

# MEDICATION PRESCRIPTION: A PILOT SURVEY OF BERNESE DOCTORS OF CHIROPRACTIC PRACTICING IN SWITZERLAND

Martin Wangler, DC, MME,<sup>a</sup> Beatrice Zaugg, DC, MME,<sup>b</sup> and Eric Faigaux, DC<sup>c</sup>

## ABSTRACT

**Objective:** The purpose of this survey was to assess the use of and the attitude toward prescribing medication among doctors of chiropractic in 1 of 26 Swiss cantons.

**Methods:** A Likert scale electronic questionnaire was sent to licensed doctors of chiropractic of the canton of Berne (n = 47). Percentages, mean values, and standard deviations were calculated. A follow-up survey was used to assess comments from the main survey. A probability value of  $P < .05$  indicated a statistically significant difference.

**Results:** The response rate was 77%. Forty-one percent of the respondents stated that medications are a necessary component of the chiropractic treatment. Although 92% actively prescribe medication at least once a week, this is significantly less than asked for by their patients ( $P < .01$ ). Seventy-two percent of the doctors of chiropractic rated the present privilege to prescribe nonprescription medications as an advantage for chiropractic care. Fifty-eight percent thought that chiropractic should aim at expanding the options of nonsteroidal anti-inflammatory drugs, analgesics, and muscle relaxants that can be prescribed. Ninety-one percent agreed on continuing education in pharmacology. Despite prescribing medication at least once a week, less than half of Bernese doctors of chiropractic perceived medications as a necessary component of their treatment, mainly using them to help patients who cannot sleep because of pain and to speed up recovery. When asked if they would be allowed to prescribe medications of the "B-list," the majority would want structured continuing education.

**Conclusion:** Limited medication prescription was judged as an advantage for the chiropractic profession by this group of survey participants. (*J Manipulative Physiol Ther* 2010;33:231-237)

**Key Indexing Terms:** *Attitude; Chiropractic; Drug Prescriptions; Task Performance and Analysis*

**M**usculoskeletal disorders are the second most costly category of health problems in economic burden-of-illness studies. They rank first as a reason for consultation with a health professional and second as a reason for the use of prescription and nonprescription medications.<sup>1</sup> The final report of the World Federation of Chiropractic's 40-person Task Force on Identity recommends chiropractic care without use of medications, enabling patients to avoid these where possible.<sup>2</sup> In Switzerland, doctors of chiropractic have been able to prescribe oral and topical medications listed in

the therapeutic groups 01.01 (analgesia) and 07.10 (arthritis and rheumatic conditions) of the list of pharmaceutical specialties (C-list) since 1995.<sup>3</sup> Basically, these medications are over-the-counter drugs, which do not require a prescription. However, the costs of these medications are reimbursed to patients by sickness insurances when they are prescribed by doctors of chiropractic. Because of the introduction of a new Swiss Federal Law on Medical Professions (MedBG/LPméd)<sup>4</sup> including chiropractic as 1 of the 5 medical professions in Switzerland, that is, physicians, dentists, veterinarians, pharmacists, and doctors of chiropractic, the competency needed to prescribe medications might have to be redefined.

<sup>a</sup> Director of Academic Affairs, European Academy of Chiropractic, Burgdorf, Switzerland.

<sup>b</sup> Swiss Academy of Chiropractic, Berne, Switzerland.

<sup>c</sup> Private Practice, Zimmerwald, Switzerland.

Submit requests for reprints to: Martin Wangler, DC, MME, Director, European Academy of Chiropractic, Director of Academic Affairs, Bahnhofstrasse 15, CH-3400 Burgdorf, Switzerland (e-mail: [wangler@besonet.ch](mailto:wangler@besonet.ch)).

Paper submitted August 17, 2009; in revised form October 30, 2009; accepted November 5, 2009.

0161-4754/\$36.00

Copyright © 2010 by National University of Health Sciences.  
doi:10.1016/j.jmpt.2010.01.013

## CONTEXT AND SETTING OF THE SURVEY

The Swiss health care system is fragmented into 26 cantonal authorities for a population of 7.5 million. Health care in Switzerland is regulated by the Federal Health Insurance Act of 1994. Health insurance is compulsory for all persons resident in Switzerland, although contributions vary greatly between cantons.<sup>5</sup> The compulsory health insurance covers a range of treatments that are set out in

detail in the Federal Act. All 26 cantons enact their own health care policies, legislation, and structure. At the present time, the Swiss Federal<sup>4</sup> and the Bernese Cantonal<sup>6,7</sup> Laws define the chiropractic competency in respect to prescription and nonprescription drugs differently. Cantonal legislation needs to be revised to be in line with the new Federal Law.

