
COMMENTARY

Designing a 21st century chiropractic educational program: *A time for reflection, a time for action*

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The first new doctor of chiropractic program in the United States since 2003 started in 2016 and offered an opportunity to incorporate medical educational innovations and design principles from the experience of those involved in starting new health care programs. Thus, while the goal of the new program was to create a curriculum focused on evidence-based health care practices, it was also possible to use best evidence in the design of the new curriculum. Many innovative and evidence-based curricular elements were incorporated in the new program, including early and sustained clinical experience, case-based clinical education, and integration of basic and clinical sciences.

Key Indexing Terms: Chiropractic; Education; Curriculum

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“Not many set up a new medical school, so those that do usually do it only once. Thus, most have no personal previous experience to guide them.”

—John Cookson, Hull York Medical School¹

INTRODUCTION

Considerations for a New Approach

There is considerable literature in the various fields of health care education, especially since the beginning of the 21st century, describing best practices in designing new educational programs. This discussion provides a unique opportunity to create a new program incorporating many of these principles and innovations.

In 2005, Nelson et al² published a seminal paper describing the need for the chiropractic profession to focus, or perhaps to refocus, on spine care, as opposed to aspiring to full-scope primary care. While this focus on spine care continues to remain the source of debate and, at times, perhaps, confusion among chiropractic providers and educators, it was presented by these authors as an analogue to dental practice, with dentists established as “absolute, undisputed authorities” in tooth care and oral health.

Clearly, the chiropractic profession and patients seeking access to chiropractors would benefit from an authoritative and unique role within the larger field of conventional

health care delivery. At least, that is the thesis of Nelson et al,² who based their “spine care model” on 5 key elements, the first of which was chiropractic as a neuromusculoskeletal specialty, emphasizing the spine. Other elements included chiropractic as a portal of entry profession (as it currently is in every jurisdiction in the United States); chiropractic as a contributing member of the evidence-based health care movement (as is purported by most state and national organizations as well as most chiropractic education programs); chiropractic as conservative or minimalist health care delivery; and chiropractors as integrated team members in the larger conventional health care system, rather than “alternative” providers.

Nelson and his coauthors² made 3 key recommendations for chiropractic education: it should emphasize evidence-based practices; it should emphasize interprofessional collaboration; and it should maintain rigorous standards of education and practice (to earn the respect of patients and providers within health care). All 3 of these elements were included in the initial considerations of the chiropractic curriculum at Keiser University and remain as guiding principles as the program evolves.

In 2008, Murphy et al³ compared the chiropractic profession to podiatry (and coincidentally, they both apparently “began” in 1895). Their thesis was well documented and thorough in its analysis, and perhaps their 2 key points, besides the idea of focusing the scope of practice on the spine, were that the chiropractic profession should emphasize nonsurgical spine care (also in agreement with Nelson et al²) and that the chiropractic

profession should do more to visibly support public health efforts. This is an especially important point because the well-known resistance to immunization practices by some elements of the chiropractic profession has not helped efforts to promote collaborative practices and has tended to position the profession poorly in the minds of many in conventional health care. Thus, another guiding principle for our program is an emphasis on public health and its preventive practices and the preparation of chiropractic students as allies in national public health efforts to improve the overall well-being of the public.

The year 2010 was the centennial anniversary of the Flexner Report, which almost single-handedly catalyzed the sophistication and evolution of medical education in the years following its publication in 1910. Among the many reforms proposed in the report was the creation of the so-called 2 + 2 curriculum, that is, 2 years of preclinical education followed by 2 years of clinical education. This format characterized almost all health care professional programs for most of the 20th century, with medical education gradually adopting more integrative curriculum models toward the latter half of the century. Characteristically, chiropractic education in the United States generally tends to lag medical education in adopting innovations, and accordingly, many chiropractic programs still retain the 2 + 2 model, despite its lessening popularity in medical education for several decades in favor of integrative curricula.

