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## ORIGINAL ARTICLE

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### Chiropractic and osteopathic students' perceptions of readiness for transition to practice: *The educational value of university clinic vs community and private clinics\**

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**Objective:** The objective was to determine final-year students' self-perceptions of readiness for transition to practice, professional identity, and experiences of interprofessional clinical practice. Findings will inform the clinical education curriculum.

**Methods:** We used repeated measures individual case studies with a self-selecting sample from the total final-year student population at 2 chiropractic and 2 osteopathic programs offered by Australian universities. Cases were not compared. Amalgamated data are presented.

**Results:** There were interviews with students in 2 chiropractic programs ( $n = 15$ ) and 2 osteopathic programs ( $n = 13$ ). Perceptions indicate that clinical education in university health clinics prepares them for transition to practice through scaffolded supervision of their consultations with reasonably healthy patients. Students perceived that other clinics (community clinics or private practices) prepared their readiness for transition to practice substantially better. Community clinics and private practices allowed students to consult people from diverse socioeconomic and cultural backgrounds and treat complex health care issues, and the model of supervision allows students a degree of autonomy. Students lacked a clear understanding of the behaviors that demonstrate their professionalism. Interprofessional learning activities were ad hoc and opportunistic.

**Conclusion:** University health clinics, private practices, and community clinics prepare students for transition to practice in different ways. Most students feel prepared. There is a clear indication that a focused discussion related to the development of students' understanding of competencies related to professionalism and another related to interprofessional clinical education in curriculum are needed.

**Key Indexing Terms:** Chiropractic; Education; Clinical Competence; Interprofessional Relations; Osteopathy

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### INTRODUCTION

Expected Competencies Standards for Graduating Chiropractors<sup>1</sup> and Capabilities for Osteopathic Practice are clear<sup>2</sup> and are reinforced by the Australian Health Practitioner Regulation Agency's Codes of Conduct for Chiropractic<sup>3</sup> and for Osteopathy.<sup>4</sup> Students' competencies and capabilities are delivered mainly through participation in the student-led clinics at university health clinics (UHCs), a mainstay of allied health preprofessional education in Australia and other countries.<sup>5</sup>

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Beyond profession specific requirements, in Australia, the overarching framework for clinical education experiences, also known as work-integrated learning, is quality assured against the Higher Education Standard Framework<sup>6</sup> and the associated Guidance Notes for Work Integrated Learning.<sup>7</sup> The Higher Education Standard Framework section 1.4 states,

Learning outcomes and assessment states specific learning outcomes for each course of study are expected to align with the knowledge and skills graduates need to learn and their ability to apply the knowledge in an employment situation relevant to the discipline.

The capabilities expected for graduate chiropractors<sup>1</sup> fall within 5 domains: practicing professionally; com-

munication, collaboration, and leadership (communicates with patients and others); clinical assessment; planning care; and implementing, monitoring, and evaluating care.

The capabilities expected of graduate osteopaths<sup>2</sup> fall within 6 domains: clinical analysis; person-oriented care and communications; osteopathic care and scope of practice; primary health care responsibilities; interprofessional relationships and behavior; and professional and business activities.

Clearly, there is much for the student to practice and master, and this is coupled with the weighty responsibilities that clinical supervisors have for the quality of health care that students provide patients. Hence, it is critically important to ensure that students practice safely and at the same time learn as much as they can through their various clinical experiences. To do otherwise is to squander the limited resources and the opportunities available to students. For that reason, clinical teaching and learning practices must be exemplary and subject to regular quality assurance review.

Across the Australian higher-education sector in all health disciplines, there are difficulties in sourcing student clinical placements. On-campus clinics are considered by many to be a viable alternative to clinical education in other settings, as they reduce the need to engage or rely on external partners.<sup>5</sup> Moreover, many academics and clinicians are of the view that on-campus UHCs offer superior education, more equitable teaching, and opportunities for authentic assessment practices than offered in other settings.<sup>5</sup> However, conclusive evidence of the comparisons between the learners' experiences and the educational outcomes achieved is not yet available. It is therefore critical to demonstrate what it is that students learn best through these student-led clinics in on-campus UHCs compared to other types of clinics they attend as part of the clinical curriculum at each university.

Clinical programs are often referred to as a major component of a program's budgetary requirements. Justification of certain elements in a clinical program may be required by hierarchies of an institution. It is envisaged that our contribution will add to other evaluation data about clinical education in chiropractic and osteopathic programs and will enable academics to improve program services, practices, and approaches for clinical education programs. Furthermore, it may support arguments for varied clinical placements across clinical facilities.

