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A comparative audit of jurisprudence, ethics and business management (JEB) courses taught at 21 accredited chiropractic programs worldwide

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Introduction: *The objectives of this study was to conduct an updated comparative audit involving a larger and more representative group of accredited chiropractic programs in order to determine if (i) if there has been any changes in the delivery of JEB curricula since the first audit was conducted in 2010, and (ii) provide recommendations that could lead toward a standardized or model JEB curriculum worldwide.*

Methods: *This study was approved by the ERB of the University of South Wales. Twenty-one chiropractic programs agreed to provide JEB course outlines for review.*

Results: *A total of 88 different course outlines, which listed 83 different topics pertaining to JEB course content, were submitted for review.*

Conclusion: *The results of this comparative audit*

Audit comparatif de cours de jurisprudence, d'éthique et de gestion des affaires proposés dans 21 programmes agréés de chiropratique dans le monde

Présentation : *L'étude visait à mener un audit comparatif actualisé d'un ensemble représentatif de programmes agréés de chiropratique afin de (i) déterminer si des changements sont intervenus dans la présentation des cours de jurisprudence, d'éthique et de gestion des affaires depuis le premier audit en 2010, et de (ii) formuler des recommandations qui pourraient permettre de normaliser ou de concevoir ces cours à l'échelle internationale.*

Méthodologie : *Le conseil de révision déontologique de l'University of South Wales a donné son autorisation pour mener l'étude. Vingt et une directions de programmes de chiropratique ont accepté de fournir un plan des cours de jurisprudence, d'éthique et de gestion des affaires aux fins d'examen.*

Résultats : *Au total, 88 plans de cours différents, qui présentaient 83 sujets différents relatifs au contenu des cours de jurisprudence, d'éthique et de gestion, ont été soumis aux fins d'examen.*

Conclusion : *Les résultats de l'audit comparatif ont*

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revealed there has been an increase in the variability of JEB course content taught to students over time. Recommendations are provided for the next steps that could lead toward a standardized or model JEB curriculum curricula.

montré une augmentation dans la diversité du contenu des cours de jurisprudence, d'éthique et de gestion proposés aux étudiants au fil des années. Des recommandations qui pourraient permettre de normaliser ou de concevoir ces cours ont été émises pour les prochaines étapes.

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KEY WORDS: healthcare education, jurisprudence, ethics, business management, chiropractic

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MOTS CLÉS : chiropratique, éthique, formation en soins de santé, gestion des affaires, jurisprudence

Introduction

In order to obtain a certificate of registration in a jurisdiction that regulates them, students enrolled in professional programs must graduate from an accredited educational institution.[1-4] The primary purpose of accreditation is to promote academic excellence and ensure the quality of a professional education.[2] Accreditation can also *"provide assurances of educational quality and institutional integrity for governments, jurisdictional licensing and regulatory bodies, institutions, professional organizations, students, other accrediting agencies and the public at large*"[2piii], while also providing recommendations for improvement. This process applies to programs that educate healthcare students, including chiropractors.

Chiropractic accrediting agencies ensure graduates are prepared to serve as competent, caring, patient-centered and ethical healthcare providers,[1-4] able to independently provide quality care as primary care practitioners. However, chiropractic accrediting agencies are mindful of allowing each program to operate with educational freedom and institutional autonomy.[1-4] Accrediting agencies do not define or support any specific philosophy regarding the principles and practice of chiropractic[1,2] since that is the determined by a combination of each chiropractic program, professional associations, regulatory bodies, the profession writ large and, in the final analysis, the practitioner's own philosophy of chiropractic. Furthermore, accrediting agencies do not define the scope of chiropractic practice, since that falls under the purview of the governing jurisdiction. [1-3]

A review of chiropractic accrediting standards reveals a lack of granularity with respect to defining requirements that must be met for a number of courses in a curriculum. Meta-competencies or, alternatively, the 'attitudes, knowledge and skills' required for courses that teach, for example, clinical assessment or chiropractic adjustment/manipulation tend to be well articulated; however, the requirements related to course content for teaching jurisprudence, ethics and business management (JEB) are comparatively vague (Table 1).

This raises the question of whether this vagueness with

Table 1.
Examples of requirements for ethics courses at chiropractic programs stipulated by three different accrediting agencies

Accrediting Agency	Ethics
Canadian Federation of Chiropractic Research and Accrediting Boards (CFCREAB or 'the Federation')[1]	Attitudes p62-63 • Exhibit ethical attitudes regarding the provision of patient care services, fees, financial arrangements, billing practices and collection procedures • Identify and acknowledge an obligation to refrain from illegal and unethical patient care and practice management procedures Knowledge • Develop a knowledge of ethical practice development strategies including marketing, community demographics, and patient management techniques
Council on Chiropractic Education (CCE) Accreditation Standards- US[2]	Meta-competency p26 Curricular Objective • Apply knowledge of ethical principles and boundaries Outcomes • Comply with the ethical and legal dimensions of clinical practice
Councils on Chiropractic Education International[3,4]	Competencies p20 A chiropractor demonstrates awareness of and complies with the relevant laws and professional codes of conduct of their jurisdiction(s) and exhibit ethical behavior. A chiropractor complies with: • Professional and ethical boundaries expected of the chiropractic-patient relationship

respect to JEB course content from accrediting agencies result in significant variability between chiropractic programs and, if it does, to what extent is this variability? To address this concern, I conducted a comparative audit of JEB course outlines from English-speaking chiropractic programs in 2010.[5] Nine North American, one Australasian and one chiropractic program from the United Kingdom responded to my recruitment requests, along with one naturopathic program. A total of 62 different topics in this subject area were delivered at these programs, although not one topic was taught at all of them. This tremendous diversity in JEB course could be seen as potentially detrimental to attempts toward developing a 'model JEB curriculum' for chiropractic programs.[5]

The purpose of this study was to conduct an updated comparative audit involving a larger and more representative group of accredited chiropractic programs from around the world in order to determine (i) if there have been any changes in the delivery of JEB curricula since the first audit was conducted in 2010 and (ii) to provide recommendations for the next steps that could lead toward a standardized or model JEB curriculum worldwide.

Methods

This study was approved by the Ethics Review Board of the University of South Wales, UK (18BG0202LR). Between the fall of 2019 and summer of 2021 faculty at prospective participant chiropractic programs were identified by purposeful sampling.[6] Many of the participants were identified based on my professional relationship with other faculty members at their institutions. These individuals referred me to the faculty member responsible for the jurisprudence, ethics and/or business management courses at their respective chiropractic programs. If no contact was known, I undertook an Internet search of accredited chiropractic programs, hoping to identify the appropriate faculty member. Once identified, potential participants were contacted by email and asked if they were willing to participate in this study.

Potential participants who expressed a willingness to participate were sent 'Participant Information' and 'Consent to Participate' forms to read and sign. The consent form assured respondents that, although their chiropractic program would be listed as a study participant, the content of their courses would not be traceable to a specific respondent. To achieve this anonymity, respondent programs are labelled as 'chiropractic program 1' (CP 1), 'CP 2' and so on, such numbers designated in a non-alphabetical order and determined by the total number of JEB courses taught at each program. In the event more than one chiropractic program had the same number of JEB courses designations were randomly assigned.

Both English-speaking and non-English-speaking chiropractic programs were approached to participate. However, to be included in this study, respondents at non-English speaking chiropractic programs were asked to translate their JEB courses outlines into English prior to submission. It would not only have been cost probative for me to do so but asking the respondent to translate the course outline from their native language to English would reduce the risk of pertinent details being lost in translation. If translation to English was not feasible, data from that chiropractic program was excluded. Thus, only chiropractic programs with course outlines in English were used in this study. No compensation was offered for study participation in this project.

Based on the experience gained by conducting a similar audit a decade ago, I predetermined what categories of information would be germane to this study. They were: total number of JEB courses taught; credentials of course coordinator, presenter(s) or lecturer(s); total number of hours of each course; method(s) of course delivery (e.g. lecture, online modules, small group tutorials); number of hours designated to each method of course delivery; course resource material (e.g. textbooks, assigned reading, course notes); evaluation strategies (e.g. written examinations, assignments, class participation); course description: and topical outlines. This data often existed under different subheading in each submitted course outline, necessitating a careful reading of each one of them.

Upon completion, this data was transferred into new tables with the identity of each chiropractic program anonymized. Once completed, business management was subdivided into two broad categories – entrepreneurship and financial/accounting – since they were often taught separately.

Categories of data were subsequently collapsed into five subject headings: Course Structure and Distribution; Jurisprudence; Ethics; Entrepreneurship: and Financial and Accounting. Identified topics were listed alphabetically within each subject heading. An audit of course

outlines from each chiropractic program was then undertaken and analyzed.

Results

Representatives from 31 different chiropractic programs were contacted. Twenty-four agreed to participate in the study (response rate =77.4%); however, three representatives were not able to provide course outlines in English. This resulted in a final response rate of 67.7% (n=21). Course outlines were submitted from the following chiropractic programs:

- Anglo-European Chiropractic College
- Barcelona College of Chiropractic
- Canadian Memorial Chiropractic College (CMCC)
- Cleveland Chiropractic College
- Durban University of Technology
- International Medical University (Malaysia)
- Keiser University
- Life University
- Macquarie University
- Madrid College of Chiropractic (Real Centro Universitario)
- New Zealand College of Chiropractic
- Northwestern Health Sciences University
- Palmer College of Chiropractic (Davenport)
- Palmer College of Chiropractic West
- Parker University
- RMIT University
- Southern California University of Health Sciences (SCUHS)
- Texas Chiropractic College
- Université du Quebec a Trois-Rivieres (UQTR)
- University of Bridgeport College of Chiropractic
- University of South Wales (UK)

Demographics of participating chiropractic programs

Participant chiropractic programs represented the following geographical regions: United States (n=10), Australasia (n=3), Canada (n=2), Spain (n=2), South Africa (n=1), Southeast Asia (n=1), and the United Kingdom (n=2).

Curriculum structure

An audit of how JEB content was distributed between courses at each chiropractic program revealed a tremendous degree of curricular diversity. The number of JEB-related courses offered in each chiropractic program varied between one and 16, and the number of courses devoted to JEB content within each chiropractic program varied between one and eight (Tables 2a-b). A total of 88 different course outlines, which listed 83 different topics pertaining to JEB course content, were identified.

