organizations: Structures, Processes and Outcomes*. 10th ed. Abingdon, UK: Routledge; 2009.
18. Hammer DP. Professional attitudes and behaviors: the As and Bs of professionalism. *Am J Pharm Ed*. 2000;64:455-464.
19. Keating JC, Charlton KH, Grod JP, Perle SM, Sikorski D, Winterstein J. Subluxation: dogma or science? *Chiropr Osteopat*. 2005;13:17.
20. WFC Identity Task Force. Final Report (2005). Available at: https://www.wfc.org/website/images/wfc/docs/as_tf_final_rept-Am_04-29-05_001.pdf. Accessed July 16, 2016.
21. World Federation of Chiropractic. Summary minutes of the proceedings of the assembly of members; July 14-15, 2005.
22. Palmer College of Chiropractic. Our Identity. Available at: <http://www.palmer.edu/about-us/identity>. Accessed July 16, 2016.
23. Andre FE, Booy R, Bock HL, et al. Vaccination greatly reduces disease, disability, death and inequity worldwide. *Bull World Health Org*. 2008;86(2):81-160.
24. Harvard School of Public Health. *The Global Economic Burden of Non-Communicable Diseases*. Davos, Switzerland: World Economic Forum; 2011.
25. March L, Smith E, Hoy D, et al. Burden of disability due to musculoskeletal (MSK) disorders. *Best Pract Res Clin Rheumatol*. 2014;28(3):353-366.
26. Bone US, Initiative J. *The Impact of Musculoskeletal Disorders on Americans—Opportunities for Action*. March 2016 Available at: <http://www.boneandjointburden.org/docs/BMUSExecutiveSummary2016.pdf>. Accessed July 18, 2016.
27. Global Burden of Disease Study Collaborators. Global, regional and national incidence, prevalence and years lost through disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015;386(9995):743-800.
28. Kamphuis MH, Geerlings MI, Tjhuis MA, et al. Physical activity, depression, and risk of cardiac mortality. *Med Sci Sports Exercise*. 2007;39(10):1693-1699.
29. McCarthy LH, Bigal ME, Katz M, Derby C, Lipton RB. Chronic pain and obesity in elderly people: results from the Einstein ageing study. *J Am Geriatr Soc*. 2008;57(1):115-119.
30. Erwin M, Korpela AP, Jones R. Chiropractors as primary spine care providers: precedents and essential measures. *J Can Chiropr Assoc*. 2013;57(4):285-291.