CHIROPRACTIC TREATMENT OF HAND AND WRIST PAIN IN OLDER PEOPLE: SYSTEMATIC PROTOCOL DEVELOPMENT. PART 1: INFORMANT INTERVIEWS

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ABSTRACT

Introduction: Conditions of the hand and wrist often occur in older patients, but decision-making algorithms and manual treatment protocols for this age group have not been developed or assessed. Further, effects of age-related co-morbidities are poorly understood.

Objective: To build an understanding of an appropriate treatment protocol from the ground up that does not assume that generic spinal or extremity manipulative therapy is indicated.

Methods: The project was conducted in two phases, involving (1) interviews with chiropractors (reported here) and (2) a single cohort, longitudinal design, identifying the conditions of the hand and wrist and concomitant co-morbidities as well as promising accommodations and chiropractic treatments of these symptoms in older people. In the first phase, data were gathered, through in-person focus group and telephone interviews, from 58 chiropractors treating older patients presenting with hand and wrist symptoms.

Results: Chiropractors indicated they accommodated treatments to the health status and co-morbidities of their older patients and considered "management," rather than "cure," a more realistic concept in treating chronic conditions. With older patients, chiropractors recommended using a lighter touch, rehabilitative passive stretching, traction, nutritional counseling, soft-tissue work, and home exercises. Chiropractors also cautioned providers to take extra time in history-taking and extra diligence with older patients, identifying use of medications, and conducting blood pressure, bone density, blood clotting assessments, if indicated, before treatment.

Conclusions: Chiropractors provided valuable orientation, indicating that caring for older patients requires careful history-taking and treatment plans that accommodate to presenting co-morbidities and the patients' general health statuses. (J Chiropr Med 2005;4:144–151)

Key Indexing Terms: Cumulative Trauma Disorders; Upper Extremity; Manual Therapy; Chiropractic; Elderly

INTRODUCTION

The aging of the world's population will be, ". . .one of the most important social phenomena of the next half century."[1] With the combined effects of increased fertility and decreased mortality, populations of Eurasia and the western hemisphere are characterized by increasing proportions of elderly.[1] The traditional retirement age in the United States defines those over age 60, with less or no occupational involvement and a variety of health care options, as different from their younger colleagues. Of crucial importance will be the increasing demands on the health care system from older people. Although current decreases in rates of disease and injury are followed by decreases in rates of disability

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in those over 60, decreases in death rates for people with given disabilities increase the prevalence of those disabilities in the population as well as demands for health care appropriate to these disabilities.[2] Among the many conditions commonly visited upon older people are conditions of the hand and wrist, including carpal tunnel syndrome.

The increased incidence and cost of all types of cumulative trauma disorders (CTD), including hand-wrist symptoms and carpal tunnel syndrome (CTS), in the American work force have prompted concern for early detection and treatment of the disorders. CTDs are not generally incident-oriented or identified with specific trauma, but rather identified with conditions that develop over weeks, months, or even years of repeated stressing of a person's wrists, elbows, or shoulders. Repetition of stressful activity causes micro-trauma to the tissues and joints of the body culminating in symptoms of CTD.[3,4,5] As a result, CTD in the hand and wrist, experienced by older people, may be the result of risk factors encountered earlier in life during one's working years as well as the result of natural degenerative processes.

Diagnostic criteria for several conditions of the hand and wrist include a symptom history of dull aching discomfort in the hand, forearm or upper arm, paraesthesia in the hand, weakness or clumsiness of the hand, dry skin, swelling or color changes in the hand and occurrence of any of these symptoms in the relevant nerve distribution.[6,7] If the diagnosis is uncertain, electromyography and nerve conduction studies will confirm a median or ulnar neuropathy at the wrist.[8] Diagnostic algorithms based on symptoms vary widely. For this reason, and nerve conduction studies have been used as the standard criterion against which other diagnostic tests have been measured.[8,9]

While CTS and other hand wrist conditions have been examined as occupational conditions associated with such risk factors as chronic repetitive motion, awkward hand and wrist postures, and forceful impact on the wrist, the etiology and course of these conditions in older patients has not been thoroughly examined. Nevertheless, research examining the use of emergency medicine among 1154 patients ages 70 years and older indicated that over 17% presented with conditions of the upper extremities.[10] Further, older patients (ages ≥ 65) in a community setting have reported with shoulder problems.[11] While the risk factors associated with a lifetime in the workplace undoubtedly affect older people later in life, hand-wrist pain and dysfunction in older patients might be quite different than it is in working-age people. The idiopathic causes of a person's hand and wrist condition, extent of comorbidities, the characteristics of the aging body can confront a physician, accustomed to treating patients aged 21 to 60, with a dramatically different picture.[2]