Johnson and Green⁴ recognized this concern in their excellent editorial reflecting on the 100 years following the Flexner report. Among their key points was the need for chiropractic education to catch up with medical education by moving on from old curricular models. Accordingly, the curriculum should integrate the basic or foundational sciences with the clinical sciences to a large extent. For instance, traditional physiology labs have been replaced with clinical correlation seminars. Relevant clinical cases are presented and discussed in small groups to complement the topics being covered in the lecture portion of the course. A hypertension case, for example, may be presented during the week that cardiovascular physiology is discussed, thereby linking the physiological principles to a clinically relevant framework. Our early experience with this model reveals high levels of student satisfaction.

DISCUSSION

Clinical Education: Early, Sustained, Spine Care Focused and Evidence Based

Clinical education can be considered the capstone of any health care education program, and it is often criticized in chiropractic education for lack of breadth and depth. Chiropractic students usually see patients in a college-based teaching clinic, and most chiropractic educators will tend to agree that these student experiences are lacking in quality and quantity compared with the experiences of medical students in a wide variety of settings from ambulatory clinics to hospitals. In 2011, Weisinger and Prideaux,⁵ described a similar concern with optometry education, and they cited the fact that clinical exposure

“often occurs in university staff-student clinics, which are not necessarily representative of optometric practice in the wider community.” They also mention the fact that optometric practice has rapidly evolved and that optometrists (in Australia) are “now expected to co-manage and prescribe therapeutic agents for patients who were previously referred to ophthalmologists.” The authors lament the fact that, typically, “clinical instruction and exposure generally occur deep into the curriculum.” This is much like the pattern in most chiropractic schools. This has necessitated a change in the clinical education of optometrists, with a new emphasis on early clinical exposure and extended clinical placements. It is interesting, but not surprising, that optometry education is also now emphasizing interprofessional collaboration and case-based learning, as described above.

This important principle should be reflected by introducing early and sustained clinical exposure in the curriculum. By utilizing a network of community-based chiropractic private practices, it is possible to assign students to clinical observation experiences for 2 to 3 hours per week as early as their 2nd week of chiropractic school. In the 1st semester, these student experiences may be discussed in small groups at a weekly case conference, and student reflective essays describing these clinical experiences validate the importance of early clinical exposure in forming the concepts of professionalism and clinical reasoning. Subsequent to the 1st semester, all students attend biweekly grand rounds in which cases are presented and discussed.

Matthew Gwee⁶ is an influential medical education leader, and his writings are always profound and forward looking. In 2011 he published an essay on health care education in the 21st century.⁶ The change in higher education predicted by Ron Barnett,⁷ that is, greater accountability to society in general for pragmatism in higher education, is reflected in Gwee’s thesis, and he stresses 2 key points: the importance of focusing on societal needs and the importance of utilizing best practices in higher education (evidence-based education). Accordingly, in keeping with the advice of Nelson et al² and Murphy et al,³ the curriculum should focus on spine care in response to the very significant societal need (management of back pain and neck pain) for which chiropractors are uniquely positioned as a resource and solution. French, Downie, and Walker⁸ recently emphasized the global nature of the back pain problem and the great potential for the chiropractic profession to address this challenge.

In 2013, Richard Brown wrote about the global challenges facing the chiropractic profession.⁹ In his former role as a key participant in the development of the chiropractic profession in Great Britain and his current role as secretary-general of the World Federation of Chiropractic, his words are to be considered carefully. He, too, emphasizes evidence-based education and practice, in the context of the profession’s evolution from esotericism. He bluntly calls for the profession to “jettison . . . historical baggage and commit . . . to modern, evidence-based, research driven healthcare.”⁹

