

---

# A Survey of Geriatrics Courses in North American Chiropractic Programs

---

**Cara L. Borggren, DC, Paul J. Osterbauer DC, MPH, Michael R. Wiles MEd, DC,**  
Northwestern Health Sciences University

**Purpose:** There has been a growing interest in meeting the health care needs of the anticipated “age wave.” In order to prepare for the current demographic trends, we sought to describe the status of geriatrics curricula in the 18 North American English-speaking chiropractic colleges by reviewing geriatric course syllabi. **Methods:** A cross-sectional survey was conducted using syllabi and catalog information solicited from each English-speaking chiropractic college in North America, collected from January 1, 2007 through June 30, 2007. Information was then summarized. **Results:** As of June 30, 2007, roughly 78% of colleges submitted their current geriatrics course syllabi. The remaining 4 colleges were estimated using online course catalog information. Sixty-one percent of colleges offered a course that was solely dedicated to the topic of geriatrics. Additionally, 37.5% of syllabi indicating credit load offer 4 or more credits to the course containing the geriatrics component. Also, 31.3% of courses include non-classroom clinical experience, while 50% require an independent study project that provides further geriatrics experience. Furthermore, 41.2% of reported courses classify the teaching strategies as lecture only. **Conclusions:** These results warrant a proposal for improved curricula in this specialty population. It is proposed that more time be dedicated for this topic, more experiential learning be required, and more clinical focus be given on the needs of this population. A restructure of curricula will provide more clinical experiences for students to better equip future doctors of chiropractic for the increase in geriatric health care needs.. (J Chiropr Educ 2009;23(1):28-35)

**Key Indexing Terms:** Chiropractic; Geriatrics; Education

## INTRODUCTION

Since as early as the mid-1970s, chiropractic college leaders have been urged to train doctors of chiropractic to care for the special needs of the aging population. During the past ten years, there has been a growing interest in meeting the health care needs of the anticipated “age wave”, referred to by some recent media reports as the “senior tsunami”.<sup>1-10</sup> It was reported by the US Census Bureau that in July of 2005, 78.2 million of the 298 million people comprising the population were “baby boomers” (the generation born between 1946

and 1964), and that in the year 2006, 7918 people were turning 60 each day.<sup>11</sup> Given this trend, it is ironic that there is a significant shortage of health professionals trained to meet the specific healthcare needs of an aging population. One proposed solution is providing care using interdisciplinary teams to address the various aspects of patient care more efficiently than one provider alone.<sup>12</sup> Anticipating chiropractic’s potential role in this process, Hawk et al<sup>13</sup> identified barriers to including chiropractors on interdisciplinary geriatric teams and suggested strategies to overcome them. Using a variety of data sources that included geriatrics course syllabi from 9 of the 17 United States chiropractic colleges, they recommended increases in the breadth and depth of knowledge regarding care for aged patients, including extra emphasis on clinical experience, to apply their

---

**The Journal of Chiropractic Education**  
Copyright © 2009 the Association of Chiropractic Colleges  
Vol. 23, No. 1. Printed in U.S.A.  
1042-5055/\$22.00

new found skills.<sup>13</sup> Currently, the Council on Chiropractic Education (CCE) requires that all chiropractic college curricula,<sup>14</sup> "... must include the subject of geriatrics," and must, "... document how each subject appears in the curriculum and is integrated into a coherent degree program."

Therefore, the purpose of this study was to perform a 10 year follow-up work of Hawk and colleagues<sup>13</sup> regarding the status of geriatrics education in the 18 North American English-speaking chiropractic colleges surveying course syllabi. Improvements in educational standards are proposed to calibrate training to meet the urgent needs of our population.