Due to the extensive resourcing and high expectations, measuring the impact of clinical education is topical, as evidenced by contemporary reporting of the efficiencies of clinical education with some studies undertaken in Australian institutions.<sup>8</sup> Furthermore, the constant national focus on curriculum alignment with graduate employability is evident in reports on assessment, learning, and employability.<sup>9-12</sup>

The number and type of cases seen by Australian chiropractic and osteopathic students learning through student-led clinics in UHCs and other clinical settings

can be expected to directly influence the development of their related competencies. Yet we know only a little about the educational outcomes of clinical education offerings in UHCs<sup>5</sup> or any other setting in any formal sense.

Exclusivity of 1 type of clinical placement may not provide the best preparation for the professional context.<sup>5</sup> Furthermore, with no chiropractic or osteopathic internships available within hospitals in the Australasian context (and none likely within the foreseeable future), the role of the UHCs, community placements, or private practice (PP) placements in providing a quality clinical experience toward graduate preparedness cannot be underestimated or undervalued.

Chiropractic and osteopathic programs must ensure that their students graduate with core knowledge and a skill set that is sufficient to perform the professional obligations as stated earlier. The overarching question posed by academics in both health professions is, are the variety and complexity of the cases comparable with those seen in PP?<sup>13</sup> Puhl et al<sup>14</sup> argued that chiropractic programs ought to be designed to provide a diverse patient base reflective of private clinical practice, a sentiment that echoes comments made more than a decade earlier about the need to broaden chiropractic clinical training through diverse clinical settings and access to different patient populations.<sup>15</sup> There is limited commentary on these matters in the osteopathic literature.

Apart from clinical skills in any health profession, the development of a professional identity is a marker for readiness to transition to practice. It also has implications for "standards of professionalism, patient care and work satisfaction."<sup>16</sup> Despite the importance of this marker, it appears that neither chiropractic nor osteopathic students have clear understandings or shared views of their professional identities.<sup>17-19</sup> In medical education, Irby<sup>20</sup> comments on the explicit cultivation of a professional identity, a process involving the mastery of competencies and adoption of the values and behaviors of the professions, and these matters are also essential in the education of chiropractors and osteopaths. It is therefore important to understand the degree to which students perceive that they develop a professional identity.

Interprofessional learning in the health sciences has been a focus of continued interest for more than 30 years<sup>21</sup> with educators and researchers examining various aspects of the practice, including the facilitation, evaluation, and enhancement of interprofessional education in health. Recently, papers on the topic have included an examination of economic models for sustainability<sup>22</sup> and the issues of funding and timetabling.<sup>23</sup> A study in osteopathy found that students were positive toward developing interprofessional relationships.<sup>24</sup> A recent study in chiropractic<sup>25</sup> identified that only low-level and nonformalized interprofessional education (IPE) opportunities were available to students. Generally, students perceive IPE in UHCs as valuable regardless of their disciplines and appreciate the insights they gain into other professions as a means of providing better and safer

patient care.<sup>26</sup> The extent of interprofessional clinical education opportunities available to students in chiropractic and osteopathy is yet to be confirmed.

The aim of this study is to critically examine students' perceptions of the educational value of UHCs vs other placements in PP, community, or hospital clinical placements in regard to the development of clinical skills, professional identity, and interprofessional experiences. We do not assess students' capabilities or draw information from academics or other stakeholders.

This initiative is designed to contribute to the role of higher education in preparing graduates of the future for employment; thus, the data provide a background for a broader study.

## METHODS

A qualitative exploratory descriptive design was used as the overarching framework for this research, which uses multiple and repeated case studies to incorporate multiple disciplines and universities. This approach was selected because it is a suitable approach when little is known about the phenomena and where data are too complex to be captured using other methods.<sup>27,28</sup> The entire study consists of 2 phases. The objective of phase 1 was to determine final-year students' pregraduate perceptions of 3 aspects of their clinical education program: 1) readiness for transition to practice: what clinical skills they think are most necessary and how they acquired them; 2) professional identity: what professional skills do they consider most pertinent and how they acquired them; and 3) how prepared they are to engage in interprofessional practice: the extent of interprofessional clinical education and how important they regarded that experience.

The objective of phase 2 is to compare their perceptions after some time in graduate practice. In phase 2, interviews will be conducted with the same cohorts of students in 2019 after they have been in practice for up to 1 year. Participants' responses to interviews in phase 1 will be matched and compared. Phase 2 data will be reported in a following paper.