The purpose of this survey was to collect data concerning the handling of and attitude toward prescribing nonprescription and prescription medications in chiropractic practices in Berne, 1 of 26 Swiss cantons. The first aim was to obtain data on the correct use of medications in daily chiropractic practice and on opinions of doctors of chiropractic concerning expanding this privilege to start a debate on principles for chiropractic. Data on medication prescription are also necessary for future political discussion and negotiations in the canton of Berne. The authors are convinced that this topic could also be of interest for the chiropractic discussion as a whole concerning future roles of the profession on a national as well as international level.<sup>2</sup>

The research questions were as follows:

- How do doctors of chiropractic in the canton of Berne appraise their performance of and attitude toward medication prescription, drug counseling, and education in pharmacology?
- Do Bernese doctors of chiropractic appraise their general attitude toward medication prescription differently from non-Bernese doctors of chiropractic?
- Do Bernese doctors of chiropractic agree with comments of some of their colleagues concerning performance of and attitude toward medication prescription, drug counseling, and education in pharmacology?

## METHODS

The link to a 4-point Likert scale anonymous electronic questionnaire was mailed to all licensed doctors of chiropractic practicing in the canton of Berne, Switzerland ( $n = 47$ ) including 2 reminding e-mails. These anonymous questionnaires were collected by the authors on the password-protected e-platform [www.surveymonkey.com](http://www.surveymonkey.com). According to the Research Ethics Committee of the Canton of Berne, Switzerland, there were no ethical concerns over this study. It was the investigators' responsibility to guarantee confidentiality and scientific validity. Return of questionnaires implied consent from participants. To respect the anonymity of the participants, in such a small group of practitioners, no comparison was made between respondents and nonrespondents. In a follow-up e-questionnaire, Bernese doctors of chiropractic were asked to judge their agreement on comments of some of their colleagues made on the main questionnaire.

**Table 1.** Demographical data of licensed chiropractic physicians in the canton of Berne

Variables	No. of respondents (n = 36)	Mean values	SD
Male	24 (66.7%)	—	—
Female	12 (33.3%)	—	—
Age	34	44.12	10.19
Years in practice	36	15.21	9.06
Working hours per week	35	33.90	9.57

## The Questionnaires

Questions concerning age, sex, years in practice, practice setting, and working hours (Table 1) as well as 3 questions asking for opinions of doctors of chiropractic on medication prescription (Table 2) were taken from Robert's<sup>3</sup> survey. Wording remained unchanged. These questions used a 4-point Likert scale and a forced-choice method, and served as the basis for comparison. Our electronic questionnaire included 7 additional questions, that is, multiple choice (only 1 answer) questions and questions with matrix of choices (only 1 answer per row). Before this survey, piloting of our questionnaire was done in 7 private practices to discuss brevity, clearness, and attractiveness of each question. To achieve a good response rate, least sensitive (Table 1) to the most sensitive questions (Table 3) were developed, asking for factual (Tables 1, 4-5) then for attitudinal data and offering space for personal comments (Tables 2 and 3). Comments served as the basis for the follow-up 4-point Likert scale e-questionnaire.

## Data Analysis

Scores were analyzed using the statistical software SYSTAT, version 12, by SYSTAT Software Inc, 2007 (Chicago, IL). Jean Robert,<sup>3</sup> the author of the earlier study, was contacted to obtain the raw data concerning questions A, B, and C (Table 2). This allowed us to exclude the Bernese from the Swiss sample for reasons of comparison. On data analysis, percentages and, where possible, mean values and standard deviations as well as the  $\chi^2$  test and the nonparametric Wilcoxon test were calculated. A probability value of  $P < .05$  (non-parametric Wilcoxon test and  $\chi^2$  test) indicated a statistically significant difference.

## RESULTS

In total, 36 (77%) licensed doctors of chiropractic responded to the e-questionnaire.