Hand-wrist symptoms in the older patient present as a condition of indefinite onset. While a younger patient's symptoms may sometimes be attributed to repetitive, awkward, and forceful use of the hands, there may be no single cause in the elderly. In contrast to working age patients, arthritic degeneration as well as physiological change, for example ischemia, may affect the health of the median and other nerves.[12] In addition, older patients may suffer from a variety of systemic conditions that complicate hand and wrist function.[12]

Lifestyles and functional statuses of older persons vary widely, from each other and from younger people. Many older people are no longer occupied daily in a workplace, although some continue to participate in activities that stress the hand and wrist. Once symptoms occur in any patient, they are nocturnal paraesthesia and a potential loss of motor control in the hand. In the younger patient, the progression of the problem may demonstrate periods of exacerbation and remission of symptoms; the elderly may show a continual progression of symptoms, unrelenting in course.

There is a dearth of information regarding this condition in the elderly. A yoga study, which included the elderly and showed some effectiveness of treatment, is the only apparent contribution from the complementary and alternative medicine area.[13] In the case of carpal tunnel syndrome, release surgery, regardless of its potential for complications in the elderly, is still presented as the treatment of choice.[14]

Chiropractic treatment, one of several conservative treatments available for hand-wrist pain, has been studied in detail in a younger population and found to offer some benefit, especially to people who react to treatment involving NSAIDs.[15,16,17,18] The chiropractic treatment paradigm views diseases as having their origins in pathomechanical or pathophysi-

ologic alterations of the locomotor system and its synovial joints. The potential pathologic effects of the vertebral subluxation complex or syndrome may be broadly divided into mechanical, inflammatory-vascular, and neurobiologic categories. The characteristics of the condition consist of joint fixation and clinical joint instability and hypermobility. Joint manipulation procedures are physical maneuvers designed to induce joint motion through either non-thrust techniques (mobilization) or thrust techniques. They are intended to treat disorders of the neuro-musculoskeletal system by improving joint alignment, range of motion, and quality of movement.[19–27]

The research question that guided the investigation is: What are the recommendations of chiropractors regarding accommodation and treatment of hand-wrist symptoms in older patients?

The purpose of this research is to collect information from chiropractors experienced in treating older patients presenting with hand and wrist symptoms.

METHODS

Two focus groups, involving 14 chiropractors, and a telephone survey of 44 chiropractors were conducted. Chiropractors for the focus groups were recruited from a list of active practitioners in the Twin Cities (MN) region and from the clinical faculty at Northwestern Health Sciences University.

The research team organized focus groups of 8 and 6 members each, moderated by the project principal investigator. The meetings were held in the board room at Northwestern Health Sciences University, and each meeting was completed in 1 hour. Recruitment phone contacts explained to potential participants that the purpose of the focus groups would be to discuss the variety of symptoms in the upper extremities and co-morbidities presented by older patients and the accommodations and treatments of these patients that appeared to be most promising.

Following the pre-meeting orientation, 2 questions were asked of each focus group member. Question 1 asked, "To what extent do you see older patients who present with conditions of the upper extremities and what co-morbidities do you find?" Question 2 asked, "What treatments have you performed that seem to offer the most benefit?" After the opening trigger questions, members of the groups discussed their experiences with older patients, conditions and co-morbidities frequently presented, and how chiropractors can evaluate and treat elderly patients with hand-wrist symptoms. Discussion during the two focus groups was audio-taped, and a summary listing of comments was developed.

Chiropractors for the telephone interviews were identified and interviewed through contacts with and assistance from a practice network operating throughout Wisconsin. The project principal investigator, in close communication with the administrative assistant to the health network's executive, contacted each network chiropractor at a date and time set in consultation with the administrative assistant that was most convenient for each respondent. Telephone interviews were completed within 15 minutes of contact. The telephone interview script is provided in Appendix A. Data were keyed and analyzed with SPSS for Windows software (SPSS, Inc, Chicago, IL).