With respect to the overarching topics of jurisprudence and ethics, 11 of 21 chiropractic programs combined them into one course. Alternatively, jurisprudence as a standalone course was delivered at eight chiropractic programs and ethics as a standalone course was delivered at seven chiropractic programs. (Table 2b)

Ten chiropractic programs taught business management, although three chiropractic programs taught entrepreneurship as a standalone course and two taught budgeting and finance as a standalone course.

Five chiropractic programs taught jurisprudence, ethics and business management together in one course and three chiropractic programs delivered this content in other ways. For example, one chiropractic program delivered business management content in two courses: one that delivered JEB content together and another course that, although predominately reviewing the mechanisms by which spinal manipulation is theorized to produce its biological effects, included online content on business management. Two other chiropractic program interspersed JEB course content throughout courses that focus on the delivery of clinical care.

Course organization

Nineteen courses were coordinated by a chiropractor or a chiropractor with legal training – additional faculty members in various courses included lawyers, accountants or persons with an MBA or its equivalent in five chiropractic programs (two programs did not specify the credentials of the course coordinator).

The most commonly used delivery method for course content was by lecture (n=19). Eight audited courses used lectures as the sole method of course content delivery; all other chiropractic programs used more than one delivery method. Other methods of course delivery in descending order were: self-directed/ independent learning (n=7), online modules (n=6), tutorials (n=4), directed learning (n=3), workshops (n=2), seminars (n=1), debates (n=1) and clinical observations (n=1). Course outlines did not

Table 2a.
Summary of course delivery, structure and evaluation methods

CP	Number of courses	Delivery method	Evaluation methods	Course resources	Faculty
1	16	Lecture, Online classes	Class attendance, Class participation Assignments Quizzes Written exams Oral presentations Small group discussions Research binder Business Plan	None	DC
2	11	Lecture Online classes Self-Directed Learning	Assignments In-class work Written exams Quizzes Observations Business Plan	Course notes	DC
3	9	Lecture	Oral presentations Assignments Quizzes Written exams Marketing Plan Business Plan	Assigned reading	DC MBA
4	6	Lecture Tutorial Debates Online Clinical Observations Self-Directed Learning	Reflective Reports Written Exams	?	?
5	5	Lecture	Class participation Assignments Business modules Written exams	Textbook, Course notes	DC MBA
6	5	Lecture	Assignment Written exam Meet with Professor	Course notes	DC MCS-P
7	4	Lecture Workshop	Quizzes Self-reflection Written exams	Textbook Course notes	DC
8	4	Lecture Tutorials Directed Learning Independent Study	?	?	DC
9	4	Lecture	?	?	DC Lawyer
10	3	Lecture	Class attendance Class participation Workbook Team project Video project Quizzes Written exams Financial Plan Business Plan	Textbooks Assigned readings	DC
11	3	Lecture Online Self-Directed Learning	Class participation Quizzes Written exam		DC
12	3	Lecture	Class participation Quizzes Exams	?	DC
13	2	Lecture Seminars Directed Learning Independent Learning	?	?	DC
14	2	Lecture Online	Assignment Written exam	None	?
15	2	Lecture	Class participation Class presentation Written exam	None	DC
16	2	?	Class attendance Team project Video project Workbook Resume Marketing Plan Financial Plan Business Plan Written exam	None	DC
17	2	Lecture Tutorials Online	Self-Reflection Attendance at a Discipline Hearing Assignments Small group participation Online business modules Written exam	Assigned reading	DC
18	2	Lecture Tutorials Directed Learning Independent Learning	?	?	DC
19	1	?	?	?	DC
20	1	Lecture	Business plan Written exam		DC Lawyer Accountant
21	1	Lecture Workshop Self-Directed Learning	?	?	DC

Table 2b.
Distribution of jurisprudence, ethics and business management courses at each chiropractic program

CP	J*	E+	JE#	BM^	JEBM^^	EP**	F/A++	Other
1	1		1	5		8	1	
2	3	2	3	2			1	
3	3	3		2		1		
4		4	1		1			
5			2	3				
6	1			2		1		
7		1		3				
8								4
9	1	1	1		1			
10			1	1				
11	2	1						
12	1				1			1
13			2					
14			1	1				
15			1	1				
16				2				
17					1			1
18	1	1						
19			1					
20					1			
21			1					
n=	13	13	15	22	5	10	2	6

*= Jurisprudence course
+= Ethics course
#= Jurisprudence and Ethics Course
^= Business Management Course
^^= Jurisprudence, Ethics and Business Management Course
**= Entrepreneurship course
++= Financial/Accounting course

contain any information that would help differentiate between 'workshops' and 'seminars'. Upon further review of course outlines, 'tutorials' involved small group sessions with a facilitator. Lastly, although only one chiropractic program included 'clinical observation' as a method of delivery of JEB course content, several other programs specifically described (and presumably all offered) some form of preceptorship or its equivalent that allowed senior students/interns an opportunity to shadow a chiropractic in private practice (e.g. 'in the field'). This, coupled with a student's internship with an assigned clinician may have offered additional educational opportunities on the topics of JEB that would not be revealed by the methodology used in this study (see Limitations section).

Roughly half of responding chiropractic programs listed the number of hours of some (but often not all) of the delivery method listed in their course outlines. Among those course outlines that provided details, the number of lecture hours provided varied between seven and 48 with a mean of 21 and the number of hours assigned to self-directed learning varied between 30 and 85 (mean of 45). The number of hours of online course material varied between 12 and 61 (mean of 27) and the number of hours assigned to tutorials varied between eight and 20 with a mean of 16 (mean averages rounded up/down to nearest whole number).

The course outlines of 15 chiropractic programs provided information on evaluation methods. Of these, all chiropractic programs evaluated students using a written examination, seven used class participation, six used assignments, quizzes or the submission of a business plan (see Discussion section). Three chiropractic programs evaluated students using self-reflective reports and three allocated grades for class attendance. Two chiropractic programs (although not the same two) used the following evaluation methods: online business modules; verbal presentations; submission of a marketing plan; submission of a financial plan; team project; video project and; workbook. Lastly the following evaluation methods were used at only one chiropractic program: small group participation; submission of a 'research binder'; clinical observations; CV/resume submission; attending a discipline hearings and; 'meeting the professor'.

It should be noted that submission of either a financial or marketing plan (or both) was in addition to the submission of a business plan at those chiropractic programs that required them. In other words, in three chiropractic programs, financial, marketing and business plans were all considered separate projects that were submitted and graded separately.

The course outlines of roughly half of all chiropractic programs did not list any course resources; however, in those chiropractic programs that did, most stated there were 'class notes' or 'assigned readings' – only three listed specific textbooks as required readings.

Topics on jurisprudence

Twenty-four separate topics related to jurisprudence were identified during the audit (Tables 3a-d). Of these topics, the most commonly presented topic was a review of the regulations, standards of practice, guidelines and policies (hereafter collectively referred to as the 'rules') in the jurisdiction the chiropractic program was located (*n=15*).

Table 3a.
Summary of jurisprudence topics

CP	Advertising (rules)*	Anti-kickback	Complaints process	Confidentiality (e.g. HIPAA)	Consent+ Capacity	Court system process#
1				✓	✓	✓
2				✓	✓	✓
3	✓				✓	
4						
5					✓	✓
6		✓		✓	✓	
7				✓	✓	
8	✓			✓	✓	
9	✓			✓	✓	✓
10					✓	✓
11	✓			✓		
12			✓			
13					✓	
14					✓	
15	✓			✓		
16						
17	✓		✓	✓	✓	
18	✓			✓		✓
19				✓		✓
20						✓
21						
n=	7	1	2	11	12	8

*Rules = Regulations; Standards of Practice; Guidelines; Policies
+Consent = Verbal; written; informed; material risk
= Appearance; Deposition; Preparation; Process of litigation

Table 3b.
Summary of jurisprudence topics

CP #	Discipline process	Duty of care	Insurance*	Law/legal System+	Malpractice (avoiding claim)	Malpractice (elements)#
1		✓	✓	✓		✓
2		✓	✓	✓	✓	✓
3			✓			
4		✓		✓		✓
5	✓	✓	✓	✓	✓	✓
6			✓			✓
7			✓			✓
8			✓			
9		✓		✓		
10			✓	✓		✓
11		✓		✓		✓
12	✓					
13					✓	
14		✓		✓		✓
15			✓			
16			✓			
17	✓	✓	✓	✓	✓	✓
18		✓	✓	✓	✓	✓
19				✓		✓
20			✓			✓
21		✓		✓		
n=	2	10	13	12	5	13

*= Malpractice (e.g. CCPA, NCMIC); office liability; life; disability
+= History; Principles; Organization; Types
#= Negligence; Tort

Thirteen chiropractic programs taught issues related to insurance; specifically, which types of insurance chiropractors either needed to have (e.g. malpractice, office liability) or could choose to have (e.g. life, critical illness, disability) if they intended on entering private practice.

Thirteen chiropractic programs taught issues related to the elements of malpractice claims such as the definitions of negligence, the concept of a 'but-for' defence and what constitutes a tortious claim. Issues related to record keeping (including components of a SOAP note in addition to access, protection, storage and destruction of personal health records) was taught at 12 chiropractic programs. Consent and capacity were also taught at 12 chiropractic programs. At many of these programs, consent was further divided into different types of consent (e.g. implied, verbal, written) as well as specific issues related to informed consent including definitions and examples of material risks. Related to consent, issues surrounding confidentiality (such as Health Insurance Portability and Accountability Act or HIPAA) was taught at 11 chiropractic programs.

Twelve chiropractic programs devoted time to a general presentation on the legal system, including its history, principles, organization and various subspecialties (e.g. criminal, civil). Issues related to the chiropractic scope of practice (e.g. specific controlled acts permitted for chiropractors to perform in various jurisdictions) was taught at 10 chiropractic programs. This included (depending on the jurisdiction) the controlled or authorized acts of spinal manipulation/ adjustments, diagnosis, acupuncture, treating animals, taking and reading radiographs, ordering advanced diagnostic images and ordering laboratory tests. What constitutes the 'duty of care' owed to a patient was presented at 10 chiropractic programs.