From Esoteric to Evidence

Reflecting on the Flexner centennial and on the future of medical education, Carraccio and Englander¹⁰ emphasize the importance and “need for standardization of language to develop a shared vision of the road ahead.” The context of this need in medical education is the support and growth of interprofessional education and collaboration. In the chiropractic profession, this need for standardization of language goes much deeper because chiropractic struggles with its own lexicon. Several authors have recently lamented the continued chiropractic inclination to use outdated and anatomically incorrect language to describe the nature of the manipulable lesion (“subluxation”) and the method of treatment (“adjustment”).^{2,3,11} This terminological idiosyncrasy has plagued the profession since its founding. It creates confusion in the minds of nonchiropractic health care providers and at the same time propagates the continuance of the simplistic and outdated (and some would say offensive) bone-out-of-place model, not only in the minds of health care consumers, but sadly also in the minds of naive or poorly educated chiropractic providers.

Accordingly, the terminology should be reflective of a broader understanding of the dynamic nature of spinal manipulation and its therapeutic target lesion, as well as consistent with the language used in the other medical profession that utilizes manipulative therapy, that is, osteopathic medicine. Osteopathic medicine continues to describe its original “osteopathic lesion” as somatic dysfunction.^{12,13} This complex phenomenon plays an important role in the osteopathic profession’s perspective on the relationship between soma and health. In any case, it has long evolved from the simplistic bone-out-of-place model still maintained by some chiropractors. Regardless of the connection of somatic dysfunction to pain syndromes treated by chiropractors, the time has come to consider abandoning the subluxation as an outdated, unscientific concept and, instead, properly use this term in an anatomically correct context when describing an actual partial dislocation, such as occurs in the pulled elbow, or subluxed radial head, in children.

Continuing with the theme of standardizing language, the word *adjustment* to describe the application of manual or manipulative therapy should also be abandoned because it was originally used to describe an imagined adjustment of bone positions. It would be much more appropriate to use terms such as *chiropractic manipulative treatment*, *chiropractic manipulative therapy*, *chiropractic manipulation*, *spinal manipulative treatment*, *spinal manipulative therapy*, and *spinal manipulation*. A contemporary chiropractic curriculum must emphasize the historical nature of these outdated terms and insist on science-based terminology that is understood in an interprofessional and interdisciplinary context.

The Student Experience

Pedagogy (or, some would say, andragogy) is also changing with the times, and Benor,¹⁴ in 2014, described a new paradigm for medical education in the 21st century. Specifically, he predicted that there would be fewer

classrooms (if any) as the emphasis will shift toward self-learning, either individually or in small groups. He predicts that the medical teacher of the future will be a “kind of mentor, a coach, and a guide.” In agreement with the views of others quoted in this paper, he discusses these predictions in the context of a medical education system moving away from Flexnerian reforms. First-semester students should experience limited exposure to lecture hours, and the emphasis should be on experiential learning in the laboratories and small group seminar rooms (as well as on clinical observation in community-based clinics). Faculty advisors are evolving toward a coaching role rather than traditional academic advising.

Of course, the needs of evolving learners need to be considered too. Quirk and Chumley’s¹⁵ adaptive curriculum suggests that individual student needs can be accommodated through collaborative engagement of students and faculty members. Faculty members are advised to carefully determine which classes or activities require student attendance and which do not. Considering students as valued members in the community of learning should provide for greater buy-in and engagement, and the so-called parallel curriculum can be embraced to benefit the learning process rather than be lamented by faculty members.