Ethics approval was obtained from Southern Cross University Human Research Ethics Committee: ECN-17-165 in the first instance, and then each partner university applied for minimization of duplication of ethics approval from their ethics committees. All participating universities received approval. The study is designed to answer questions related to the development of clinical skills, professional identity, and interprofessional practice. The 3 questions are the following:

1. To what extent does clinical education delivered through student-led clinical services offered in UHCs contribute to the development of students' readiness for transition to practice?
2. How do the UHC education experiences compare to the education experiences in other clinical settings?
3. How can clinical education programs be improved to better prepare students for transition to practice?

## Interviews

Interview questions were developed from the literature review pertaining to clinical education, transition to practice, and developing student professionalism. The mostly qualitative questions were assessed for validity by an expert panel of clinical education academics across allied health disciplines at the partner institutions and among a reference group of academics at other universities. As this study involved students from 2 different health professions across 4 universities, it was critical that the interviewers ensured that the interviewees understood the educational terms used prior to responding to the closed- and open-ended questions. For that reason, the line of inquiry specific for the student cohort was then piloted through interviews with a few current students and new graduates from osteopathy and chiropractic.

To enhance confidence that the data collected remained confidential to each partner institution, each was provided with a separate online interview data collection tool developed in Qualtrics software.<sup>29</sup> Access was given only to the interviewer of that university's students. Interviews were conducted by each member of the research team. Interviews were conducted face-to-face at 1 institution (interview was audiotaped, then transcribed), and at the other 3 institutions interviews were recorded in writing in the online interview data collection tool via the use of the Zoom meeting capability.<sup>30</sup> This novel approach to interviewing using a Zoom meeting and document sharing tools (to allow the sharing of the Qualtrics interview data collection tool) enhanced the research in the following ways:

1. It allowed the interviewee to both read and hear the questions asked and to ask for clarification if necessary.
2. It allowed the interviewee and interviewer greater flexibility and convenience in when they could meet.
3. It permitted immediate member checking, as it allowed the interviewee to see what was being typed.
4. It negated the need for the interviews to be transcribed by a third party at additional cost.
5. It significantly reduced costs and time.

## Participants

Due to their extensive engagement in the clinical education program, the target student cohort consisted of all those in the final 6 months of their clinic program at each institution. This purposeful sampling enabled the researchers' access to those who had an experience with the phenomena of interest to then develop a rich description of the phenomena of clinical education.<sup>31</sup> The contact academic at each partner institution was asked to distribute an e-mail to all final-year students to advise them of the study. In the e-mail, students who were interested were asked to contact the designated interviewer directly to arrange a time for their interview. As is typical in case study methodology, recruitment, and interviews with students were continued until data

**Table 1 - Participants by Case Study, Discipline, and Institution**

Case Study	Discipline	(n = 28)
A	Chiropractic	8
B	Chiropractic	7
C	Osteopathy	6
D	Osteopathy	7

saturation occurred, which is when no new information was given.<sup>27</sup>

### Analysis

After interviews for the first case study were completed, 2 of the researchers independently manually analyzed the data and then met to discuss similarities and differences and to reach consensus on coding, themes, and the general approach to analysis. Then, after each subsequent set of data was collected, data were manually analyzed by the designated interviewer before working in dyads to confirm consensus. Throughout various iterations of each research team member's inductive analysis,<sup>31</sup> each analyst employed critical and reflective thinking to constantly self-assess and thereby reduce researcher bias. None of the interviewers had any role in clinical or theoretical training of the students they interviewed. Data collection and preliminary analyses were undertaken by NH (case A), KM (case B), LH (case C), and KM (case D).

## RESULTS

### Demographics

Interviews were conducted at 4 Australian universities, 2 chiropractic institutions ( $n = 15$  students), and 2 osteopathic ( $n = 13$  students) institutions; see Table 1. The chiropractic students spent the majority of their clinical education hours in student-led clinics in UHCs and in university-organized student-led clinics in community

clinics (CCs). Similarly, the osteopathic students spent the majority of their clinical education hours in student-led clinics in UHCs. They also spent time in PP for observation purposes only as in case study C or as interns in PP as in case study D. A few students in case study D attended university-organized student-led clinics in CCs like the chiropractic students.

### Readiness for Transition to Practice

Students were asked to give a global rating of the extent to which the UHCs and other clinical settings prepared them for transition to practice, and the results are presented in Table 2. Data show that students' sense of readiness for transition is developed in UHCs as well as in other clinics, though they emphasize the CCs and PP.