### Individual Characteristics

Twenty-four (66.7%) of the Bernese doctors of chiropractic were male, and 12 (33.3%) were female. Nineteen (52.7%) were older than 44 years. Two thirds (66.6%) have worked in their office for more than 10 years. One third (33.3%) were working 20 to 30 hours or less per week, and about one third

**Table 2.** *Opinions on medication prescription (n = 36); last column by Robert (2003)*

Questions A-C (including personal comments)	Bernese doctors of chiropractic (n = 36)		Swiss minus Bernese <sup>3</sup>		Difference to Robert <sup>3</sup>
	Yes	No	Yes	No	
Question A. Chiropractors have some limited privileges on prescription of medication (C-list): Do you consider this privilege an advantage for the chiropractic profession?	72% (26) Mean = 2.81; SD = 0.89; mild to strong agreement: 72%*	28% (10)	84% (89)	16% (17)	$\chi^2 = 2.41, P = .121$
Question B. Do you think that the profession should aim at extending this privilege to some specialties of the B-list (additional NSAIDs, muscle relaxants, and analgesics)?	58% (21) Mean = 2.67; SD = 1.04; mild to strong agreement: 58%*	42% (15)	77% (82)	23% (24)	$\chi^2 = 4.88, P = .027$ or $P < .05$
B-list should include additional:	n = 20		n = 96		$\chi^2 = 2.04, P = .153$
NSAID	19 (95%)		79 (76%)		$\chi^2 = 5.16, P = .023$
Muscle relaxants	11 (55%)		76 (73%)		or $P < .05$
Analgesics	16 (80%)		83 (80%)		$\chi^2 = 0.55, P = .457$
Question C. Do you perceive medication as a necessary component of our treatment?	41% (14) Mean = 2.26; SD = 0.86; mild to strong agreement: 41%*	59% (20)	80% (85)	20% (21)	$\chi^2 = 18.92, P < .001$

SD, standard deviation.

\* Scale 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

**Table 3.** *Self-assessment of needs for education in pharmacology*

Questions G-I (n = 36)	Bernese doctors of chiropractic (n = 36)		
Question G. When did you take your last course in pharmacology (several answers possible)?		2001-2008 30.6%	Before 2001 52.8%
Question H. Do you perceive continuing education in pharmacology for a licensed chiropractor as necessary?		Yes: 30 (91%) Mean = 3.30; SD = 0.73; mild to strong agreement: 91%*	No: 3 (9%)
Question I. Why do you perceive continuing education as necessary (several answers possible)?	To know/understand (33) 92% Mean = 3.31; SD = 0.62; mild to strong agreement: 92%*	To prescribe (26) 72% Mean = 2.86; SD = 0.93; mild to strong agreement: 72%*	

SD, standard deviation.

\* Scale 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

(36.1%) were working in solo practices. Table 1 lists the mean values and standard deviations regarding age, years in practice, and working hours per week.

### Opinions on Medication Prescription

Table 2 shows 3 items concerning opinions of doctors of chiropractic on medication prescription. Data in column 2 and 3 concern doctors of chiropractic working in the canton of Berne in 2009, columns 4 and 5 concern data from Robert's<sup>3</sup> survey (Swiss minus Bernese doctors of chiropractic in 2000).

There was 72% mild to positive agreement among Bernese doctors of chiropractic (question A) that the ability to prescribe medication (C-list) is an advantage for the chiropractic profession. Twenty-one of 36 respondents (58%, question B) think that the profession should even expand this present privilege to some specialties of the B-list (additional nonsteroidal anti-inflammatory drug [NSAIDs], muscle relaxants, and additional analgesics). Nineteen respondents (95% of all "B-list supporters") favor adding more NSAIDs;

11 (55%), muscle relaxants; and 16 (88%), analgesics to the list of medications legally prescribed by doctors of chiropractic. In the old study by Robert,<sup>3</sup> Swiss doctors of chiropractic favored questions B and C significantly more than the current Bernese doctors of chiropractic (Table 2).

There were 7 personal comments to question C (Table 6): (1) "NSAIDs in extremely acute cases where absolutely no range of motion can be achieved"; (2) "Medication for short-term benefit is a necessary component of my treatment"; (3) "Not necessary, but efficient, practical, a nice option"; (4) "necessary and needed"; (5) "of help in patients that cannot sleep because of pain"; (6) "may be a good adjunctive to our treatment in some instances to speed up recovery from pain"; and (7) "in emergency cases only." Only 1 respondent mentioned "It should be part of the definition of Chiropractic, that we assist the body in self healing WITHOUT the use of drugs or surgery." These comments were judged by all Bernese doctors of chiropractic by a follow-up survey. Percentages of their mild to strong agreement appraisals are added in Table 6.