Issues related to risk management, sexual abuse and the court process were taught at eight chiropractic programs (although not the same eight chiropractic programs). The

Table 3c.
Summary of jurisprudence topics

CP #	Mandatory reporting*	Medico-legal reports	Oaths+	Professional misconduct#	Record keeping^	Regulations, standards of practice, guidelines
1						
2	✓		✓		✓	✓
3					✓	✓
4						✓
5				✓	✓	
6		✓			✓	
7					✓	
8					✓	✓
9	✓	✓			✓	✓
10				✓	✓	
11	✓				✓	✓
12					✓	✓
13	✓					✓
14						✓
15						✓
16						
17	✓	✓	✓	✓	✓	✓
18		✓				✓
19						✓
20		✓				✓
21	✓			✓	✓	✓
n=	6	5	2	4	12	15

*= Child Abuse; Sexual Abuse; Communicable Diseases; Impairment (e.g. substance, cognitive/mental)
+ = Hippocractic; Graduation
# = Definitions of Unprofessional, Dishonorable and Disgraceful conduct
^ = SOAP notes; Access; Storage; Protection; Destruction

Table 3d.
Summary of jurisprudence topics

CP #	Registration	Risk management*	Scope of practice+	Sexual abuse #	Stakeholders^	Termination of care^^
1		✓	✓	✓	✓	
2		✓		✓		
3		✓			✓	
4		✓				
5		✓	✓	✓		✓
6			✓	✓		
7	✓	✓	✓	✓		
8					✓	
9				✓		
10			✓		✓	
11				✓		✓
12			✓			
13						✓
14						
15			✓			
16		✓				
17	✓	✓	✓	✓	✓	✓
18			✓			
19						
20		✓				
21			✓			
n=	2	9	10	8	5	4

*= How to Avoid a Claim; Practicing Defensively, 'What To Do When Things Go Wrong'
+ = Authorized or Controlled Acts
# = Includes Sexual Harassment'; Sexual Misconduct; Sexual Violation
^ = Regulatory/Licensing bodies; Advocacy/Trade Associations
^^ = Patient Discharge; Patient Dismissal; Patient Withdrawal from Care; Abandoning a Patient

topic of risk management included strategies to avoid or reduce the likelihood of having a claim filed against a chiropractor, the concept of practicing defensively and 'what to do when things go wrong'. The topic of sexual abuse was subdivided into related topics including sexual harassment, sexual misconduct, and sexual violation. Lastly, the discussion of the court system included a review of the entire process of litigation from preparing for court to appearing in court to being deposed as a witness or defendant.

The rules governing advertising and marketing were presented at seven chiropractic programs, although 13 chiropractic programs presented advertising and marketing from an entrepreneurial perspective (see below and see Discussion). Situations that trigger mandatory reporting (e.g. child abuse, sexual misconduct, suspicion that a colleague is practicing while impaired) was presented at six chiropractic programs. Five chiropractic programs (although not the same five chiropractic programs) taught how to prepare a medico-legal report in addition to a review of the mandates and roles of different organizations in the chiropractic ecosystem (e.g. regulatory bodies, advocacy associations, malpractice carriers).

Termination of the doctor-patient relationship (discharge, dismissal, patient withdrawal, abandonment) was taught at four chiropractic programs. Four chiropractic programs taught types of professional misconduct and what constitutes unprofessional, disgraceful and dishonourable behavior. Two chiropractic programs discussed oaths (e.g. the Hippocratic oath, the oath students take upon graduation) and two chiropractic programs discussed the process of registration in order to obtain a certificate of registration (license) as well as the different categories of registration (e.g. general, inactive, retired). Three chiropractic programs discussed the discipline process of regulatory bodies and two of these also discussed

Table 4a.
Summary of ethics topics

CP #	Boundary crossing (issues)	Code of Conduct	Conflict of Interest	Confidentiality/ Privacy	Continuing Education/ Lifelong learning	Controversial Topics*
1					✓	
2	✓			✓		
3	✓		✓	✓	✓	✓
4		✓				
5		✓				
6				✓		
7	✓		✓			
8		✓		✓		✓
9	✓	✓		✓		
10						
11				✓		
12						
13		✓				
14	✓		✓			✓
15	✓		✓		✓	
16						
17	✓	✓	✓	✓		✓
18	✓		✓			
19				✓		✓
20						
21					✓	
n=	8	6	6	8	4	5

*= Controversial topics include: vaccination; x-ray line marking; treatment of non-neuromusculoskeletal conditions; treating children; subluxation terminology and theory

Table 4b.
Summary of ethics topics

CP	DEI*	Ethics+	Ethical dilemma	Ethics in healthcare	Patient-centered practice	Professional communication
1		✓			✓	
2		✓	✓	✓		✓
3	✓	✓	✓	✓		✓
4		✓	✓	✓		✓
5		✓		✓		
6	✓	✓				
7		✓		✓		
8	✓	✓		✓		✓
9		✓	✓	✓	✓	✓
10		✓				
11		✓	✓	✓		✓
12						
13		✓	✓	✓		✓
14		✓		✓		
15				✓	✓	✓
16		✓				
17	✓	✓	✓	✓	✓	✓
18		✓				✓
19		✓		✓		
20		✓	✓			
21		✓			✓	
n=	4	19	8	13	5	10

*= Diversity, Equality and Inclusion; cultural competency; racism
+ = Definitions; theories; principles (beneficence, autonomy, justice and nonmaleficence)

the complaints process. Lastly, only one chiropractic program discussed anti-kickback legislation.

Ethics

Sixteen topics were included under the umbrella term 'ethics' (Tables 4a-c). Nineteen of 21 respondent chiropractic programs reported they teach ethics although further details were often not provided. Thirteen of these 19 chiropractic programs specifically taught bioethics or ethics as they apply to healthcare and eight of these 19 chiropractic programs provided ethical dilemmas for class discussion.

Issues related to professional communications was taught at 10 chiropractic programs and the topics of boundary crossings as well as confidentiality and privacy was taught at nine chiropractic programs. Eight chiropractic programs discussed what constituted a profession and professionalism and eight chiropractic programs presented the principle of a conflict of interest. Five chiropractic programs discussed the importance of patient-centered care from an ethical perspective and six reviewed professional codes of conduct. Five chiropractic programs discussed controversial topics within the chiropractic profession (e.g. vaccination, management of non-neuromusculoskeletal (NMSK) disorders, issues related to 'subluxation').

The topic of diversity, equality and inclusion (DEI), cultural competency and racism in healthcare was taught at four chiropractic programs. Unethical practice activities were taught at three chiropractic programs, although examples were not provided in course outlines. Three chiropractic programs discussed the use of scientific information to guide clinical decision making from an ethical perspective and three chiropractic programs discussed the chiropractic profession from the perspective of social theory, including the concept of the social contract. Lastly, two chiropractic programs discussed the importance of continuing education and lifelong learning

Table 4c.
Summary of ethics topics

CP	Profession and professionalism defined	Social contract*	Unethical practice activities+	Use of Scientific Research/ Literature
1				✓
2				
3	✓			
4	✓	✓		
5				
6	✓			
7				
8				
9	✓			
10			✓	
11				
12				
13				
14		✓		
15	✓			✓
16				
17	✓	✓	✓	✓
18	✓		✓	
19				
20				
21	✓			
n=	8	3	3	3

*= Social theory; social closure; cultural authority
+ = Fearmongering; fraud; lengthy prepaid treatment packages; requirement to bring significant other to ROF

Table 5a.
Summary of topics – entrepreneurship

CP	Advertising marketing	Advisors	Being a boss*	Branding+	Business entities#	Career options^	Chiropractic industry
1	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓			✓	✓
3	✓			✓			✓
4	✓				✓	✓	
5	✓	✓		✓	✓	✓	
6	✓						✓
7	✓				✓		
8							✓
9							
10	✓				✓		
11	✓					✓	
12						✓	
13							
14	✓						
15	✓						✓
16	✓		✓		✓		✓
17	✓		✓	✓		✓	✓
18							
19							
20					✓	✓	
21							
n=	13	3	4	4	7	8	8

*= Attributes, characteristics, mindset, visualization, leadership styles
+ = Personal, Office/Practice, reputational management
# = Partnership, incorporation
^ = Solo/owner, associate, purchase, locum

Entrepreneurship

Thirty-one separate and distinct topics pertaining to entrepreneurship were identified during this audit (Tables 5a-e). Thirteen chiropractic programs delivered course content specific to advertising and marketing from an entrepreneurial perspective and 13 chiropractic programs discussed the process of starting a practice. Ten chiropractic programs taught content pertaining to human resources, including hiring, training, and keeping qualified and effective office staff including chiropractic health assistants.

Ten chiropractic programs discussed the importance of – and how to go about conducting – a demographic analysis in order to identify an optimal location to establish a private practice. This included discussing the pros and cons of various office locations (e.g. street level, strip mall, in-home) and different geographical locations (e.g. urban, suburban, rural).

Eight chiropractic programs discussed chiropractic as an industry, eight chiropractic programs reviewed the process of coding for insurance claim submission (e.g. WSIB, third party payors) and eight chiropractic programs discussed the various career options available to chiropractors (e.g. solo practitioner, associate, locum).

Developing office policies and procedures was taught at seven chiropractic programs and seven chiropractic programs reviewed the various business entities a chiropractor can establish (e.g. partnership, incorporation). Six chiropractic programs taught strategies for effective communication with patients under various scenarios such as rescheduling a missed appointment, reactivating a dormant file and how to deliver a report of findings.

The benefits and challenges of different payment options (cash only versus insurance versus both) was taught at five chiropractic programs and five chiropractic programs reviewed legal contracts such as associateship agreements and commercial leases.