## METHODS

A cross-sectional survey was conducted using syllabi and catalog information solicited from each English-speaking chiropractic college in North America, collected from January 1, 2007 through June 30, 2007. Information was gathered by telephone calls and e-mails to the lead instructor teaching the geriatrics course at each institution, and then submission of the course syllabus was requested. Follow-up calls were made to try to obtain the highest participation rate possible. Fourteen of 18 colleges responded to the request to obtain their syllabi. Information on the 4 non-responding colleges was obtained by reviewing the most current catalog information on their public web-sites. The following information was collected from these sources: contact hours of geriatric instruction, credits offered, required and recommended textbooks or references, special projects required of students, service-based and experiential learning components, course sequencing, credentials of instructors, methods of assessment, and teaching strategies utilized. Individual course objectives were recorded and will be used in a future project.

## RESULTS

Descriptive data were recorded and rounded up to the nearest percentage point. Fourteen of 18 (78%) colleges responded to our request and submitted a course syllabus (Table 1). To preserve anonymity, Table 1 lists the course titles in random order, which is maintained throughout the report. The

most common title for a geriatrics course (Geriatrics) was present in 7 of the 18 colleges, with a variety of other titles reported (Table 2). Eleven of the 18 (61%) colleges offered a course that was solely dedicated to the topic of geriatrics while the other 7 colleges included other topics in the course, such as: pediatrics, human developmental diagnosis, obstetrics and gynecology, dermatology, emergency procedures, and sexually-transmitted diseases. The majority of colleges offer this course in the final year of education and 38% offer 4 or more credits for the course containing the geriatrics component (Table 1). All of the known courses containing the geriatrics component were taught by a doctor of chiropractic, and 7 of the known 15 (47%) instructors also listed further postgraduate training on their syllabus, such as graduate degrees and professional designations such as specialty diplomates and fellowships (Table 1). Most of the colleges require a text for their course (Table 1) and many of the colleges had an extensive list of recommended texts (Table 3). Some colleges include a required clinical component and/or a project that provides some practical geriatrics experience. A variety of assessment methods were reported, as shown in Table 1. Course content for each college was categorized into 12 essential topics (Table 4), deemed as necessary components in previous work.<sup>13</sup>

## Discussion

Our response rate of 78% provides an accurate representation of chiropractic geriatrics courses of the English-speaking North American chiropractic colleges. A previous similar assessment was based on 9 responses.<sup>13</sup> Our data from responding colleges were also supplemented by online catalog information from the non-responders. While the survey of an online syllabus (or, for that matter, the actual instructor-submitted syllabus) may not necessarily be representative of what is actually taught in the curriculum, it may be reasonably assumed that requested and received information and college-sanctioned online information fairly represents the course content in these geriatrics courses.

Reports on chiropractic geriatrics training<sup>13,15</sup> note that, typically, geriatrics education is limited to a single course of a range from 15–30 hours (respectively), with little (if any) associated clinical education or experience. Our findings essentially echo this situation, despite previous recommendations for increased and improved chiropractic geriatric education.<sup>10,13</sup> Only 11 of 18 colleges surveyed