**Table 4.** Self-assessment of generally prescribed medication by Bernese chiropractic physicians

Answered questions on a 3-point Likert scale (n = 36) 1 = often; 2 = seldom; 3 = never	NSAIDs*	Muscle relaxants	Analgesics	Others
Question D. Which medication do you prescribe generally?				
Often	4 (11.4%)	1 (3.6%)	4 (11.8%)	1 (4.5%)
Seldom	17 (48.6%)	5 (17.9%)	15 (44.1%)	8 (36.4%)
Never	14 (40%)	22 (78.6%)	15 (44.1%)	13 (59.1%)
Response count per question asked	35	28	34	22
Mean values	1.71	1.25	1.68	1.45
SD	0.67	0.52	0.68	0.60

\* Non-steroidal anti-inflammatory drugs.

**Table 5.** Self-observation of performance "medication counseling"

Answered questions (n = 36)	>10	5-10	3-5	1-2	0 times	Responses	Difference between questions E and F (n = 35): "asked" was observed more than "done" (Wilcoxon test)
Question E. Last week, how many times have you been asked:							1. Prescription form: $P = .002 (<.01)$
To fill in prescription forms	0	2	2	19	12	35	2. Oral recommendation: $P = .357 (>.05; \text{not significant})$
To recommend medication orally	1	4	10	18	3	36	3. Self-dispensation: $P = .021 (<.05)$
For self-dispensation	0	4	8	10	13	35	4. Delegation: $P = .011 (<.05)$
For delegation to medical doctor or pharmacy	0	3	3	10	18	34	
Question F. Last week, how many times have you (done):							
Filled in prescription forms	0	1	2	7	25	35	
Recommended medication orally	1	3	10	16	6	36	
Practiced self-dispensation	0	2	5	5	22	34	
Delegated to medical doctor or pharmacy	0	3	8	17	6	34	

**Table 6.** Comments to questions B, C, G, H, and I, judged by Bernese doctors of chiropractic (n = 36)

Questions	Comments	No. of valid cases	Mean	SD	Mild to strong agreement
Question B	Steroid injection/high dosage of steroids to control the inflammation	36	2.94	0.86	72
	Not prescribing drugs even though you would have the right to do so underlines even more the philosophy of not prescribing!	36	2.50	0.97	50
Question C	In extremely acute cases where absolutely no range of motion can be achieved	36	2.94	0.86	72
	Medication for short-term benefit is a necessary component of my treatment	35	2.26	0.95	31
	Not necessary, but efficient, practical, a nice option	36	2.69	0.79	56
	Necessary, needed	36	2.19	0.89	33
	Of help in patients that cannot sleep because of pain	36	3.11	0.52	92
	May be a good adjunctive to our treatment in some instances to speed up recovery of pain	35	2.86	0.88	71
	It should be part of the definition of Chiropractic that we assist the body in self healing WITHOUT the use of drugs or surgery	36	2.50	0.97	50
In emergency cases only	34	2.53	0.66	44	
Question G	If we are able to prescribe B-List medications, we will definitely need some mandatory classes	34	3.47	0.66	91
Question H	If we extend our privileges it's mandatory	33	3.42	0.61	94
	If we can prescribe additional drugs—yes	35	3.29	0.67	89
	Not at the present state of prescription rights	33	2.67	0.85	55
	Only if we can prescribe B-List medications, otherwise nonmandatory classes would be of interest	34	2.94	0.74	71
	If medication dispensation is expanded to B-list	35	3.26	0.74	83
	I think if we are allowed to prescribe we also should have a better understanding in pharmacology	35	3.51	0.61	94
	If we can prescribe medication, it should be a must	33	3.52	0.67	91
Question I	Not to be able to prescribe, but to know what the medications are being given to the patients from the GP or from the pharmacy	35	3.00	0.80	80
	To understand dangers and possible interactions/side effects of medication	35	3.34	0.54	97
	This field is changing on a daily basis. Continuing education is essential to keep up with that change	34	3.29	0.68	88

### Medication Generally Prescribed

To obtain data on the frequency of doctors of chiropractic prescribing medication, we provided the following 4 categories for judgment: NSAIDs, muscle relaxants, analgesics, and others. This judgment is summarized in Table 4. Bernese doctors of chiropractic defined others as glucosamine sulfate, chondroitin sulfate, fish oil capsules, magnesium, multivitamins, and creams.