Students were asked to list what they considered the top 3 clinical skills needed in practice, and the results are presented in Table 3.

Students used various terminology to identify skills and approaches to clinical practice. Analysis showed that students consider their ability to communicate as their top clinical skill, with their "knowledge," their ability to apply the knowledge, and time management as other skills they value.

The dominant theme identified in the students' responses was that all clinical experiences (consultations with patients) prepared their transition to practice, but that clinical settings other than the UHC offered superior preparation. In all cases, students acknowledged that the UHC provided them with opportunities to learn from reasonably healthy patients. Students in cases A, B, and D attended CCs and consulted with people for sports injuries or provided health care to people living in remote locations or those who were homeless who often had associated addictions and mental health issues and, in case D, had internships in PP. Those students reported that they learned to deal with more complex health concerns and that these encounters exposed them to the types of patients and health concerns they were expected to manage in graduate practice.

**Table 2 - Students' Sense of Preparedness for Transition to Practice by Clinical Setting**

Rating Scale	Case Study			
	A (n = 8)	B (n = 7)	C (n = 6)	D (n = 7)
University health clinics				
Extremely well			5	
Very well	2	6		
Moderately well	4	1		6
Slightly well	2		1	
Not well at all				1
Other clinics (community clinics and private practice)			n = 5	
A great deal	4	2	1	4
A lot	2	3	3	3
A moderate amount		2	1	
A little	2			
None at all				

**Table 3 - Student's Perception of the Top 3 Essential Clinical Skills**

Student	Skill 1	Skill 2	Skill 3
Case A			
1	Taking a really good history	Being able to relate to the client	Execute treatment appropriately
2	Clinical knowledge	Communication with patients	Know everything—constantly upskilling and staying on top of the evidence and new techniques
3	Communication	Treatment	Diagnosis
4	Knowledge	Adjusting skills	More time in the clinic
5	Being able to adjust	Assessment and diagnosis	Communication
6	Communication	Confidence	Efficiency
7	Working diagnosis and differential diagnosis	Improve as much as possible the patient condition	Effective communication
8	Communication	Knowledge	Clinical thinking
Case B			
1	Diagnosis	Communication	Manual therapy
2	Manual therapy	Communication	Diagnosis
3	Communication	Manual therapy	Patient education
4	Communication	Manual therapy	Mentoring
5	Communication	Knowledge	Manual therapy
6	Manual therapy	Communication	Hardworking and empathetic
7	Communication	Identifying red flags and pathology	Manual therapy
Case C			
1	Treating primary dysfunction	Being efficient and effective	Being true to osteopathy
2	Communication	Overall patient management	Time management
3	Techniques	Communication	Diagnostics
4	Empathy	Clinical knowledge	Practical competency
5	Communication skills	Creating a working diagnosis in the clinic room	Practical skills—being able to treat patients
6	Palpation	Anatomical knowledge	Empirical research to remove bias
Case D			
1	Ability to diagnose accurately	Communication to facilitate each aspect of the consultation	Time management
2	Communication	Assessment and Treatment	To continue my education—keep looking and learning
3	Communication	Time management	Continuous learning
4	Communication	Good examination skill	Good treatment skills
5	Communication	The management of the paperwork	The wholistic approach to health care
6	Communication	Clinical reasoning	Palpation
7	Communication	Manual therapy skills—technique skills	The ability to use evidence-based medicine

About developing communication skills, 1 student reported,

My experience at XXX has been VERY helpful. People there are hard to communicate with—they are a challenge. Relaying information to these people requires a lot of pre-thought and requires simplicity to not confuse or overwhelm them. It helped me develop communication skills to provide information in the easiest manner. Drugs and mental health issues impede normal communication. —Student 3, case study B

Students placed in the aged care setting felt challenged to improve their communication skills to treat this population. One said,

Being able to learn how to work with elderly patients. . . . I guess just communication . . . , learning how to ask questions or make it easier to understand . . . being able to modify your treatments. —Student 7, case study A

The community placements and internships were reported to foster independence with students feeling that it gave them a sense of professional legitimization. Analysis of each case study revealed how students developed their sense of readiness and their clinical skills. The 3 emerging themes are presented in the following sections.