RESULTS

In the 2 focus groups of 14 participants, two members were female. Eleven members were ages 30–59, and three were 60 years or older. All but one member, an MD in the Northwestern Health Sciences University clinical sciences department, were doctors of chiropractic (DC), and all but one recent graduate had been in practice or teaching for more than five years.

The 2 focus groups yielded comments emphasizing the challenges and satisfactions of treating of older patients in general (Fig 1). Clinicians noted the variety of older patients they see and their presenting conditions. They further noted the influence or lack of influence of Medicare reimbursement policy on their care. Their main concern, it appeared, was for chiropractors to take time and care in developing health histories and treatment plans for older patients. Group members urged clinicians to note older patients' medication use and their health statuses and co-morbid conditions, especially those that may preclude an aggressive manipulative care.

Telephone surveys involved 44 chiropractors, aged 26–53, who had been in practice from 2–26 years (82% male), as seen in Table 1. Telephone survey respondents reported seeing from 4 to 100 older patients per week and from 1 to 40 older patients

1. The elderly, people in their 70s now, are some of our best patients. These folks believe in chiropractic, they're sick of drugs, they have conditions that we can treat, they are concerned about their mobility, and they refer others to us. My elderly patients with upper extremities complaints are given cervical adjustments (Medicare reimbursed) and whatever other care (hand, wrist, arm, elbow, shoulder) they need (Medicare un-reimbursed). Claims data will not document what treatment of the upper extremities we offer patients, and the constraints of Medicare reimbursement need to be removed before we do claim for the extra care we provide. Then we can offer care of the upper extremities at one-third the cost of physical therapy.
2. I do not hesitate to refer patients who need specialized hand care to a hand specialist. Most carpal tunnel syndrome has occurred in middle age or it is severe enough for me to refer patients to surgery.
3. I see lots of elderly patients with shoulder problems, especially arthritis and bursitis.
4. I need to modify my chiropractic treatment for patients with pacemakers, with medications like Coumadin, and with osteoarthritis.
5. Regarding pain, some of my elderly patients are either extremely stoic or extremely sensitive. So, chiropractors need to check on pain tolerance. The elderly, as a group, can be the "World's Best Minimizers," minimizing pain and the extent of disability. The older patient, concerned about loss of independence, can be a very unreliable historian of their physical condition.
6. Two of my patients are women over 70 and they swim everyday. They're fit and others are not. Level of fitness and activity level are important. Be prepared to redefining "normal" mobility and strength levels, however, for the elderly in light of the patient's health history and status.
7. Some of my patients have seven conditions in column 1, five in column two and four in column three. Taking health histories will be VERY important, so allow enough time to get the information. Listen to the elderly discuss their health in their own words.
8. One of my patients came in reporting that he was taking many medications. We checked what he was taking against a drug-interaction program, and found his eye symptoms were probably due to the interaction of two drugs he was taking. We sent him to a pharmacist. Once he eventually stopped taking the two drugs, his eyes cleared. Chiropractors can also help in this way. My patients vary in their fragility, and they can be any category of elderly: young-old (65-84) or old-old (85+).
9. To date, it seems chiropractors have been flying blind, treating patients intuitively, modifying treatment for patients co-morbidities and co-treatments, without having any guidance from theory or instruction. In the future, we'll need to be more explicit about patient differences and treatment needs. Chiropractic Theory needs to grow to help chiropractic treatment of the elderly be more appropriately and consistently applied.
10. Allopathic medicine may not need to modify its treatment of elderly as much as manual therapists will need to.
11. Manual therapists may treat the elderly for conditions they help the patients manage (pain, loss of function) and not cure. We need to be ready to re-orient ourselves to the possibility that we will not cure someone, but help them manage their condition(s) better. Self care is expected by patients 20-50, but 50+ are often unprepared to self care. They need more direction: Tell them, teach them, and have them tell you. Plan on extra time in the treating room.