### Medication Prescription

Before completing the e-questionnaire, we asked Bernese doctors of chiropractic to observe themselves for 1 week on how many times they have been asked by the patient for medication and how often they have been active in (a) completing prescription forms, (b) recommending medication orally, (c) self-dispensing, and (d) delegating prescription to a medical doctor or pharmacy. Table 4 shows the outcome.

### Education

In addition to questions in relation to opinions of doctors of chiropractic of medication prescription, we were interested in their judged needs for education in pharmacology. Table 6 lists the results (questions G, H, and I). One respondent commented “If we are able to prescribe B-List medications, we will definitely need some mandatory classes.” Eight comments concerned the question “Do you perceive continuing education in pharmacology for a licensed doctor of chiropractic as necessary?”: (1) “If we extend our privileges it’s mandatory”; (2) “If we can prescribe additional drugs—yes”; (3) “in the case that we are allowed to prescribe drugs”; (4) “not at the present state of prescription rights”; (5) “if medication dispensation is expanded to B-list”; (6) “I think, if we are allowed to prescribe, we also should have a better understanding in pharmacology”; (7) “if we can prescribe medication, it should be a must”; and (8) “not to being able to prescribe, but to know what the medications are being given to the patients from the GP or from the pharmacy.” Two respondents commented on the necessity of continuing education: (1) “To understand dangers and possible interactions/side effects of medication” and (2) “this field is changing on a daily basis, continuing education is essential to keep up with that change.” All comments were judged by Bernese doctors of chiropractic. Percentages of their mild to strong agreement appraisals concerning continuous education are described in Table 6 (questions G, H, and I).

## DISCUSSION

Compared with Robert’s<sup>3</sup> survey, the response rate to our Internet-based survey was definitely much higher,<sup>8</sup> 77% vs 51.2%.

### Opinion and Handling of Medication Prescription

Seventy-two percent of responding Bernese doctors of chiropractic judged the limited privilege to prescribe medication (C-list) as an advantage for the chiropractic profession. This percentage of one Swiss canton seems to be similar as in the survey conducted in all 26 cantons by Robert.<sup>3</sup> Only about half of the Bernese respondents (58%) think that the profession should aim at extending this privilege, for example, by prescribing higher dosages of NSAIDs; and even fewer respondents (41%) appraised medication as a necessary part of their treatment. Both issues received much less positive agreement compared with Robert’s study ( $P < .05$ ).

Analysis of the comments to question C might help to enlighten the differences: Medications are judged by the Bernese group as not necessary and needed (33% mild to strong agreement) nor as necessary per se (44% mild to strong agreement). However, medications are necessary in extremely acute cases where absolutely no range of motion can be achieved (72% mild to strong agreement), they help patients who cannot sleep because of pain (92% mild to strong agreement), and they are a good adjunctive to the treatment to speed up recovery of pain (72% mild to strong agreement) supported by some evidence.<sup>9,10</sup> About half of the respondents confirmed that medications might support treatment beyond emergency cases (56% mild to strong agreement for “in emergency case only”).

Among Bernese supporters for extending the existing C-list to the B-list, additional NSAIDs and analgesics are the 2 favorite categories of medications that have been supported by other studies.<sup>9,10</sup>

Only 1 respondent explicitly mentioned that doctors of chiropractic should assist the body in self healing without the use of medications. This statement, earlier proposed by World Federation of Chiropractic’s Task Force on Identity,<sup>2</sup> was agreed upon by half of Bernese doctors of chiropractic (mild to strong agreement 50%).