### Clinical Results

When there were good patient outcomes, it was a positive experience in the UHC:

I had an acute patient. But until you actually see someone who's . . . got a fair bit of pain in front of you . . . helping them was probably my biggest learning experience. —Student 8, case study A

About the UHC, another said,

I had a patient who had not slept in 5 years due to pain intensity. They had had a lot of therapy and medications. They came in depressed. In 3 treatments they improved and felt much better and slept better. It was very rewarding.

It was motivating and amazing how I could make a difference to someone's life. —Student 2 Case B

### Case Mix and Volume

The patient case mix was also a negative factor for students. Often, in the UHCs, the patients were familiar to the students:

Unfortunately we treated a lot of fellow students rather than genuine patients. This reduces the impact of the learning. —Student 2, case study D

One student commented on the patient case mix and how it affected their skills development:

We do a lot of hours, but unfortunately with the same patient group. We don't have a huge variety. That is [only] good when we start out to build our skills and confidence. —Student 1, case study D

However, the high number of students rostered for the small number of patients was a drawback in cases A and D, and this lack of patient interactions in the UHC affected student engagement and motivation:

I hate [UHC], it was terrible . . . there is 110 of us, [and], not enough patients. —Student 4, case study A

An initiative within the UHC to address the imbalance of students to patients was social learning through peers “co-treating patients”:

I think the co-treating was a really awesome idea. Both for numbers obviously but you kind of get to sit in and see other students' perspectives and how they're treating and any feedback they've got for you and things like that. —Student 2, case study A

### Other Influential Factors

A few discussed the difference in the length of the consultation in the UHC vs the “real world” and the cumbersome case note systems. For example,

[At the UHC] Streamline the consultation process so it doesn't take as long. No one wants to sit in our office for 1.5 hours and not get treated. . . .

[At CCs] Time management—doing a thorough history exam—writing a brief management plan that covered all the bases. It was better because our notes were on paper not at the computer—better interaction. —Student 2, case study B

In the main, all patient interactions in the UHC were seen as important for their preparation, and the resultant feedback from their supervisors was regarded as contributing toward preparedness, although the UHC was seen as too restrictive for some:

There is the same degree of supervision, so we don't get to increase our autonomy. Again, good in the beginning but not toward the end of 5th year. —Student 1, case study D

[At CCs] It helped me be autonomous and developed my time management skills because the consults were shorter. You had to be concise. —Student 5, case study D

Of concern, mainly in the community programs, was clinical supervisors providing a different perspective to chiropractic that contravened what was taught in the program. This included different types of chiropractic techniques and approaches to patient care that were not part of the curriculum.

One participant from case study A reported that none of the clinical placements prepared them adequately for transition to practice. One participant from case study C had engaged in only clinical placements in the UHC and so could not comment on other placements.

### Professional Identity

Students were asked to list what they considered the top 3 behaviors that would signal to others their professional standing. The extent to which these professional skills were developed in each type of clinical setting is presented in Table 4. All interviewees noted that some students were unable to clearly articulate the professional behaviors required (Table 5), many regarded “communication” as a professional behavior, and others mentioned that their appearance and manners mark their professionalism. Apart from case C student cohorts, other cases identified the CCs as places in which they developed their professional identity the most. The 2 themes that emerged

**Table 4 - Development of Top Professional Skills by Clinical Setting**

	Case Study			
	A (n = 8)	B (n = 7) <sup>a</sup>	C (n = 6)	D (n = 7) <sup>b</sup>
University health clinics				
Extremely well	1		2	
Very well	2	3	3	4
Moderately well	2	3	1	2
Slightly well	3			
Not well at all				1
Other clinics				
A great deal	3	4	1	5
A lot	1	2	2	1
A moderate amount	3	1	2	
A little	1			
None at all				

<sup>a</sup> Only 5 students responded to this question in the section of the interview about experience in other clinics.

<sup>b</sup> Student 3 added, “I still very much feel like a student. I feel like I have not yet got a professional identity. I feel like I am still being watched over, which is good, but have not yet developed my professional identity.”

from the case studies are presented in the following sections.