**Table 1. Descriptive data of 18 North American geriatrics courses**

College	Syllabus Obtained	Sequencing of Course Offerings	Number of Hours of Instruction As Taken from Syllabi	Number of Credits Attributed to Geriatrics Topic	Credentials Listed on Syllabi for Instructor	Required Geriatric Text	Experiential Learning, as Listed on Syllabi	Outside Projects, as Listed on Syllabi	Methods of Assessment	Teaching Strategies
College 1	1	8 <sup>th</sup> trimester	8	4	DC, FICPA	None	None listed	None listed	Cumulative final exam	Lecture only
College 2	1	5 <sup>th</sup> trimester	21	3	BA, BS, DC	None	None listed	Research paper to better understand diseases associated with these patients	Midterm and project	Lecture and demonstration of adjustment
College 3	1	Unknown based upon syllabus	48	4	BS, DC	None	Required off-campus interactive events	Hospice rotations	Midterm, final, 2 papers	Lecture and demonstration
College 4	1	9 <sup>th</sup> quarter	Unknown based upon syllabus	6	DC, DABCO	Merck Manual of Geriatric, 3 <sup>rd</sup> Ed.***	Hospice rotation	End of Life of the Terminal Patient, interview project of patient 60+ with paper and presentation to class	4 quizzes, special project, attendance and summative exam	Lecture only
College 5	1	Unknown based upon syllabus	22	2	BGE, DC	Essentials of Clinical Geriatrics, 5 <sup>th</sup> Ed.***	None listed	None listed	Midterm and final exam	Lecture and case studies
College 6	1	8 <sup>th</sup> trimester	30	2	DC, LCP	None	None listed	None listed	4 exams, 2 unannounced quizzes	Lecture only
College 7	0*	6 <sup>th</sup> trimester	24**	4	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus
College 8	1	7 <sup>th</sup> trimester	16	4	DC, DNBHE	None***	None listed, although clinic structure allows ample geriatric experiences	None listed	1 exam	Lecture only
College 9	1	10/11 <sup>th</sup> quarter	20	2	DC, DABCO	Chiropractic Care of the Older Patient (Gleberzon)***	Demonstration of geriatric manipulation in class	Fall Screening Event, nutrition assessment, advanced directive project	Final exam and 2 outside projects	Lecture and demonstration of procedures

(continued overleaf)

**Table 1. (Continued)**

College	Syllabus Obtained	Sequencing of Course Offerings	Number of Hours of Instruction As Taken from Syllabi	Number of Credits Attributed to Geriatrics Topic	Credentials Listed on Syllabi for Instructor	Required Geriatric Text	Experiential Learning, as Listed on Syllabi	Outside Projects, as Listed on Syllabi	Methods of Assessment	Teaching Strategies
College 10	1	8 <sup>th</sup> trimester	30	2 units	DC	The Aging: Conservative Management of Common NMS Conditions (Bougie, et al)	Required off-campus interactive events	Visit to community center, comprehensive geriatric assessment, exercise assessment and planning, nutritional planning	Unknown based upon syllabus	Lecture, labs, reading assignments, small group discussions and assigned projects
College 11	0*	8 <sup>th</sup> trimester	30	2	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Unknown based upon syllabus	Lecture and case studies
College 12	1	9 <sup>th</sup> trimester	30	2	DC	Chiropractic Care of the Older Patient (Gleberzon)***	Students choose community-based project to complete	Cafeteria options for outside projects	Quizzes, midterm, final, Cultural Competency Activity, Interdisciplinary Activity, Enriching Activities	Lecture, evidence-based literature searching, community-based projects, guest speakers
College 13	1	Unknown based upon syllabus	30	2	DC	Primary Care Geriatrics: A Case-Based Approach (Ham & Slone)***	None listed, although 2 assisted living facilities affiliated with clinic system where students are encouraged to shadow	None listed	Midterm, final and 2 quizzes	Lecture only, but interactive
College 14	1	9 <sup>th</sup> quarter	30	3 units	Unknown based upon syllabus	None	None listed	None listed	Midterm and non-comprehensive final exam	Lecture only
College 15	0*	8 <sup>th</sup> trimester	6	3	DC, PhD	Primary Care Geriatrics: A Case-Based Approach (Ham & Slone)	None listed	None listed	None listed	Lecture, videos, group discussions

College 16	1	8 <sup>th</sup> trimester	30	2	DC, MPH	The Aging Body (Bougie & Morgenthal) <sup>***</sup>	Health assessment project of resident at assisted living center	Geriatric Health Assessment project and optional volunteer opportunity at assisted living facility	Midterm, final, quizzes and project	Lectures, videos, guest speakers and assigned projects
College 17	0*	Unknown based upon syllabus	48	4	MA, DC, ND	Merck Manual for Geriatrics, 3 <sup>rd</sup> Ed. <sup>***</sup>	None listed	Senior living facility – presentation and paper	2 presentations, 2 papers, final exam	Lecture, presentations, handouts and videos
College 18	1	Year 3	17	1	DC	Chiropractic Care of the Older Patient (Gleberzon)	None listed	None listed	Assessment at end of each of 9 modules	Lecture only, but guest lecturers included

\*Estimated using online course catalog information (Note: Randomized college numbers will be consistent throughout the paper.) \*\*72 hours combined total for class, assuming 3 subjects divided equally \*\*\*Extensive list of recommended texts also given.