Four different chiropractic programs taught students the following topics: how to write a professional curricu-

Table 5b.
Summary of topics – entrepreneurship

CP	Coding*	Consumer targeting	Contracts	CV/resume (preparation)	Demographic analysis	Elevator speech
1	✓	✓	✓	✓	✓	✓
2	✓		✓	✓	✓	
3		✓	✓		✓	
4			✓	✓		
5	✓				✓	
6	✓				✓	✓
7	✓		✓	✓		
8						
9						
10					✓	
11	✓				✓	
12						
13						
14					✓	
15	✓		✓		✓	
16	✓	✓				
17		✓	✓		✓	✓
18			✓			
19						
20						
21						
n=	8	4	8	4	10	3

*= Insurance, private, WSIB, Medicare

Table 5c.
Summary of topics – entrepreneurship

CP	Exit strategy*	Furnishing / equipment +	Hiring and human resources #	Media relations	Mission, values
1		✓	✓	✓	✓
2			✓		✓
3					
4	✓		✓		
5	✓		✓		
6			✓		✓
7			✓		
8			✓		
9					
10			✓		
11		✓			
12					
13					
14					
15					
16			✓		
17		✓		✓	✓
18					
19					
20			✓		
21					
n=	2	3	10	2	4

* = Retiring, sale of office/valuation
+ = Cost, needs assessment, leasing v purchase
# = Includes advertising for staff, hiring, interviewing, labour law, managing staff, Occupational Health and Safety, termination

Table 5d.
Summary of topics – entrepreneurship

CP	Office design*	Office policy and procedures (office manual)	Payment options+	Patient communications#	Pricing^	Products to sell^^
1	✓	✓	✓	✓		✓
2		✓	✓	✓		
3				✓		
4						
5	✓		✓	✓		
6	✓	✓			✓	
7		✓		✓		
8						
9						
10		✓				
11			✓	✓		
12						
13						
14						
15		✓				
16	✓		✓		✓	
17						✓
18						
19						
20		✓				
21						
n=	4	7	5	6	2	2

*= floor plan, furnishing, stocking of supplies/product
+ = Cash or insurance or both
# = Report of finding, missed appointment, rescheduling, reactivating file
^ = Chiropractic services, products
^^ = Orthotics, supplements, braces/supports

lum vitae or resume; how to create an effective brand for an individual or office; how to target potential chiropractic patients; how to create vision and mission statement for a practice; how to prepare and what attributes contribute to 'being a boss' and; efficient office design.

How to conduct a SWOT (strength, weakness, opportunity, threat) analysis was taught at three chiropractic programs. Three different chiropractic programs taught what equipment and furnishings are preferentially needed for a private practice and three chiropractic programs discussed which technological devices ought to be used for private practice. Three chiropractic programs taught what constitutes an optimal team of advisors for a chiropractor (e.g., lawyer, accountant, banker, financial advisor) and 3 chiropractic programs provided training on how to deliver an effective elevator speech – a short (i.e. 30 second) conversation a chiropractor may have with a perspective patient in various social settings.

Table 5e.
Summary of topics – entrepreneurship

CP	Product protection*	Public speaking	Realistic graduate expectations	Social media	Starting a practice	SWOT analysis	Technology needs
1		✓		✓	✓		✓
2				✓	✓		✓
3		✓		✓	✓	✓	
4			✓		✓		
5	✓				✓		✓
6					✓		
7					✓		
8					✓		
9							
10					✓		
11					✓		
12							
13							
14					✓	✓	
15							
16				✓			
17					✓	✓	
18							
19							
20							
21					✓		
n=	1	2	1	4	13	3	3
*= patent, trademark, copyright							

Table 6a.
Summary of topics – financial and accounting

CP	Accounting	Asset protection	Audit*	Banking+	Budget#	Credit
1			✓	✓	✓	✓
2	✓	✓			✓	✓
3						
4	✓					
5		✓		✓	✓	
6	✓		✓	✓		
7						
8			✓			
9						
10						
11	✓					
12						
13						
14	✓				✓	
15						
16	✓			✓		
17				✓	✓	
18						
19						
20	✓				✓	
21						
n=	7	2	3	5	6	2
*= Compliance; Preparation		+ = Sources of funding			# = Office; Personal	

Table 6b.
Summary of topics – financial and accounting

CP	Financial analysis*	Financial/ money management	Getting paid (collections)	Office administration	Student loan repayment	Taxes
1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓		✓
3	✓					
4	✓					
5	✓	✓	✓	✓		
6	✓	✓		✓		
7	✓					
8	✓					
9						
10	✓			✓		
11	✓	✓				
12						
13						
14	✓					
15	✓		✓	✓		
16	✓	✓		✓		✓
17	✓					✓
18						
19						
20	✓			✓		
21						
n=	15	6	4	8	1	4
*= Balance sheet; Cash flow; Spreadsheet; Risk analysis; Forecasting						

Training for public speaking was provided at two chiropractic programs, and two chiropractic programs provided media training (e.g., how to stay 'on message' during an interview). Two other chiropractic programs discussed what ancillary products can be offered for sale at a chiropractic office (e.g., orthotics, braces, supports) as well as how to appropriately price them, as well as pricing for other services provided.

Lastly, one chiropractic program discussed legal options on how to legally protect a product a chiropractor may create. Only one chiropractic program devoted time in their curriculum to 'realistic graduate expectations', a discussion of the financial conditions and timeframes a new graduate should reasonably expect before they attain a level of success, however defined.

Financial/Accounting

Chiropractic programs taught 12 topics specifically related to issues related to finances and accounting (Tables 6a and 6b). Fifteen chiropractic programs taught issues related to financial analysis including understanding a

balance or financial spreadsheet, case flow, risk analysis and financial forecasting. Similarly, six chiropractic programs taught financial and money management, with one chiropractic program specifically discussing investment strategies and how to valuate a practice. Seven chiropractic programs stated they teach accounting principles (e.g. double-entry bookkeeping).

Eight chiropractic programs taught office administration as it relates to finances. Six chiropractic programs reviewed the topics of personal and office budgeting, and five chiropractic programs taught the principles of banking, with an emphasis on financing of a business venture. One chiropractic program outlined how to open a chequing account and how to make a deposit.

Four chiropractic programs taught issues related to taxes (e.g., income tax, business taxes), and four chiropractic programs discussed strategies on how to get paid (e.g., patient collections). Three chiropractic programs reviewed how to prepare for an audit and two chiropractic programs reviewed the concept of credit. Two chiropractic programs discussed strategies of asset protection and 1 of these programs also taught students methods to repay student loans.

Discussion

The results of this study suggest there continues to be tremendous variabilities between chiropractic programs with respect to their JEB curriculum, as first identified by a similar audit conducted a decade ago.[5] Although there seems to be a general increase in the JEB course content offered to students overall, only a few chiropractic programs have greatly expanded in-depth curriculum content devoted to business management and the principles of entrepreneurship and financial literacy.

Course structure, delivery and evaluation

Although there is a shift in pedagogical circles away from it[7], all chiropractic programs in this audit primarily used lectures to deliver JEB content, perhaps because that delivery method allowed for a more interactive format compared to content delivered online or by self-directed learning. In addition to allowing for a 'question and answer' (Q & A) opportunity in real-time, it also allows the presenter to walk students though real-life examples, and a skilled presenter can build a degree of anticipation and intrigue as the story unfolds, using relevant, real-life case scenarios to create a dynamic learning environment as advocated by Abela[8]. Similarly, small group tutorials were commonly used to deliver JEB content, enabling discussions of both abstract and difficult subjects as well as contemporary 'hot topics'.[8] In a study involving physiotherapy students, Skinner *et al*.[7] reported small group formats enhanced interpersonal and effective communication skill development, cultural competency and professionalism. Skinner and colleagues contended these attributes would, in turn, be helpful when interacting with patients, their families, other healthcare providers as well as regulatory bodies and other professional organizations.[7] According to this audit, other interactive course delivery strategies used by chiropractic programs included workshops and seminars.

All course coordinators and principle lecturers were chiropractors and almost all audited courses provided prepared course notes as learning materials. All audited courses used written examinations to evaluate students in addition to class participation, quizzes, assignments and some required submission of a business plan. The course outlines of the few chiropractic programs that require submission of a business plan provided comprehensive instructions for them (Table 7).

Selection of course topics, review of learning outcomes and assessment if they were met

No information was provided in any of the 88 course outlines submitted for review of how each respective chiropractic program selected courses topics, methods of delivery, evaluation strategies or learning objectives. In my experience, after its inaugural delivery, refinement of a course follows an iterative process based on feedback from students, faculty and curricular planners who ensure alignment with the program's exit or metacompetencies.

Of the course outlines provided by the 21 chiropractic programs reviewed in this audit, all but one (CP1) provided learning objectives (LOs). Two chiropractic programs not only listed LOs but also provided how they related to Bloom's Taxonomy and to the program's metacompetencies.

A review of the LOs revealed them to be generic in nature and principally mirror the topics listed. That is, for the jurisprudence and business management courses LO's stated the learner would be able to 'identify' or 'recognize' or 'understand' each of the topics discussed in class

Table 7.
Examples of requirements for submission of a business plan

Chiropractic program	Requirements
CP 1	*1.0 Executive Summary* • Mission statement • Date practice estimated to begin • Name of founder and their functions • Number of employees • Location of practice and branches • Map of area of practice • Description of facility • Floor plan (accurate and realistic measurements0 • Site plan (view from street) • Services provided (list and prices) • Banking relationships and current investor information • Projection of practice growth • Summary of future plans • Prepare goals-project where you want to be in 5, 10 and 30 years *2.0 Organization and staffing* • who does what, • background • duties • detailed description of each department, organizational chart *3.0 Management* • Resume • Advisory Board *4.0 Marketing* • Diagnosis – Demographics of area of practice, including 1. Population growth 2. Cost of living 3. Industry in area 4. Employment by industry 5. # of households 6. Effective buying income 7. Building permits issued 8. # of DCs in area • Prognosis • Objectives • Strategy • Tactics • Control *5.0 Service* • What are you selling? Define products • Information about licensure requirements, board exam dates, local business license requirements and costs • Logo • List of services and products: suppliers, availability, costs, new products *6.0 Impact of economic conditions* • State of economy • Condition of chiropractic • Current and future demand • New technologies *7.0 Financials* • Be realistic • DIY • The Big Picture 1. Balance sheet 2. Income statement (per month for year, with 5 year projections) 3. Cash flow statement (business expenses) 4. Prepare a personal budget 5. Comprehensive list of items to purchase