### Patients' Expectations

The challenges afforded in the CCs tended to assist in the development of professional identity. For example, when consulting a patient who was new to chiropractic,

A lot of the patients had no idea what Chiro's did. It was a free clinic and we had to be confident in what we did and said and it made us confident in talking about Chiro. —Student 1, case study B

One student perceived the difference in expectations of them as student practitioners in the outside clinics in comparison to the UHCs:

There is a greater onus to be professional, because you are seeing real patients, not just other students and familiar patients. [And] being in a real clinic makes it a must do rather than a should do. —Student 7, case study D

That student also perceived the clinical supervisors at the outside clinics in a different light:

Consulting patients and also observing how the other osteos communicate with their patients as well. Seeing how real professional interacts. —Student 7, case study D

There was a sense that it was “more real” in the outside clinics compared to the UHC:

More real interactions with real patients—authentic clinical experience. —Student 2, case study D

The constant flow of patients—we are all fully booked each shift. We have to see the patients and do the notes and you get into a system. People with genuine problems. —Student 6, case study D

Another student had an enthusiastic response to the community setting in relation to developing professional identity. This student developed humility through engaging with a patient population in an aged care setting:

It's reinforced in me that the reason I do this is because I deeply care about people. [It] is a very . . . humbling thing to do. —Student 1, case study A

### The Influence of the Clinical Supervisor

The influence of the clinical supervisor was raised by some who related that the UHC experience had a greater influence on the development of their professional identity not by example but more by how they did not want to develop from their experiences and examples:

I guess it's taught me ways that I didn't want to practice . . . there are some clinicians who you kind of know that that's not really the way that you're going to treat patients or even just the modalities that they're using. Or the techniques that they're using. —Student 2, case study A

Not all felt that the UHC assisted in their professional identity. There was a sense that it did not provide authentic patient experiences, that it was task dependent and a requirement:

We need to tick the boxes, we need the numbers. That almost seems more important than the patient. Especially when the patient aren't real. —Student 3, case study A

What was profound from the students from case study C was some of their perceptions of the external practitioners/supervisors in comparison to those supervisors in the UHC:

I think that the time when I observed the practitioner who had no regard for the patient, I realized that I do not want to be like that. I took notice of the patient's body language and could see he/she was uncomfortable. —Student 2, case study C

**Table 5 - Student Perception of the Necessary Top 3 Professional Behaviors**

Student	Professional Behavior 1	Professional Behavior 2	Professional Behavior 3
Case A			
1	Confidentiality	Being up to date	Communication
2	Responsibility	professional	Rapport
3	Building rapport	Confident and competent	Responsible, authentic, trustworthy
4	Doctor–patient relationship	Knowledge	Skills
5	Competence	Ethics	Workplace etiquette
6	Respect for religion, race, different sex	Your own timekeeping skills	Honesty
7	Empathy	Diagnosis	Professionalism
8	Competent	Confidentiality	Represent a profession
Case B			
1	Communication	Respect to patient	Integrity
2	Knowledge	Open minded	Pleasant disposition and empathy
3	Confidence in my decision making	Independence	
4	Composure in clinic	Interdisciplinary communication	Professional presentation of self
5	Continuing to learn	Patient-centered care	Communication
6	Communication	Empathetic	Organized and confident
7	Communication	Professional relationships with clients	Continually learn
Case C			
1	Respectful advocate	Creating a clear pathway for patients	Not being judgmental
2	Communication	Patient handling—making sure they are comfortable and attending to modesty	Being safe and competent in the treatment you are providing
3	Safety	Ethics	Communication
4	Thorough and efficient at the same time	Ability to listen	Presentation—look like you know what you are doing
5	Communication	Respect—not being condescending	Boundaries
6	Understanding boundaries with the patients	Anatomical knowledge	Interdisciplinary knowledge and understanding
Case D			
1	The language you use	Time management	Record keeping
2	Listening and being open to communication; respectful	Nonjudgmental of patients; lead by example	Practice what you preach
3	Adequate training in their field	Communication	Interpersonal skills; continual learning
4	Being respectful of patients	Equal first: maintaining confidentiality; keeping up to date	Knowledge and skills
5	Honesty	Empathy with others	Decisiveness
6	Being personable	Biopsychosocial model of osteopathy	
7	Language	Body language	Physical appearance

### Interprofessional Learning

Students' engagement in IPE is mixed both in UHCs and in other clinical learning settings (Table 6).

Even though a few students were dismissive of the notion of IPE, the key theme identified that there is value in IPE. Those who did have opportunity identified such experiences made them realize their scope of practice and their limitations and that they should not operate in a silo. Thus, participating students realized the value of working with other health professions. One student said,

I think they are hugely important. The industry has a problem as its divided from main-stream health care. To have Interprofessional communication is important. Be able to liaise with them about what they are doing and what we are doing.

To learn how two professions can cross over to help patients.  
—Student 3, case study B

Another said,

Definitely important to know our scope of practice and where it ends. You need to be able to identify where another health professional is needed. —Student 1, case study D

Yet another said,

In clinical practice, I intend to work with a multi-disciplinary support team with the patients when necessary. Holistic Care.