**Table 2. Geriatrics course titles**

Course Title	Frequency of Use of Course Title
Geriatrics	7
Geriatric Clinical Diagnosis	1
Special Populations: Pediatrics and Geriatrics	1
Human Developmental Diagnosis	1
Health and the Older Person	1
Healthy Aging	1
Care for the Human: Chiropractic Care for Special Populations and Active Care	1
OB-GYN/Pediatrics/ Geriatrics	1
Pediatrics/Geriatrics	1
Pediatric and Geriatric Diagnosis	1
Clinical Diagnosis: Dermatology/Gynecology/ Geriatrics	1
Clinical Geriatrics	1

Total Course Count: 18

actually had a geriatrics course in their curriculum. Data available from 17 colleges (Table 1) indicate that the average length of a geriatrics courses is about 26 hours (25.88), with courses ranging from 8 to 48 hours of instruction. Assuming an average program of 4200 hours, this represents 0.6% of the curriculum, somewhat less than a previous estimate of 1.5% of classroom hours dedicated to the study of chiropractic geriatrics<sup>10</sup> and considerably less than a previous estimate of about 5% for “the total clock-hours addressed to geriatric material” in colleges of osteopathic medicine.<sup>16</sup> Furthermore, this same survey of osteopathic colleges indicated that about 43% of “total aging-related clock hours of the school’s typical graduating student in 1984” was clinical geriatrics experience. This same paper indicated that 87% of deans predicted an increase in age-related curriculum programming over the next 5 years. No data were found since that time, but it may be reasonably assumed that the age-related curricular hours and accompanying clinical experience in osteopathic medical colleges has indeed increased since the survey.

Our data indicated that only 5 surveyed college programs included any clinical experiences and that

**Table 3. Text recommendations for geriatrics courses**

Recommended Text	Frequency of Recommendation
<i>Chiropractic Care of the Older Patient</i> (Gleberzon)	9
<i>The Merck Manual of Geriatrics, 3<sup>rd</sup> ed</i>	5
<i>The Aging Body: Conservative Management of Common Neuromusculoskeletal Conditions</i> (Bougie & Morgenthal)	4
<i>Essentials of Clinical Geriatrics, 5<sup>th</sup> ed</i> (Kane)	2
<i>Bates Guide to Physical Examination and History Taking</i>	2
<i>Biology of Human Aging, 2<sup>nd</sup> ed</i> (Spence)	1
<i>Practice of Geriatrics, 4<sup>th</sup> ed</i> (Duthie, et al)	1
<i>20 Common Problems: Geriatrics</i> (Adelman, et al)	1
<i>Geriatric Practice-Specific Issues</i> (Bougie)	1
<i>Chiropractic Management of Spine Related Disorders</i> (Gatterman)	1
<i>Chiropractic Guidelines and Protocols, 2<sup>nd</sup> ed</i> (Huff, et al)	1
<i>Aging: The Healthcare Challenge, 4<sup>th</sup> ed</i> (Lewis)	1
<i>Essentials of Skeletal Radiology</i> (Yochum & Rowe)	1
<i>Primary Care of the Older Adult</i> (Burke, et al)	1
<i>Geriatric Pearls</i> (Fordyce)	1
<i>Principles of Geriatric Medicine and Gerontology</i> (Hazzard, et al)	1
<i>Health Promotion and Aging</i> (Haber)	1
<i>Principles and Practice of Geriatric Medicine</i> (Patsy)	1
<i>Fallproof: A comprehensive balance and mobility training program</i> (Rose)	1
<i>Geriatric Physical Therapy, 2<sup>nd</sup> ed</i> (Guccione)	1
<i>Practical Guide to the Geriatric Patient</i> (Ferri, et al)	1

these, at best, were meager experiences limited to shadowing a doctor, or interviewing one or two elderly patients. Hawk et al<sup>13</sup> also noted a “striking lack of clinical experience with geriatric patients”