A Vision for a Comprehensive Approach for Chiropractic Education

Finally, in late 2016, Bruce Walker¹¹ published a fascinating, perhaps scathing, commentary on the chiropractic profession in which he outlines 10 points that he feels are needed for the profession to “gain full legitimacy . . . and acceptance by other health providers, policy makers and the public.” These 10 points, based on a keynote address given in 2015, read like a précis of all that has been proposed by contributors to the advancement of chiropractic education and practice over the past decade or so. In full agreement with the other authors quoted in this paper, these points include the need for interprofessional collaboration, with chiropractors assuming a specialist role in the management of spine pain. Significantly, Walker is blunt in his contention that a crucial step is the “marginalization of the nonsensical elements within the profession.”¹¹ The silence of many chiropractic providers over the years, asserts Walker, must be regarded as consent and acceptance of nonsensical ideas. Also, Walker argues for the importance of the chiropractic profession and its practitioners to support evidence-based public health measures and to embrace research and evidence-based health care practices. The 10 points in Walker’s essay represent a checklist for initial curricular and program review, and chiropractic educational leaders may find them helpful in curricular reform efforts.

Armed with a review of the large collection of literature representing the collective wisdom of many medical and chiropractic educational leaders, 5 key principles of curriculum and program design may be considered to bring chiropractic education into the 21st century:

1. An emphasis on evidence-based practices and interprofessional collaboration

2. An emphasis on transactive, rather than transmissive, pedagogy; that is, an emphasis on experiential learning rather than lecture-based instruction
3. The introduction of early and sustained clinical exposure and experiences
4. An emphasis on case-based relevancy in all courses, particularly in the early semesters
5. An emphasis on critical reasoning and clinical reasoning (that is, respectively, thinking like a scientist and thinking like a doctor)

CONCLUSION

Frenk et al¹⁶ authored an extensive review of the changes necessary in medical education to keep pace with new health challenges and increasingly complex global health systems. A hundred years after the Flexner report, these authors stated, “What is clearly needed is a thorough and authoritative re-examination of health professional education, matching the ambitious work of a century ago.” They proposed the need for pedagogical change from transmissive learning (about knowledge and skills to produce experts), to transactional learning (about socializing students around values to produce professionals), and ultimately to transformational learning (about leadership attributes to produce change agents). Along with these changes in learning strategies will be the need for institutional reform characterized by 3 fundamental shifts: from isolated education to harmonized education and health systems; from stand-alone institutions to networks, alliances, and consortia; and from inward-looking institutional preoccupation to the harnessing of global flows of educational content, teaching resources, and innovations.

Similar and related suggestions have been put forward by Cook et al.¹⁷ Their review of medical education a century after the Flexner report proposed that curricula must be renewed to reflect new realities and emphases, such as population health, cultural competencies, wellness and integrative health care, and a rapidly evolving world of medical politics, health care policy, and health care service organizations. These authors also emphasized that medical knowledge and skills should be taught and practiced in the context in which they will be used, that is, in the clinical context. Finally, Cook et al¹⁷ noted that the assessment of medical students must be rigorous and as authentic as possible, noting the oft-referenced interrelationship between assessment and learning. Epstein and Hundert¹⁸ emphasized this too, with a point of interest to the chiropractic profession as it seeks to achieve greater cultural authority (italicized): “Rigorous assessment has the potential to inspire learning, influence values, reinforce competencies, and reassure the public.”

In the early 20th century, Flexner argued for a scientific basis in the practice of medicine, and now in the early 21st century, medical education leaders are arguing for a “scientific basis in the practice of education.”¹⁹ Contemporary educators have lamented the slow pace with which medical education is evolving.^{20,21} For example, Halper-

in’s²¹ comments are as relevant to chiropractic education as to medical education when he states: “We do what we do as medical teachers because it was done to us.” He further states that, hopefully, “this will, over-time, dissipate as evidence-based education comes to flower and medical education replicates the trend in clinical practice to demand high-level evidence before implementation.”²¹

Starting a new chiropractic program or undertaking curriculum reform provides a unique opportunity to incorporate the advice and experience of medical education leaders in structuring a curriculum to meet these many new challenges. The accreditation process places considerable emphasis on assessment and the use of results in improving curriculum, instruction, and technology. The professional experience and judgment of faculty members and the wealth of information in the medical education literature provide guidance in re-visioning what a curriculum should look like to support the future of the chiropractic profession.

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