Plenty of patients will need other disciplines for their problems.  
—Student 3, case study C

Of the few students who had IPE experiences in the UHC, 1 reported,

I observed a couple of exercise physiologist's appointments. Some were as patients of mine who had been referred.  
—Student 2, case study C

Regarding CCs,

Wish we had had the opportunity to work with OT and Physio for falls prevention and community programs to give us a better understanding of how we can refer our own patients to these professionals and get a better understanding of their Scope of Practice. —Student 7, case study B

Regarding PP,

In a multi-disciplinary practice I saw an acupuncturist at work. I was allowed to sit in on a consult. —Student 6, case study C

Only 1 student mentioned a specific learning objective related to IPE and reported that it was a valuable exercise:

[In the UHC] We are pushed to do Interprofessional activities. We need to write (5) referrals to GP or another health professional—it's mainly to GP. We let our clients know we will be happy to refer to physios to co-manage their health concerns. This is in the conversation when we sum up the findings, risks, how Chiro can benefit and that you may need referral or co management. —Student 6, case study B

## DISCUSSION

### *Readiness for Transition to Practice*

Regardless of setting, students acknowledged that it is critical to have good clinical educators. Although this was not a question that was posed, students spontaneously reported their experiences of the impact of supervision, both good and bad. This finding is consistent with the current views in the literature.<sup>32,33</sup>

Exposure to patients was the key activity that helped develop a sense of professional identity and their readiness to transition to practice. The clinical supervision provided in the UHCs tends to be scaffolded as students develop their clinical skills consulting with the “walking well” or “worried well,” that is, patients presenting with uncomplicated health concerns. Students were dissatisfied with the lack of case diversity and the less intense environment. This sentiment echoes chiropractic research several decades ago in North America<sup>34</sup> that patients in chiropractic

**Table 6 - Students' Interprofessional Education Experience in University Health Clinics (UHCs) vs Either Community Clinics and Private Practice**

	Case Study			
	A (n = 8)	B (n = 7)	C (n = 6)	D (n = 7)
UHCs				
Yes	5	2	4	1
No	3	5	2	6
Other clinics			(n = 5)	
Yes	1	6	1	6
No	7	1	4	1

teaching clinics were typically younger with mild presenting complaints and not representative of those seen by chiropractic practitioners.

Students were unhappy about the higher number of students in relation to patients in the UHC and in case B, where they were required to consult with a preset number of cases, and they called in family and friends when they would rather have treated others who are less familiar. Such matters were considered a drawback to their development and preparation to transition to practice.

On the other hand, the demands in the CCs and PP tended to be more intense, and students were required to deal with more complex types of patients with diverse health needs working under varying models of supervision that in the main gave them more autonomy (cases A, B, and D). Students reported that the low ratios of students to supervisors, the direct contact, and the modeling available in CCs and PP assisted with developing professional clinical skills and professional behaviors.

Complex patients in the community settings required the student to interact differently and perhaps more professionally. Thus, in all cases, students reported that they highly valued the opportunity to learn in CCs and PP and regarded the experience as the quintessential experience needed for their development of the necessary clinical skills and professional attributes. Some opportunities to work in CCs and PP came earlier in the curriculum for some students in different cases than others. Opportunities were asynchronous. Thus, some students completed their CC or PP experience and then returned to the UHC for the final hours, and this seemed to some to be reverting back to an inflexible supervisory model that limited their skill development and learning (cases B and D).

Across the board, the students' perception of what constitutes the top 3 clinical skills expected of them aligns to some degree with the competency standards for chiropractors<sup>1</sup> and, when relevant, the capabilities for osteopaths.<sup>2</sup> In this study, though, students' inability to articulate the skills was noted, and many also confused clinical skills with professional behaviors.

### *Professional Identity*

Across the board, the students' perception of what constitutes the top 3 professional behaviors expected of

them is inconsistent with both the competency standards for chiropractors<sup>1</sup> and the capabilities for osteopaths.<sup>2</sup> The professional behaviors the students perceive they need to display show only a cursory understanding, and this is consistent with the theme of other literature.<sup>17,18,35,36</sup>

The most quoted professional behavior across all disciplines was “communication” with various iterations and synonyms. Of interest is the reference by several of the need to be “competent” as a professional behavior. Professional boundaries, the need to be respectful, and confidentiality were commonly reported. Disturbingly, none mentioned that professional practice required them to behave legally with safety and efficacy, and only 2 participants directly mentioned ethics.