**Table 4. Essential topic analysis of chiropractic college geriatrics course syllabi**

Topic Addressed in Syllabus	Number of Syllabi Containing
Epidemiology	5
Normal Aging Physiology & Wellness	13
Pathophysiology of Aging	14
Psychological & Mental Considerations	9
Functional Status & ADL's	5
Pharmaceutical Use	6
Injury Prevention & Control	1
Elder Abuse	0
Social Support	6
Concurrent Care Planning	9
Cultural Issues	6
Communication	8
Skills for Providers	

and that this was considered a barrier to putting theoretical knowledge of geriatrics into practice. Despite this observation by Hawk and colleagues more than 10 years ago, the colleges have not made appreciable progress in this area of chiropractic education. It should be noted that urgent educational reforms to meet the needs of patients with chronic disease are lagging for all health care disciplines.<sup>12</sup>

Geriatrics course placement within a curriculum indicated that these courses vary from the 5<sup>th</sup> trimester (approximately the second of four years) to the 11<sup>th</sup> quarter (approximately the fourth of four years). Increasingly, geriatrics course material is being introduced throughout medical curricula and one recent paper suggested it to be important enough to be introduced as one of 12 overall themes that were woven throughout the curriculum.<sup>18</sup> Chiropractic educators may be advised to consider such a proposal in chiropractic curricula.

Chiropractic geriatrics courses appear to average about 3 credits. Given that many chiropractic programs provide a total of 220–240 credits, this suggests that even by credit load, geriatrics education is in the order of 1% of the total curriculum. The question remains, “What should it be?” This will depend upon a detailed review of chiropractic geriatrics syllabi and identification of specific and discrete competency outcome criteria, as well as the perception by chiropractic educators of the importance of the evolving subjects of geriatrics and

gerontology. Chiropractic education seems to more heavily rely upon specific and prescribed competencies than medical education. For example, the Association of American Medical Colleges report on Learning Objectives for Medical Student Education (guidelines for medical schools), in 1998, proposed 4 general themes and only 30 specific learning objectives for medical education. By contrast, the Council on Chiropractic Education requirements describe 247 specific competencies in 16 broader areas called metacompetencies. While this may appear as “competencies gone wild”, it is hoped that this paper will not herald even more prescriptive competency requirements in the area of geriatrics. Ultimately it is not more competencies, more credits, or more didactic hours that are needed, rather it is clinical experience that should more effectively enhance competency. Clinical geriatrics experience, exposure and education should and must be an important consideration of all chiropractic college leaders. In order to take formal geriatrics training beyond the classroom, Killinger recommended that,<sup>9</sup> “Residencies in geriatrics should be developed and funded to enhance chiropractic training on geriatric patient care.” Historically, chiropractic colleges have not participated in government funded clinical and educational programs in geriatrics,<sup>9</sup> although in 2004, one college reported that training in geriatrics was included as part of its family practice residency program.<sup>13</sup> On the positive side, since then, one chiropractic college has implemented a formal residency program in geriatrics.

### Limitations

Several limitations of this study should be noted. The response rate, while robust, failed to account for 4 of the 18 (22%) chiropractic colleges that were contacted to respond to our request for participation. This may be explained by a variety of reasons including timing of the inquiry, perhaps during a break in the academic cycle, breakdowns in communication, changes in staff or course assignments or unwillingness to participate for personal/philosophical reasons. Another limitation may include interpretation of the information from the syllabi and also from the websites, due to non-standardized terminology. To minimize this possibility, we made every effort to inform our readership of the source of data. Furthermore, syllabi, imperfect as they may be to estimate topic content and coverage, are a practical source to assess course content.