12. The most common condition presented by the elderly is shoulder pain.
13. Bone density would be a factor in modifying manual therapy.
14. The conditions would be treated with manipulation of the bony joints and soft tissues. We may treat the wrist, shoulder, and elbow, but we chiropractors do not tend to isolate areas but connect them. We treat a peripheral area, but we always go back to the spine (cervical, thoracic, and/or back).
15. We may be the only provider, the primary provider, or the co-provider of care to a person. Ideally, all care would be modified to be appropriate for the person's co-morbidities and aging processes. Chiropractors are reponsible to modify manual therapy to the needs of the elderly.
16. Elderly with pacemakers should not receive ultrasound treatment or electrostimulation of muscles.
17. Rheumatoid arthritis patients need to be referred to a rheumatologist or other appropriate provider, not treated by a chiropractor.
18. Chiropractors need to take thorough health histories from elderly patients, including all information that would require no manual therapy or modified manual therapy.
19. Most elderly patients do have some form of degeneration going on, and are "ripe for chiropractic." Few will have the "straight biomechanical condition without co-morbidities."
20. Patients with blood thinning treatment may need modified chiropractic. Some DCs just "go light" with the manual therapy.
21. Patients with brittle skin, "fibrotic changes in the canal," and/or muscle atrophy will need modified chiropractic.
22. Look at lifestyle risk factors for conditions of upper extremities. Repetitive stress syndromes due to upper-extremity-specific hobbies (quilting, knitting, fly-tying, etc) might be considered "co-treatments" that complicate outcome of any treatment, including manual therapy.
23. Elderly patients may be receiving hormone replacement therapy.
24. Elderly patients may have poor nutrition or may have stopped eating altogether during a "flare up" of a condition.
25. Elderly patients may be taking any form and any number of over-the-counter analgesics and may want to know if, after beginning chiropractic treatment, they can stop all prescribed and self-medication.
26. The reimbursement system generally has a major influence on whether chiropractic care is offered to the elder person at all. Chiropractors are trained to treat conditions of the upper extremities, but if reimbursement isn't available, treatment of the upper extremities is often offered gratis with other (spinal-focused) reimbursed treatment.
27. X-rays for conditions of the upper extremities are often postponed or not done. If there are findings or no clinical progress, we do MRIs. Exceptions would be with patients with histories of local surgery, malignancy, or osteoporosis or related local complications.
28. With elderly patients, we must know if patients have such conditions as peripheral artery disease (use lipid profile and medical work-up), osteoporosis (use X-rays or possibly dexascan), and diabetes (use fasting blood sugar test and/or medical work-up). Perform a thorough exam of the affected sites and such neurological exams as dermatone, clonus, cranial nerves. A DC must know if a patient has Parkinson's disease, Alzheimer's disease, or diabetic neuropathy. Degenerative joint disease of the spine or extremities could be a complicating factor in any diagnosis and treatment. Connective tissue disease or other arthritides could be significant and complicating co-morbidities that would preclude manipulative therapy.
29. Evaluation of the extremities (the nerves, joints, tendons, and associated spinal areas) needs to be coordinated with a more global functional assessment of the motor system. For example, shortened hip flexors or scapular dysfunction causing should interval rotation that, in turn, causes increased wrist flexion and shortened wrist flexor tendons.
30. Many elderly patients take multiple medications that may aggravate hand-wrist symptoms and also affect the treatment choices you have. Sampling of treatments: Carpal tunnel and spinal manipulation, core and scapular stability exercises, specific wrist and extremity exercises to correct muscular imbalances, nutritutional therapy, possibly B_6 therapy, and physiotherapy.
31. Reimbursed by Medicare or not, go beyond the constraints and serve the patient! DCs use their hands and their experience to feel what the patient needs and can accept. Slowly or aggressively, we treat the tissue until it becomes elastic. We can feel the improvement over time. I use as much force as the patients can tolerate to get them well.