Chiropractic program	Requirements
CP 16	*Team Research Paper (team project)* As a portion of the requirements for this class, teams (7 to 8 randomly chosen participants) will be selected to write a comprehensive research paper about the marketing and promotion activity related to a small health care organization. (Content instructions are below.) The purpose of this paper is to allow students the opportunity to look deeply into the small health care business, and learn, analyze, and make recommendations related to the way in which it uses marketing and promotion to achieve success in the market place. Note: For help with this project, read chapters 7-10 in the text book and the lectures for chapters 7-10. The paper should be composed and submitted in Word, double- spaced, Times New Roman font, size 12, with one-inch margins. (See grading rubric) The format for the paper is shown below, and should be followed closely. • Title page • Introduction: overview of business, profile (how long in business), location, number of employees (org chart), demographics of customer, founder, manager/leader, plans for growth and expansion • Analysis of marketing strategy (heart of paper): situational analysis (SWOT), manipulation of marketing mix in planning strategy, marketing goals, competitors and competitive factors • Recommendations • Summary (where is business going? Lessons learned? • References ***Team Video Project*** In conjunction with the team research project about marketing and promotion activity related to a small health care organization, teams will prepare a presentation summarizing the key points of their comprehensive research. It is to be delivered via a video presentation (submit your You Tube link). The class presentation will introduce each of the team members and provide the summary of the marketing program in the small chiropractic enterprise. Video presentations are to be approximately ten minutes in length ***Individual Marketing Plan*** Each class member is to write a mock marketing plan for a chiropractic business. The plan may be oriented to what you envision for your future business. Instructions for writing this marketing plan are found in Chapter 7 of the text and in the accompanying lecture. As shown in the lecture, the outline for the 5 parts of the marketing plan is as follows: • Define mission and understand organizational objectives • SWOT • Marking objectives • Marketing plan and supporting strategy • Implementation

(e.g. risk management, informed consent, record keeping, types of insurances needed, importance of finding a location for a practice). Typically, the LOs for courses on ethics required the learner to 'understand' the principles of ethics and 'apply' them to ethical dilemmas.

The methodology used in this audit did not permit any kind of qualitative assessment of the course content delivered, making it impossible to assess whether course structures used across curricula meet the specific needs of student, each chiropractic program or the profession. None of the course outlines reviewed referred to any type of assessment of the course's LOs.

In order to undertake a qualitative assessment of the LOs of the JEB course offered at CMCC, I conducted an in-depth paper survey asking students to rate their perceptions of the various components of that course.[9] Of a class of 186 students, 175 consented and completed the survey (response rate 94.1%) and 'strongly agreed' or 'agreed' topics covered in lectures and small groups sessions were well presented and important for them to know. Similarly positive feedback was reported about the class assignment related to the lectures and small group sessions. However, students' perceptions of the presentation, content and assignments related to the online business management modules used in that course were generally poor.[9] The results from that study were used to make modifications to the course going forward, principally to the assignments related to the business modules. If not already done so, other chiropractic programs ought to perform similar qualitative assessments of each JEB course in their curriculum, making any course changes deemed necessary.

Jurisprudence

A number of inter-related topics can serve to further inform what should be optimally taught in a jurisprudence course. This includes trends extracted from annual reports of licensing bodies, issues germane to advertising, results from the aforementioned student survey[9] and the results of this audit.

Annual reports

A review of the Discipline Hearings from the College of Chiropractors of Ontario's Annual Reports between 2011-2021 revealed the same four acts of professional misconduct were most likely to result in loss of licensure: insurance fraud; practicing outside of the chiropractic scope of practice; practicing while under suspension; and sexual abuse.[10] In Ontario, sexual abuse encompasses engaging in a sexualized relationship with a patient, sexually harassing a patient, making remarks of a sexual nature, contacting a sexualized part of a patient or contacting a patient with a sexualized part of the doctor. If found guilty, the registrant faces a mandatory five year revocation of licensure, the harshest penalty in any jurisdiction.[11] This is a consistent finding across jurisdictions that regulate chiropractic. It therefore behooves courses that teach jurisprudence to devote considerable time to these topics.

Advertising

Advertising presents a special challenge in chiropractic, as evident by the fact this audit found it is often taught from both a jurisprudence and a marketing perspective. This is not entirely surprising, since advertisements often attract significant media attention, especially if they refer to the management of neuromusculoskeletal (NSMK) conditions (especially conditions that primarily affect children), allude to unsubstantiated claims of cure or convey anti-vaccination sentiments.

Evans, Perle and Ndetan sought to assess the quality of information with respect to wellness available on chiropractors' websites.[12] Based on a review of 47 randomly retrieved websites, the researchers characterized the information often available as 'useless' since they contained information contrary to common public health initiatives.[12] A more recent cross-sectional study of a representative sample of the websites of French chiropractors (*n=287*) found 8 of 10 websites mentioned one or more non-MSK disorders or symptoms, although the authors emphasized it was unclear if this reflected inaccurate communication or if treatment for non-MSK conditions was provided by the chiropractors.[13] A review of the websites of Danish chiropractors reported one of four referenced management of non-MSK conditions.[14] These differences between jurisdictions may reflect cultural, educational or regulatory differences.

A number of recent events involving advertising could stimulate robust discussion during small group discussions. Examples include: the lengthy legal battle subsequent to an investigation by news reporter Simon Singh in the UK[15]; widespread media scrutiny subsequent to a chiropractor's post on social media of him adjusting an infant with colic in Australia[16-19]; sensationalistic cov-

er stories in national newspapers and magazines focusing on chiropractic care for infants and children[20-27]; the actions of the College of Chiropractors of British Columbia making it an act of professional misconduct for chiropractors to advertise various claims related to pregnancy and delivery[28] and; anti-vaccination statements by some chiropractors on their social media platforms[30-34] as well as responses by chiropractic regulatory bodies, advocacy associations and researchers to these claims[35-41].

Contemporary controversies within the chiropractic profession

I conducted a thematic analysis of interviews of 30 influential stakeholders who were asked to share their perceptions of the obstacles, challenges and opportunities facing the chiropractic profession currently and in the future.[42] Several contemporary controversies were independently discussed by the diverse group of interviewees germane to this study.

In discussions that veered into characteristics of practice activities, interviewees observed many controversies still persist in the profession, some tracing their origins back to its emergence onto the healthcare scene in the late 1890s (e.g. vaccination, management of non-NMSK conditions, differing ideologies bordering on tribalism).[42] Given how these topics continue to persist in the chiropractic milieu, it may be beneficial for future chiropractors to be made aware of them, and a jurisprudence course may be the most logical place to do so. Over the past several years, I increased the lecture time devoted to these controversial issues in the JEB course I coordinated and a recent student survey of that course found over 90% of students perceived learning about these controversies was important for them to know.[9]

Ethics

There's an adage among ethicists: What's the answer to every ethical dilemma? Answer: It depends! In stark contrast to issues related to jurisprudence and the legal system, which tends to be proscriptive and paints many issues in black and white, ethical dilemmas are often viewed through a shades-of-grey prism. It is for this reason discussion of ethically complex situations can be debated during either lectures or facilitated small group sessions.

One ethically complex situation the author recently discussed from different perspectives involved a Facebook group of male dental students at Dalhousie University. Those students created a Facebook chatroom and ranked their opinion of the sexual desirability of their female classmates[43]; however, a crime reporter labelled it a victimless thoughtcrime.[44] Another situation involved a published article that characterized the behaviour of a number of female vascular surgeons as unethical because they posted pictures of themselves on their social media consuming alcohol or wearing what the authors deemed inappropriate and offensive attire.[45] In response, not only did many female vascular surgeons flood social media with pictures of themselves in bikinis, the journal apologized for the inherent sexism of the article and retracted it.[46]

Struggling with trustworthiness

Recent publications underscore the fact that chiropractic students should be taught the ethical challenges they will face and how their decisions may not only jeopardize their licence to practice but may how members of the public perceive the profession's overall trustworthiness.

A 2016 Gallup poll asked randomly chosen members of the public to rate the honesty and ethical standards of different professionals.[47] Nurses ranked highest, with respondents rating their honesty and ethical standards very high (29%) and high (55%), followed closely by pharmacists, medical doctors, engineers, and dentists. By contrast, only 5% and 33% of respondents rated chiropractors' honesty and ethical standards as either very high or high, respectively, slightly ahead of bankers, journalists, lawyers and state governors.[47] These findings parallel an earlier report by Ipsos, a marketing research company, that conducted a reputational comparison of 9 leaders in NMSK care.[48] Respondents were asked for their opinions of their familiarity, favourability, trustworthiness and likelihood to recommend of professions including family doctors, physiotherapists, orthopedic surgeons, physiotherapists and chiropractors.[48]

Ipsos reported medical doctors ranked the highest with respect to these four categories and physiotherapists (PTs) ranked second highest. Chiropractors ranked sixth. Looking at the results in detail, although respondents were equally familiar with both PTs and chiropractors (54%) 51% of respondents were likely to recommend PTs compared to only 42% for chiropractors. Even more telling,

Table 8.
*Reputational comparison for NMSK health care professionals**

Health care professional	LTR+	Trust	Favourability	Familiarity
Medical Doctor	58%	84%	88%	94%
Physiotherapist	51%	82%	86%	74%
Orthopedic Surgeon	58%	82%	86%	54%
NMSK Experts	50%	72%	72%	14%
Massage Therapist	55%	55%	80%	70%
Chiropractic	42%	42%	46%	71%
Naturopath	37%	37%	40%	32%
Psychologists	36%	9%	60%	54%
Psychiatrists	34%	6%	22%	54%

*Extracted from Ipsos
+LTR= Likelihood To Recommend

86% of respondents had a favourable opinion of PTs compared to only 46% for chiropractors and 82% trusted physiotherapists compared to only 44% for chiropractors (Table 8).[48]

Unethical practice activities

Perle, Lamarche and I conducted a workshop during the 2011 Association of Chiropractic College and Research Agenda Conference (ACC-RAC) that sought to explore and account for the significant rise in ethical violations among chiropractors – most notably insurance fraud – that often leads to disciplinary action and loss of licensure.[49] This despite the fact students and practicing chiropractors alike are forewarned of the legal repercussions associated with such unethical behaviour. The 30 workshop participants were tasked with addressing three objectives: (i) identify challenges graduates will encounter that complicates their ability to develop a successful, ethical, patient-centred chiropractic practice, (ii) identify challenges that may lead them to succumb to unethical behaviour, and (iii) develop strategies to overcome these challenges.[49] Participants unanimously identified raising student debt as the chief motivator of unethical practice activities. This was coupled with what workshop participants observed as an unwillingness of students to put in the 'sweat equity' needed to establish a successful practice. Other participants perceived some students have a sense of entitlement and expect a lucrative practice to be handed to them, indicating an inability to delay gratification and instead seek what was characterized as the 'illusion of wealth'. These attitudes may have been further fortified by poor role-models who have obtained financial success despite dubious ethical behaviour. These factors often led graduates to either seek out role models or to enrol in practice management seminars that teach ethically questionable business activities,[49] some of which specifically target older chiropractic patients.[50]