## CONCLUSION

These results warrant a proposal for improved curricula in this special population. It is proposed that more time be dedicated for this topic, more experiential learning be required, and more focus given to the needs of this “baby booming” population. Graduate level studies and more dialogue among chiropractic leaders on this important topic will aide in this proposal for improved curricula. A restructure of the curriculum will provide more clinical experience to students to hopefully better prepare them for an increase in clinical services associated with an increase in the number of older adults needing these services.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

---

**Received**, May 5, 2008

**Revised**, July 9, 2008

**Accepted**, August 12, 2008

**Address correspondence to:** Cara Borggren, DC Northwestern Health Sciences University, 2501 W. 84th St. Bloomington, MN 55431 United States, (952)888.4777 x341, (952)888-4777 (First Alternate Telephone), (952)885-7579 (fax), cborggren@nwhealth.edu

## REFERENCES

1. Janse J. Gerontology in chiropractic practice. In: Hildebrandt RW, editor. Principles and practice of chiropractic. Chicago; National College of Chiropractic; 1976.
2. Wiles MR. Specialization in chiropractic: a construct for the future. *J Can Chiropr Assoc* 1984; 28:193–51.
3. Elkington, WC. Health care of the elderly patient. *DC Tracts* 1990; 2(5):251–60.
4. Coulter ID, Hurwitz EL, Aronow HU, Cassata DM, Beck JC. Chiropractic patients in a comprehensive home-based geriatric assessment, follow-up and health promotion program. *Top Clin Chiropr* 1996;3:46–55.
5. Bougie JD, Morgenthal AP. The aging: Conservative management of common neuromusculoskeletal conditions. New York: McGraw-Hill; 2001.
6. Gleberzon, BJ. Chiropractic care of the older patient. Oxford: Butterworth-Heinemann; 2001.
7. Hawk C, Byrd L, Killinger L. Evaluation of a geriatrics course emphasizing interdisciplinary issues for chiropractic students. *J Gerontol Nurs* 2001;27:6–12.
8. Killinger LZ, Morley JE, Kettner NW, Kauric, E. Integrated care of the older patient. *Top Clin Chiropr* 2001;8:46–54.
9. Killinger LZ. Chiropractic and geriatrics: a review of the training, role and scope of chiropractic in caring for the aging patients. *Clin Geriatr Med* 2004;20:223–35.
10. Dougherty P, Killinger LZ. The role of chiropractic in long-term care. *Long-Term Care Interface* 2005;June: 33–8.
11. US Census Bureau [homepage on the Internet]. Washington, DC: US Census Bureau; c2007 [cited 2007 Jun 7]. Available from <http://www.census.gov>.
12. Kane RL, Priester R, Totten AM. Meeting the challenge of chronic illness. Baltimore: Johns Hopkins University Press; 2005. p. 71,99.
13. Hawk C, Killinger LZ, Zapotocky B, Azad A. Chiropractic training in care of the geriatric patient: an assessment. *J Neuromusculoskelet System* 1996;5:15–25.
14. Council on Chiropractic Education. Standards for Doctor of Chiropractic programs and requirements for institutional status. Scottsdale: Council on Chiropractic Education; 2007.
15. Coulter I, Adams A, Coggan P, et al. A comparative study of chiropractic and medical education. *Altern Ther Health Med* 1998;4:64–75.
16. Solon J, Kilpatrick N. Status of geriatric education in colleges of osteopathic medicine: Report of the First National Survey to Establish Benchmark Data. *J Amer Osteopath Assoc* 1987;87:764–8.
17. Kitzes JA, Savich RD, Kalishman S, et al. Fitting it all in: integration of 12 cross-cutting themes into a School of Medicine curriculum. *Med Teach* 2007;29:489–94.