Students developed their professional behaviors in UHCs even though it tended to be slower paced with fewer patient interactions and a more familiar and healthier patient cohort, often of peers and family members. Professional skills were developed more through the fast pace in the community placements, through access to more and unfamiliar patients limited consultation times and busier patient flow. This has been commonly found in other studies as disadvantages of the institution-based clinics and advantages of community-based clinics and hospital placements.<sup>16</sup>

Students and academics alike desire students to be exposed to diverse patient populations, often with comorbidities, to assist in developing students’ clinical and professional skills, competence, capability, and confidence: the feeling of being more clinically prepared. Academics and students alike know that the foundation of skills attained through a scaffolded program with placement in the UHC can also contribute to this preparedness. Exclusivity to 1 type of clinical placement, such as a UHC, may not provide optimal student preparation for the professional context and may even be considered suboptimal. The importance of providing a wide range of learning opportunities for students cannot be underestimated. Such opportunities enable students to have wide exposure relevant to the full gamut of possible scenarios expected to be encountered in graduate practice. Providing a wide range of experiences will ensure students’ ability to meet graduate expectations; thus, graduates will be fit for the purpose: well prepared primary care chiropractic or osteopathic physicians.<sup>1,16,37,38</sup>

### **Interprofessional Education**

Although required by the Competency Standards for Chiropractors s 2.2<sup>1</sup> and inferred in the Capabilities for Osteopaths section 3.3—“Recognises and acts within scope of osteopathic practice”<sup>2</sup>—this study identified that IPL was generally low level and nonformalized in the UHC, CCs, and PP. In all case studies, this finding is consistent with earlier studies in chiropractic.<sup>26</sup> We have no data in osteopathy. Consistent with the findings from this study, there is consensus that students perceive IPE in UHCs as valuable regardless of their disciplines and appreciate the insights they gain into other professions as means of providing better and safer patient care.<sup>23,24</sup>

On the basis of the irregularity of the chiropractors’ and osteopathic students’ participation in IPL, we argue that the core concepts that underpin the interprofessional curriculum—to improve patient safety, patient-centered care, and treatment outcomes—are the same concepts at the core of the preprofessional chiropractic and osteopathic curriculum. Patients attend manual therapy practitioners for treatment of a wide variety of health concerns but mainly for musculoskeletal pain.<sup>39–43</sup> The practitioner’s clinical reasoning includes consideration of pain if not of muscular or neurological origin. Both professions are trained to undertake an extensive array of clinical assessments, but there are cases where further information from other health professionals needs to be gathered prior to starting or continuing treatment. This is the essence of person-centered care. Rather than add on interprofessional clinical activities, it may be wiser to review clinical assessment tools to emphasize assessment of students’ abilities to identify the limits of their scope of practice and assess how they refer to other practitioners to enhance patient safety and patient-centered care.

### **Limitations of the Study**

We took the students’ perspectives and comments at face value. We did not explore the faculty perspectives of the clinical education program outcomes or the students’ achievement of the desired competencies and capabilities. These elements would add to what is known about the quality of the clinical education programs at each institution. No clinical assessment tools were reviewed.

## **CONCLUSION**

Students acknowledged that all experiential learning in all clinical settings helps prepare them to transition to practice. While they discounted the value of the slower-paced scaffolded learning in the UHCs and perceived their development in other settings to have been superior, it is clear students would not have been prepared to undertake the experiences in other clinical settings without the preparatory experiences provided by the UHCs.

The diverse patient mix afforded by the clinical settings outside of the UHC certainly appeared to sharpen students’ understandings of what was demanded of them and in many cases enhanced their development of clinical skills and professional identity. Across the board, when compared to what is expected of graduates, students seemed to lack an understanding of what constitutes professional behavior. IPE opportunities were valued by those students who had opportunity; however, in the main, opportunities were ad hoc and informal. These findings provide a clear indication of where clinical training needs to focus to support readiness to practice.

Perhaps it is time to consider a review of clinical assessment tools in both the chiropractic and the osteopathic curricula to determine the validity, reliability, fairness, and efficacy of clinical assessment tools to ensure

students' readiness for transition to practice. Perhaps it is time to discuss, in each profession, the development of a nationwide assessment strategy and tool kit.

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Concept development: NH, KM. Design: NH, KM, LH. Supervision: KM. Data collection/processing: KM, NH, LH. Analysis/interpretation: KM, NH. Literature search: KM, NH, LH. Writing: KM. Critical review: KM, LH.

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