The thematic analysis of influential stakeholders, despite diverse backgrounds ideologies, revealed unanimous agreement that unethical practice activities are the bane of the profession.[42] When asked to specify what constituted unethical practice activities of concern, interviewees gave similar examples: unnecessary and over-lengthy treatment plans with exorbitant prepayment requirements; overly discounted fee schedules; use of pressure or scare tactics, characterized as fear-mongering ('scare care'); block booking and; overly scripted report of findings.[42] Several commentaries have similarly opined the chiropractic profession will not obtain the cultural authority it seeks until these practices, along with anti-scientific beliefs, are abandoned.[51-54]

Cultural competency, DEI and Racism (DEI-R) in health care

The past decade has witnessed the emergence of social movements including #MeToo, #TimesUp, LGBTQ2S+ and Black Lives Matter, all designed to increase cultural awareness for justice of individuals who have been historically victimized. These movements impact healthcare providers. As an example, a survey of a convenient sample of female faculty at a CMCC revealed half of respondents (n=17) were sexually harassed by their patients.[55] A recent interview of seven female Australian chiropractors reported similar circumstances of inappropriate sexual behaviour by patients.[56] Another article asked 'what do you do when the patient is a racist?'[57], a phenomenon on the rise toward not only BIPOC healthcare providers in general but healthcare providers of Asian descent in particular due to racist theories about the origins of Covid-19.[58] And yet, this audit revealed only four chiropractic programs that address DEI, only one of those programs focused on racism directed toward the doctor and a PubMed search failed to reveal any studies on DEI-R training in chiro-

practic, and no study has been published on cultural competency training in chiropractic education since 2014.[59,60]

Business management

There are several reasons supporting the need for robust business management education for healthcare providers in general, and chiropractic students in particular. One primary reason is related to challenges resulting from the indebtedness healthcare professional students find themselves in subsequent to obtaining a doctorate-level education. This challenge is particularly daunting in chiropractic.

Challenges and solutions to the cost of doctorate-level education

Chisholm-Burns *et al*.[61] reported the cost of a doctorate-level education varies between US$100,000 and US$200,000, based on 2018 data from the US Department of Education, and that these costs are rising exponentially. This cost included tuition, fees and cost of living; however, it did not include the hidden cost of lost job opportunity as a consequence of students unable to secure full or even part time employment while at school due to the rigours of the curriculum.[61]

In order to assess the debt-to-income ratio of five doctor-credentialed professions (medicine, dentistry, optometry, pharmacy and veterinarian medicine) Chisholm-Burns *et al*.[61] conducted a retrospective analysis of either mean or median student debt loan data between 2010-2016 and compared it the median income of those professions over the same time period. In this analysis, a debt-to-income ratio greater than 100% indicated debt was greater than income, while ratios less than 100% indicated income was greater than debt. The researchers noted their analysis did not include debt accrued during undergraduate education.[61]

Using these data sets, with the exception of medicine, the researchers reported the debt-to-income ratios for each health profession reviewed consistently exceeded 100% between 2010 and 2016, whereas debt-to-student ratios for physicians ranged between 89% to 95% during the same time period.[61] To address this debt-to-income disparity Chisholm-Burns *et al*.[61] suggested educational programs provide opportunities for students to learn about personal finances, including budgeting, saving and managing debt, allowing for a better understanding of the true cost of taking out a loan. The researchers also suggested students be offered counseling services to help them understand student debt repayment strategies.[61]

Shields and Dudley-Javoroski[62] observed the cost of a physiotherapy education has risen between two and three times more quickly than growth in entry-level salaries. This led the researchers to ask (i) what is the economic value of a physiotherapy career relative to other healthcare professions? and; (2) Is the graduate debt reported for physiotherapy manageable according to recommended salary-weighted debt service to ratio benchmarks? [62]

To answer these questions, the authors used a method of analysis know as Net Present Value (NPV). NPV is an economic model of cost-benefit analysis that calculates the monetary difference between the benefit to be gained (e.g. lifetime salary) less the cost of education and opportunity cost of foregone earnings from alternate careers. The NPV for physiotherapy was compared to other healthcare professions including medicine, dentistry, nursing, veterinarian medicine, optometry and chiropractic.[62]

At the debt level reported by recent graduates (US$86,563) the NPV for physiotherapy was higher than occupational therapy, optometry, veterinary medicine and chiropractic but lower than dentistry, pharmacy, nurse practitioners, physician assistants and all medical specialities included in this study. At a debt level of US$150,000, the NPV for physiotherapists falls below all careers except for veterinarians and chiropractors. Students with a debt of over US$200,000 may not achieve the recommended repayment benchmark and of students whose student debt exceeds US$266,000 physical therapy NPV no longer exceeds that of a bachelor's degree. This led the authors to conclude that physiotherapy education was a good investment but only to a certain point of student loan indebtedness stating *"students should carefully consider the amount of debt they are willing to assume in order to obtain a physiotherapy education"*, [62p190] a statement that undoubtedly applies to chiropractic as well.

Amin, Hoffmaster and Misko[63] reported pharmacy school graduates had a median debt of US$170,000 in 2019 but a median annual salary of only US$128,900. In order to assess the effect of a personal finance elective on students' financial management literacy and confidence, the researchers conducted a voluntary, anonymous survey of graduation classes of pharmacy students at the North-

east Ohio Medical University (NEOMED) between 2018 and 2021.[63]

Two hundred and eight-seven students graduated from the pharmacy program at NEOMED between 2018 and 2021. Of these students, 106 students (37%) participated in the survey. Fifty seven (54%) of these respondents did not enrol in the personal finance elective whereas 49 (46%) did. There was a significant higher rate in overall confidence with respect to their ability to manage their finances among those students who had enrolled in the personal finance course compared to those who did not. This finding led the authors to call for the prioritization of financial knowledge and skills within the doctor of pharmacy curriculum.[63]

Economic trends for chiropractors

Economic challenges facing chiropractors, especially newer graduates, has been well documented for several years. In 2008 (based on pre-2004 data) Mior and Laporte[64] reported that the number of chiropractors in Ontario, Canada had doubled between 1990 and 2004 but utilization rates remained relatively static and average net annual income declined adjusted for inflation in 2002 dollars.

Specifically, the number of registrants in Ontario between 1990 and 2004 increased from 1668 to 3213. During the same time period, annual net income decreased from CDN$97,892 to CDN$80,171. Parallel to this data Mior and Laporte[64] reported the ratio of chiropractor-to-population declined from 6453 to 5743 despite the fact the population increased by over 500,000 people during that time. Looked at another way, based on an estimated utilization rate of 10%, the authors calculated the optimal ratio between chiropractor and patients ought to be 1:7099; however, the actual ratio in Ontario was 1:4372, indicating a significant over-supply of chiropractors in that province.[64] Similar to the study by Chisholm-Burns *et al* [61], Mior and Laporte[64] reported student debt load at the time of graduation increased significantly during the review period.[64] As an example, in 1995-1996 only 12% of students graduated with debt loan in excess of CDN$80,000; this percentage increased to 52% by 2003-2004[61] (Author's note: tuition for incoming students for the four-year program at CMCC for the 2021-2022 academic year is CDN$27,224 [65]).

Three important addendums should be kept in mind when considering the data reported by Mior and Laporte.[64] First, at the time of this writing (summer 2022) there were roughly 5,250 registrants in Ontario, representing a 65% increase since 2004. Second, the number of students accepted for admission to CMCC increased from 150 to 200 when the campus relocated to a larger facility in 2004. Third, prior to 2004 a substantial number of CMCC students were from Quebec (30-40 on average) and returned to that province upon graduation; however, with the establishment of a chiropractic program at UQTR in 2004 this not only resulted in an increase in the total number of Canadian chiropractors per year but undoubtedly led to a further increase in Ontario chiropractors since the 30 to 40 admission spots no longer being filled by Quebec students where now filled by applicants from Ontario and other provinces.

More recently, the Ontario Chiropractic Association (OCA), a volunteer advocacy organization representing roughly 80% of Ontario chiropractors reported mean gross income adjusted for inflation declined from CDN$163,000 in 2003 to CDN$94,000 in 2016.[66]

The study by Shields and Dudley-Javoroski[62] included data particularly relevant to chiropractic. The entry level salary for chiropractors was reported to be US$47,460, the lowest of 17 healthcare professions reviewed and only marginally higher than the entry level salary of a person with a Bachelor' degree (US$40,456). Compared to 17 healthcare professions, chiropractic had the second lowest salary compound annual growth rate (CAGR) and the second lowest salary change between 2007 and 2016. Lastly, chiropractic was at the bottom of present value (PV) analysis modelling.[62]

The 2022 Government of Canada JobBank reported salary range for chiropractors ranged from a low of CDN$24,746 to a high of CDN$122,316, with a median annual salary of CDN$60,077.[67] This is similar to data reported by PayScale which reported the average annual income for chiropractors in Canada was CDN$75,126.[68] It should be noted another site reported the annual average yearly salary to be CDN$148,000.[69]

The JobBank provided salary ranges for a number of healthcare professionals.[67] Naturopaths earn slightly less than chiropractors with annual salaries ranging between CDN$24,746 to CDN$107,748, with a mean income of CDN$52,517. Dentists earn roughly twice as much as chiropractors and medical doctors earn roughly twice

Table 9.
*Comparison of annual incomes for various Canadian health care professionals (Canadian Dollars)**

Health care professional	Low	Mean	High
Chiropractic	$24,746	$ 60,077	$122,316
Dentistry	$30,128	$118,394	$261,517
Medical Doctor	$83,379	$ 216,864	$414,390
Naturopath	$24,746	$ 52,517	$107,748
Optometrist	$24,746	$ 86,115	$167,858
Pharmacist	$54,112	$ 104,646	$144,300
Physiotherapist		$ 68,460+	