Figure 1. Focus groups: clinicians' comments about older patients

Table 1
Telephone Survey: Characteristics of Chiropractors' and Practices (August 2002)

	N	%
1. Graduates of:		
Northwestern	22	50
Palmer (IA)	15	34
National	4	9
Life	1	2
Logan	1	2
Western States	1	2
	44	99
2. Graduation years		
1980 and before	5	12
1981–1989	14	32
1900–1999	20	45
2000–present	4	9
Missing	1	2
	44	100
3. Female gender	8	18
	Mean	SD
4. Age of DCs	37	7.6
5 Years of Practice	10	7.4
5. Patient visits/week (≥60 yrs old) (range: 4 to 100)	38	20.7
6. Patient visits/week (≥60 yrs old with upper-extremities complaints (range: 1 to 40)	11	8.6

per week presenting with conditions of the upper extremities.

Responding DCs indicated that conditions of the shoulder, upper arm, and wrist were most commonly presented (Table 2). Respondents said they encountered older patients with such co-morbidities as osteoarthritis, rheumatoid arthritis, osteoporosis, degenerative joint disease, degenerative disc disease, tension or migraine headache, neck pain, back pain, hand tendonitis, carpal tunnel syndrome, shoulder degenerative joint syndrome or disease, circulatory problems, and coronary artery disease (Table 3).

Responding chiropractors stressed the importance of accommodating to the older patients (Table 4), using, for example, low-impact stretching exercises, rehabilitative passive stretching, traction, soft-tissue work, and home exercises. Often, as one focus group informant suggested, and who referred a patient to a pharmacist for review of his medication schedule, it is necessary to "think outside the chiropractic treatment box." Chiropractors further indicated that with older patients they considered "management," rather than "cure," a more realistic concept in treating chronic conditions.

Table 2
Telephone Survey: DC-Reported Frequency of Upper-Extremities Complaints/Week Presented by Patients >60 Yrs Old (44 DC Respondents)

	Often	Sometimes	Rarely
1. Shoulder	35	9	0
2. Upper Arm	15	23	6
3. Wrist	11	25	8
4. Hand	8	26	10
5. Elbow	2	27	15
6. Forearm	2	17	25

The chiropractors reported that they often accommodated to older patients' co-morbidities by using the following strategies: less force and a self-described "lighter touch"; realizing change will be slower; use of an Activator; teaching and assigning home exercises and postures; nutritional counseling; traction; full-spine work; soft-tissue work; teaching and applying passive stretching; myofascial release; offering supplements (eg, Glucosamine); and ultrasound. The recommendations of the chiropractors to the researchers were to use less force and a lighter touch, use traction, soft-tissue work, and passive stretching in the clinic and assign home stretching and postural exercises where appropriate. This information was extremely valuable to the research and was used to guide and develop the research protocol.

Table 3
Telephone Survey: DC-Reported Major Co-Morbidities of Patients (>60 Yrs Old) Presenting With Upper Extremities Complaints

	N*	%**
Osteoarthritis	25	10
Diabetes	23	9
Degenerative Joint Disease	22	8
Degenerative Joint Disease	13	5
Osteoporosis	13	5
Rheumatoid Arthritis	11	4
Coronary Artery Disease	9	3
Hypertension	8	3
Back Pain	6	2
Cancer	6	2
Gastrointestinal problems	5	2
Neck pain	4	2
Shoulder Pain	4	2
Rotator Cuff problems	4	2
Headache	3	1
Other complaints***	46	17
Missing	62	23
	264	100

* Total across six opportunities to mention (6 x 44 = 264)
** Percents based on total of 264 possible mentions
*** Wide variety from hypercholesterolemia (2), thyroid (2) and visual (2) problems, lupus (2) to knee pain (1), and depression (1)

Table 4
Telephone Survey: DC-Reported Accomodations to Older Patients (>60 Yrs Old)

	N*	%**
Use less force, lighter touch	31	14
Mobilization	23	10
Use activator	16	7
Home care — exercises	15	7
Nutritional counseling	11	5
Take extra care: check BP, bone density, bone brittleness, check patients' use of such meds as blood thinners, check use of ice with patients with poor circulation	11	5
Full spine	6	3
Teaching-lifestyle	6	3
Take time—focus: management not cure	6	3
Soft-tissue work	5	2
Supplements (Glucosamine, eg)	4	2
Other accommodations***	14	6
Missing	72	33
	220	100

* Total across five opportunities to mention (5 × 44 = 220)
** Percent based on 220 total possible mentions.
*** Wide variety from hypercholesterolemia (2), thyroid (2) and visual (2) problems, lupus (2) to knee pain (1), and depression (1)

DISCUSSION

Chiropractic theory and associated protocols guide clinicians' treatment and promote effective and consistent application of chiropractic across the population. As a source of "grounded," evidence-based theory, research must continue to build the chiropractic knowledge base. This is especially true of chiropractic treatment of older patients. As one research participant suggested, ". . . without research and chiropractic theory, [we are] flying blind."

Older patients are increasingly important to chiropractors, and they often present conditions, co-morbidities, unintended drug-interactions, physical and mental challenges, and opportunities that make them much different from younger patients. A substantial proportion of older patients have conditions of the upper extremities, including debilitating problems of the shoulders, hands, and wrists. Many are related to arthritis and other diseases of the aging person. Chiropractic clinicians must be prepared to refer appropriate conditions, such as rheumatoid arthritis, to specialists for treatment.