* Government of Canada. 2020. JobBank. www.jobbank.gc.ca
\+ Based on median hourly rate of $40.75, 35-hour work week and 48 week per year

as much as dentists. The JobBank did not report salaries of physiotherapists in Canada but instead reported their hourly rate, which varied between CDN$28/hour to CDN$49.65/hour with a median of CDN$40.75/hour. Assuming a 35-hour work week and 48 weeks of work per year, using the median hourly wage rate, the annual mean salary for a physiotherapist calculates to CDN$68,460 (Table 9).[67]

Leveraging business management education to combat the allure of unethical practice behaviours

Attendees at the aforementioned 2011 ACC-RAC workshop[48] unanimously agreed student debt led new graduates to gravitate toward practice management programs that teach participants practice behaviours that are ethically questionable. Examples of ethically questionable practice behaviours include overly-scripted responses to patient questions and lengthy pre-paid packages that push patients toward unnecessary and excessive number of visits. These questionable practice activities may ultimately lead to moral blind spots resulting up to and including insurance fraud.[48]

Workshop participants provided several strategies to combat this problem. Chief among them was for accredited chiropractic programs to provide more robust business management curricula that emphasizes financially successful strategies undergirded by ethically-based practice activities. Workshop participants recommended business management courses ought to teach both practice management skills along with patient management skills. Such skills recommended for curriculum inclusion include: contract assessment (e.g. associateship agreements, leases, purchase of a practice); basic accounting skills; effective advertising; demographic analysis; staff training and; insurance requirements for professional practice.[48]

Workshop participants also suggested students be presented with real-life examples of 'bad behaviours' exhibited by field doctors and the consequences they faced. Conversely, workshop participants also recommended students be presented with 'success stories' – stories from field practitioners who obtained a high level of financial success while staying within the four corners of ethical practice activities. For the JEB I coordinated, I adopted this strategy by creating a library of faculty interviews chronicling their professional journey, beginning with their decision to enrol in a chiropractic program, continuing with their experiences in private practice and culminating with their decision to pursue a career in chiropractic education.[9]

The importance of curating a team of successful alumni who could serve as mentors and role-models who inspire students to practice with dignity and pride was also suggested by workshop participants.[48] These recommendations were echoed during a workshop I conducted with McCarthy and duRose during the 2018 Educational Conference of the World Federation of Chiropractic in London, England.[70]

Literature review of business management education in chiropractic

In 2008, based on interviews of 64 chiropractors nationwide, Henson *et al*. identified an educational gap between perceived business skills possessed versus business skill required.[71] The authors concluded that the chiropractic profession needed significantly greater business and practice management skills. Among their recommendations was for an industry-wide effort to develop business education programs specifically designed for chiropractors, perhaps at a graduate level and spearheaded by national or international associations.[71]

Mirtz, Hebert and Wyatt[72] distributed a 48-item survey to a group of non-practicing chiropractors inquiring about various aspects of the profession, namely, financial, educational, psychosocial and political. Seventy valid responses were received for analysis. A majority of re-

spondents believed business ethics in chiropractic were questionable and that overhead expenses and student loans were barriers to practice success. Among those respondents who were associates they believed they were encouraged to prolong patient care and that their salaries were too low. Overall, they believed chiropractic was not a good career choice and would not recommend it.[72]

In order to assess financial attitudes, knowledge and habits of chiropractic students Lorence *et al*. distributed a cross-sectional survey to a convenient sample of 250 students enrolled in business classes at Palmer College of Chiropractic-Davenport in 2011[73], advancing on a similar study conducted by Zhang *et al*.[74] a decade earlier. Based on 57 returned surveys the researchers found most respondents (74%) would accumulate over US$125,000 in student debt by graduation, with 26% owing between US$150,000-175,000 and 28% estimated they will owe more than US$175,000.[73] In general, financial knowledge was found to be low. To quote the authors: "*Students enrolled at one chiropractic college have unrealistic future salary expectations, high levels of actual and planned loan acquisition, an underestimation of their own risk tolerance, low levels of basic financial knowledge, and poor current money management skills*".[73p63] Ultimately, Lorence and her colleagues concluded these chiropractic students demonstrated inadequate financial literacy and did not engage in many recommended financial habits which could result in increased financial liability, levels of stress and possible business failure.[73]

Ciolfi has published two studies investigating the current level of business acumen among chiropractors.[75,76] In the first of these studies Ciolfi and Kasen[75] examined the relationship between chiropractor's perceived level of business knowledge required and their perceived level of current business knowledge. In 2013, two hundred and seventy-four chiropractors completed an online survey investigation this relationship for eight key business items. Based on Spearman's correlation testing the researchers found a statistically significant positive correlation for perceived knowledge required and perceived current level of knowledge for six variables: organizational behaviour; strategic management; marketing; legal and ethical; managerial decisions and; operations; however, finance and accounting were not found to be statistically significant. The Wilcoxon Signed Ranks testing indicated a significant difference for three paired items: strategic management; marketing and; legal and ethic. No statistically significant correlation between level of knowledge required and level of knowledge possessed was found for two variables, accounting and finance. In addition to benefits to graduates, the authors concluded improving the level of business knowledge education might not only contribute to its cultural authority but "*could add value to the profession as an attractive health care career thereby strengthening enrolment and business sustainability of chiropractic educational instutitions*."[75p6]

In something of a follow up study Ciolfi, Azad, Al-Azdee[76] and their colleagues sought to examine perceptions of business education among 16 Ontario chiropractors who graduated from four different chiropractic programs (12 CMCC, 2 Palmer, 1 National, 1 Northwestern). Questions were designed to analyze two levels of the quality of business education they received: (i) perceived level of business level acquired and (ii) current level of knowledge for six business topics. The following topics were explored: accounting and finance; organizational behavior and human resources; legal and ethics issues; strategic management; managerial decision making and; operational management.[76]

Interviewees perceived requirements for business skills are both broad and essential, embracing most if not all business domains. The majority of interviewees reported that ethical training and jurisprudence was very well done. However, this same group reported the status of business education they received while in the program minimally contributed to the business skills required upon graduation. For example, 13 of 16 interviewees reported finance and accounting were not covered, two reported it was not covered enough and 1 reported they would have liked to have had more. Eight interviewees reported organizational behaviour and human resources were not covered and 14 interviewees reported strategic management was not covered at all. Twelve interviewees do not recall managerial decision-making content being covered in class and nine reported there was no education provided on operational management. This led the authors to conclude there is a gap between skill-oriented business training in chiropractic and the skills needed to practice within the profession.[76]

Sikorski and colleagues conducted an anonymous survey of graduating chiropractic students in 2015-2016 regarding their prior business experience, their perception

of business courses taken before and during their chiropractic education, business abilities and needs and their practice plans for the future.[77] Eighty one of 114 surveys (response rate 71%) were completed for review. Less than half of respondents had taken college-level business courses prior to entering the chiropractic program. Almost 90% of respondents took one or more of the three electives on business skills offered during their chiropractic education. Sixty-eight percent of respondents planned on being an associate upon graduation and to be in private practice after five years.[77]

In descending order, surveyed chiropractic students perceived there was a need for further education on the following topics: Business operations (organizing and managing day-to-day activities); accounting (recording, reporting and analyzing financial data); billing/reimbursement; finance (process of acquiring, investing and managing business resources); business taxes (including business, employee and income taxes); economics (managing business income, expenses and resources); starting a practice; employee management; strategic planning (setting business goals and objectives); marketing/advertising and; ethics/risk management and jurisprudence (protecting your practice and professional license).[77] Lastly, Sikorski *et al*.[77] found there was a statistically significant positive relationship between students with either prior business experience and/or college business education and their confidence in operating a healthcare practice.

Review of the literature of JEB courses taught in other healthcare disciplines

A review of the literature of JEB course content from other healthcare disciplines found 52 articles from the medical, dental, nursing and pharmacy professions (see Appendix 1 for search strategy). Using various methodologies, 13 articles were comparative audits of jurisprudence/ health law, ethics and business management (sometimes referred to as 'health economics') courses in healthcare educational program. Tables 10a-c compare course categories discussed in those articles to this one.

One audit of ethics, health law and health economics taught at 62 of 125 American medical schools reported all programs have a dedicated course on bioethics whereas only 59% required a course in health law.[80] That audit reported ethics courses ranged between nine and 125 hours

Table 10a.
*Comparison of this study to audits of JEB courses taught at other health care programs**

Study	List of topics/ content	Presentation methods**	Description of organization of courses+	Assessment methods^
Present study	✓	✓	✓	✓
Goldie et al[78]	✓	✓	✓	✓
Lehmann et al[79]	✓	✓		
Persad et al[80]			✓	
Kolva et al[81]	✓	✓	✓	✓
Preston-Shoot et al[82]	✓	✓	✓	
Busari et al[83]		✓	✓	
Giubilini et al[84]	✓	✓	✓	✓
Niccum et al[85]	✓		✓	
Arnaert et al[86]	✓			
Mattingly II et al[87]	✓			
D'Assunção et al[88]	✓	✓	✓	
Smith et al[89]				✓
Wong et al[90]	✓	✓	✓	✓

Table 10b.
*Comparison of this study to audits of JEB courses taught at other health care programs**

Study	Description of instructor	Number of course hours – jurisprudence	Number of course hours – ethics	Number of course hours – business / health economics
Present study	✓	✓	✓	✓
Goldie et al, 2001		✓		
Lehmann et al, 2004	✓		✓	
Persad et al, 2008	✓	✓	✓	
Kolva et al,				
2009				
Preston-Shoot and McKimm, 2010	✓			
Busari et al,				
2011	✓			✓
Giubilini et al, 2016				
Niccum et al,				
2017	✓			
Arnaert et al,				
2017				
Mattingly II et al, 2018				
D'Assunção et al, 2021				
Smith et al, 2021				
Wong et al, 2022				

Table 10c.
*Comparison of this study to audits of JEB courses taught at other health care programs**

Study	Course material	Evaluation of students by faculty^^	Review of LOs	Educational strategy>
Present study	✓			
Goldie et al, 2001				✓
Lehmann et al,				
2004				
Persad et al, 2008				
Kolva et al,				
2009			✓	
Preston-Shoot and McKimm 2010	✓	✓		
Busari et al,				
2011				
Giubilini et al, 2016				
Niccum et al,				
2017				
Arnaert et al, 2017				
Mattingly II et al, 2018				
D'Assunção et al, 2021				
Smith et al, 2021				
Wong et al, 2021				

*Methods used to conduct audits included surveys/questionnaire, scoping reviews and literature searches
**Presentation methods include lecture, small group sessions, online modules
+ Description of where in the curriculum courses are positioned
^ Assessment methods include written examinations, assignments
^^Faculty were surveyed on their perception of how prepared students are
>Examples include student and teacher -centred; problem solving; community-based

(median 27.5), were typically taught in the first year of medical school and the instructor had at least one publication on the topic of bioethics. Health law courses ranged between 2 and 60 hours (median 10.3), were evenly distributed throughout the four-year program and taught by an instructor with at least one health law-relevant publication.[80] Lastly, 66% of medical programs required coursework in health economics (not entrepreneurship or financial literacy), ranging between 0.5 and 32 hours (median of 8 hours).[80]

Preston-Shoot *et al*.[82] reported 26% of surveyed UK medical faculty believed students were 'well prepared' with respect to jurisprudence education, 47% reported they were 'adequately prepared' and 16% of faculty perceived students were 'inadequately prepared'. Among the 25 UK medical schools who participated in that review, 84% had not undertaken any systematic outcome study of law learning.[82] The dissatisfaction expressed by some respondents with respect to health law education was due to either inadequate time dedicated to it in the curriculum or the absence of law-related learning objectives.[82]

Twenty-two articles investigated bioethics courses. It is noteworthy that the introduction to virtually each article stated there is no standardized or agreed-upon best method to teach bioethics. As an example, Lehman *et al*.[79] conducted a survey of medical ethic education at American and Canadian medical schools and reported significant variation with respect to content, delivery methods and placement of courses within the curriculum. The researchers also reported only 48% of academic deans reported their schools formally evaluated student's moral reasoning and only a third evaluated student behaviour in ethically different scenarios.[79] Lastly, even within the same program, Lehman *et al*. reported there was often a lack of both coordination and integration of ethics education between preclinical and clinical courses.[79] To overcome this lack of coordination Wong *et al*. opined: *"A spiralled, vertically, and horizontally integrated ethics curriculum was widely hailed as the ideal pedagogical approach to teaching ethics"*.[90p170]

One startling observation was, of the 22 articles that discussed teaching bioethics, not a single one mentioned the importance of teaching bioethics as they apply to healthcare business practices and only one course of the many courses in the six reviews of business management courses taught to healthcare providers discussed 'business ethics' at all.[83]

The underlying theme of the 14 courses investigation the teaching of business principles to healthcare students was best captured in the following concluding statement: "*Management education in health care appears to be generally considered essential and necessary. There is, however, no clear consensus as to when in the medical education continuum, how, and for how long management education should be provided*".[91p186] Only one study discussed teaching entrepreneurship to students in general terms[92] and only two studies[86,93] presented topics for teaching financial literacy or business management skills needed to operate a successful clinical practice. Lastly, Kolva *et al*.[81] found only one of the business management course in their systematic review of the literature that reported long-term outcome measures of competency-focused curricula.

Table 11.
Recommended topics, methods of delivery and evaluation methods that could be used for chiropractic JEB courses, based on this audit

Course	Topics	Method of delivery	Evaluation methods
Jurisprudence	• Legal system • The 'Rules' • Record keeping • Consent, capacity, confidentiality • Scope of practice • Negligence • Sexual abuse • Insurance • Advertising/ marketing • Termination of doctor-patient relationship • Complaints • Discipline • What to do when things go wrong • Contemporary issues	• Lecture • Facilitated small group tutorials • Presentation of real-life scenarios	• Open book examination • Assignments • Attending Court Proceeding or Discipline Hearing
Ethics	• Ethics definitions • Ethical principles • Social contract • Codes of conduct • Privacy • Boundary crossings vs boundary violation • Professions • Professionalism • DEI, racism, cultural competency • Unethical practice activities • Contemporary issues	• Lecture • Facilitate small group tutorials • Presentation of real-life examples	• Lecture • Reflection • Assignments
Entrepreneurship	• Chiropractic as an Industry • Career options • Being a boss • Advertising/ marketing • Contracts • SWOT analysis • Demographic analysis • Communication skills • Office policies and procedure • Human Resource issues • Realistic graduate expectations	• Lecture • Workshop/Seminars • Clinical preceptorship • Self-directed learning	• Business Plan • Marketing Plan • Assignments
Finances and Accounting	• Financial literacy • Taxes • Investment strategies • Financial analysis, forecasting, and management • Budgeting • Accounting principles • Investment strategies • Retiring with financial security	• Lectures • Workshops • Seminars • Online • Self-directed learning	• Class participation • Assignments • Personal budget • Finance Plan

Potential applicability of the results of this study

The results of this study could potentially be used to move toward a standardized or 'model curriculum' for chiropractic JEB courses. One potential use of this data would be for course coordinators, departmental chairs and curricular planners to identify gaps in the JEB courses taught at their respective chiropractic program and fortify each course as need be. Table 11 provides examples of possible topics, delivery methods and evaluation strategies that could be incorporated into chiropractic JEB courses, based on the findings of this audit. Curricular gaps could also be identified by surveys of students, faculty and external stakeholders. Learning objectives for each JEB course should be well-articulated and align with the meta-competencies of each chiropractic program. Objectives measures of student performance should be conducted and changes to courses made accordingly.

Accrediting agencies could use the information in this

study to develop more precise competencies that must be met while not infringing on the academic freedom of each chiropractic program.

Leveraging the results from this study, subject matter experts (SMEs) could conduct workshops at international conferences and reach consensus on a standardized or model JEB curriculum, mirroring the process used by a group of technique faculty that reached consensus and recommended a standardized curriculum for teaching chiropractic technique.[94] Alternatively, a Delphi process could be used, developing seed statements and recommendations that would be rated by SMEs worldwide. A similar process was recently used by Hawk *et al*.[95] that developed clinical practice guidelines for the role of chiropractic care for health promotion and clinical preventive services for adult patients with MSK pain. That said, one obstacle to developing a standardized or model JEB curriculum is the significant differences between jurisdictions worldwide with respect to legislation, especially scope of practice.

Limitations

There are several limitations to this study. Since I asked for the submission of JEB course content once, this audit was essentially only a snapshot. It is possible course outlines changed in the meantime. It is possible there was some confusion among respondents who only provided outlines for the jurisprudence and ethics courses but not business management courses, or the other way around. It is also possible that the person who responded to my request was not aware of other courses in the chiropractic program that taught the requested information. As an example, Sikorski *et al*.[77] published the results of a survey of chiropractic students' perception of their business preparedness. In that article, Sikorski *et al*.[77] listed and described nine business management courses, a number of which were not provided to me for review in this study. Similarly, some content may be purposefully not taught in JEB courses since course coordinators may know it taught elsewhere; for example, issues surrounding child abuse may be taught in courses on pediatrics.

The methodology used in this study could not capture JEB course content provided to students by faculty on an ad hoc basis throughout a chiropractic program, and it is entirely likely that supervising clinicians or external preceptors (e.g. approved field doctors) provide senior students/interns with advice and guidance related to these topics during their placements.

Some course outlines provided for review were relatively vague with respect to their topical outlines, and it is possible not all subjects presented during class were listed in the course syllabi. For example, it is highly unlikely a jurisprudence course would not cover consent, record keeping and negligence, and yet not all jurisprudence course outlines listed those topics. However, similar to the comparative audit previously performed, I resisted the temptation to contact course coordinators for clarification, since it is possible they would state that pertinent subjects were in fact discussed but not listed even if they were only discussed in passing, lest they give the appearance their course is not comprehensive.

It is possible chiropractic programs not included in this audit would have provided sufficient information to have altered the results. A more thorough Internet search may have led to JEB course coordinators from chiropractic programs who did not respond to my request to participate. Limiting this study to English-only course outlines may have also have impacted this study's results. Future studies could endeavour to include non-English JEB course outlines.

A significant limitation of this study is the fact I was the only person to extract and compile the data. This resulted in a lack of triangulation. Thus, despite my best efforts, it is entirely possible there were errors during the review of course outlines as well as during data extraction and compilation.

Conclusions

Compared to the comparative audit I conducted previously there has been a significant increase in both the number JEB courses offered and the depth to which they are taught. However, there was also an increase in curricular variability between chiropractic programs. Although some chiropractic programs provide robust jurisprudence or ethics or business management course(s), no one program provides a robust program in all three.

Although there has not been shift toward a standardized or model JEB curriculum, the results of this comparative audit may facilitate various processes that ultimately lead to a standardized or model JEB curriculum in terms of course structure, topics, methods of delivery and evaluation that all chiropractic programs can adopt.

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Appendix 1.
Literature search strategy

Searched PubMed using following MeSH terms, filtered 'best match'

A.	Jurisprudence
	((((“Curriculum”[Mesh]) OR (“Models, Educational”[Mesh])) OR ((“Teaching”[Mesh]) OR “Education”[Mesh]))
	AND (((“Students, Medical”[Mesh]) OR (“Education, Medical”[Mesh])) OR (“Students, Health Occupations”[Mesh])))
	AND ((“Jurisprudence”[Mesh]) OR (law*[Title/Abstract] OR legal*[Title/Abstract]))
B.	Ethics
	((((“Curriculum”[Mesh]) OR (“Models, Educational”[Mesh])) OR ((“Teaching”[Mesh]) OR “Education”[Mesh]))
	AND (((“Students, Medical”[Mesh]) OR (“Education, Medical”[Mesh])) OR (“Students, Health Occupations”[Mesh])))
	AND ((((“Ethics”[Mesh]) OR (“Ethics, Clinical”[Mesh])) OR (“Ethics, Business”[Mesh])) OR (“Ethics, Medical”[Mesh]))
C.	Business
	((((“Curriculum”[Mesh]) OR (“Models, Educational”[Mesh])) OR ((“Teaching”[Mesh]) OR “Education”[Mesh]))
	AND (((“Students, Medical”[Mesh]) OR (“Education, Medical”[Mesh])) OR (“Students, Health Occupations”[Mesh])))
	AND ((((“Practice Management”[Mesh]) OR (“Entrepreneurship”[Mesh])) OR (“Small Business”[Mesh])) OR (“Commerce”[Mesh]))