Doctors interviewed have considerable experience with older patients and rely on spending more time developing detailed health histories, identifying co-morbidities, and especially identifying the current use of medications, and treatment plans with this group. Older patients, it was suggested, are either quite fit or they are frail, often minimizing their problems, perhaps because they value their independence. Clinicians are urged to spend extra time with older patients and to think creatively, listening "between-the-lines" of patient report, to identify possible drug interactions and the most promising chiropractic treatment. The use of medications, in fact, may be a useful indicator for a "go light" chiropractic treatment. Above all, doctors are urged to be very patient and good listeners and recorders of the details of the health history.

Once a tentative treatment plan is developed, the responding doctors suggest accommodations and protocols that focus on gentler, sometimes passive, mobilization and stretching as well as home-based exercises and nutritional programs, rather than the manipulative methods often used with younger patients. However, consideration is always given to the relationship between the problems identified and the potential for treatment with spinal and other manipulation.

Finally, chiropractors commented on the effect of Medicare reimbursement policy on non-spinal treatment or referral of older patients. Chiropractors differed on the question of their providing "gratis" treatment that did not involve spinal manipulation. Non-spinal chiropractic treatment was described as effective, and it was seen as unfortunate that reimbursement discouraged such care. Policy notwithstanding, however, one chiropractor summed up the majority opinion by saying, "[I] go beyond the constraints and serve the patient!"

CONCLUSIONS

Phase 1 of this research intends to contribute to chiropractic theory, as it is applied to older patients. Research participants emphasized: 1) taking time to take detailed health histories including medication use; 2) "listening-between-the-lines" to older patients; 3) planning treatment accommodated to degenerative processes and co-morbidities; and 4) expecting to manage, rather than cure, many presenting conditions. The stage is set for statistically-powered research concerning chiropractic treatment of conditions of the upper extremities in older patients.

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Appendix A: Telephone survey of chiropractors

Respondent # ____ ____ ____ Chiropractic College: _________ Graduation Year: ____ ____ ____ ____

Gender: M F Age ____ ____

Hand Wrist Pain Research: Open-Response DC Phone Interview

Initial Contact: Hello, My name is _______ and I work at Northwestern College of Chiropractic in Bloomington, Minnesota. I'd like to speak with _________ for about ten minutes concerning research we are conducting on chiropractic treatment of conditions of the upper extremities of older patients.

(If not speaking to the DC) "Is there a time I can call the Doctor back a ten-minute phone conference?" (Call and interview)

Interview Consent Statement: "Hello, My name is _______ and I work in at Northwestern College of Chiropractic in Bloomington, Minnesota. I'd like to speak with you for about ten minutes concerning a research project we are conducting on chiropractic treatment of conditions of the upper extremities of older patients. My questions concern the types of patients and conditions you treat and the outcomes of those treatments. Your responses will be confidential and any reports we make of this information will not identify any respondent. Would you like to answer a few questions now? (If not now, reschedule. If not at all, thanks and bye)

If Yes: OK, my first question is:

1. Do you see patients who are 60 years old or older? Yes No *(if "no," thanks and good bye)*

2. About how many patient visits do you have a week with these older patients per week? ____ ____

3. About how many patient visits per week do you have in which older patients present with problems in the upper extremities? ______ visits/ week.

4. Which of the following problem areas with elderly patients do you see: (a) often, (b) sometimes, or (c) rarely:

	Often	Sometimes	Rarely
1. shoulder	a	b	c
2. upper arm	a	b	c
3. elbow	a	b	c
4. forearm	a	b	c
5. wrist	a	b	c
6. hand	a	b	c
7. other	a	b	c

Please specify "other":

____

5. What, if any, common degenerative conditions and/or co-morbidities (other health conditions) do you see sometimes in elderly patients?

6. How do you treat these conditions in your older patients? Namely, what alterations, if any, do you make in your chiropractic treatment when you see patients with such conditions and co-morbidities?

7. Can you tell me what effect, if any, the limits of Medicare reimbursement for your care has on the areas you treat or how you treat them?

8. If Medicare reimbursed you for treatment of older patients for conditions of the upper extremities, how do you think your treatment would be affected?

9. Finally, I need some information about you. *(Complete demographic items on page one)*

Those are all my questions. Do you have any questions you'd like to ask me?

(Note the questions asked and your answers)