In addition to Bernese doctors of chiropractic medication prescription preferences, we analyzed their self-assessed prescription performance. Patients’ needs and doctors of chiropractic activities concerning medication prescription, self-dispensation, and delegation appeared different (Table 5), implying that practitioners actively prescribe medication significantly less often than asked for by the patients. This is different from some medical physicians’ attitudes.<sup>11</sup>

### Needs for Education in Pharmacology

It appears that respondents appraise their basic education combined with self-study as sufficient for prescribing medications of the C-list. Continuing education (CE) in pharmacology seems to be deemed necessary for more than 90% of Bernese doctors of chiropractic, even without extending the present prescription privilege to prescribe additional NSAIDs, muscle relaxants, and

analgesics. To the statement “CE supports better understanding,” there was mild to strong agreement: 88% to 97%. If this present prescription privilege would be extended to a wider variety of NSAIDs, muscle relaxants, analgesics, and others (B-list), the majority ( $\geq 91\%$ ) of Bernese doctors of chiropractic would perceive structured continuing education in pharmacology as necessary and mandatory. Continuing education in pharmacology was perceived to facilitate better understanding.

### Limitations

Our discussion and conclusion must be viewed with the following limitations: (1) A smaller targeted population with closer personal acquaintanceships might have produced a different response rate. (2) Our survey was developed by 9 members of the Bernese Quality Circle Group, being also part of the targeted sample in this pilot study. (3) Except for questions A, B, and C (Table 2), our questionnaire has never been tested by doctors of chiropractic practicing outside of the canton of Berne. (4) The  $\chi^2$  test for difference between Robert’s<sup>3</sup> and our survey could only be calculated for questions A, B, and C (Table 1). Difference of the individual characteristics of the 2 studies compared could not be calculated because not all demographic data of Robert’s survey were available at the time of comparison. Having used a 4-point Likert scale questionnaire, items forced respondents to specify their level of agreement to each statement. In addition, analysis and follow-up appraisal of respondents’ comments reduced the likelihood of biasing to a certain amount. (5) Research suggests that health care professionals have a limited ability to accurately self-assess.<sup>12,13</sup> We only surveyed one group of practitioners; therefore, it is unknown what other groups of doctors of chiropractic may think. Studies including other geographic locations and countries would be needed before expanding these findings to other groups.

### Targeted Sample

Our pilot survey included one third female doctors of chiropractic compared with Robert’s<sup>3</sup> survey that included approximately 20%. Fifty-three percent of the respondents in this study were older than 44 years, whereas Robert’s<sup>3</sup> survey revealed approximately 40% in this age group. Two thirds (66%) were in practice for more than 10 years in this survey compared with Robert’s<sup>3</sup> study, which calculated approximately 50%. Thirty-six percent of Bernese participants worked in solo practice, less than in Robert’s survey,<sup>3</sup> where solo practice was the most frequent type of practice. Unfortunately, the comparison of the demographic data of the 2 surveys could not be statistically verified (not 2 independent samples). Further surveys, canton by canton, will be necessary.

### CONCLUSION

About three quarters of Swiss and Bernese doctors of chiropractic agree that the limited privilege to prescribe nonprescription medications (C-list) is an advantage for the chiropractic profession. Less than half of Bernese doctors of chiropractic perceived medications as a necessary component for their treatment, using them mainly for short-term benefit and to help patients who cannot sleep because of pain. The Bernese group actively prescribes medications at least once a week, although significantly less than asked for by their patients. Continuing education in pharmacology was perceived to facilitate better understanding. Only half of the responders agree on mandatory CE at the present time. If they would be allowed to prescribe additional NSAIDs, muscle relaxants, and analgesics, the majority would go for structured continuing education.

It would be interesting to explore the whole Swiss population of chiropractic doctors (N = 270), canton by canton, concerning their knowledge, understanding, skills, and attitude of prescribing nonprescription and prescription medications as one component of their care.

### Practical Applications

- Bernese doctors of chiropractic prescribe medications less than asked for by their patients.
- The majority of Bernese doctors of chiropractic agree on structured continuing education in pharmacology.

### ACKNOWLEDGMENT

The authors thank H Vorkauf, PhD, for his suggestions on the statistical aspects of this paper and the members of the Bernese Quality Circle.

### FUNDING SOURCES AND POTENTIAL CONFLICTS OF INTEREST

No funding sources or conflicts of interest were reported for this study.

### REFERENCES

1. Manga P. Economic case for the integration of chiropractic services into the health care system. *J Manipulative Physiol Ther* 2000;23:118-22.
2. Chapman-Smith D. The spinal health care experts. The profession reaches agreement on identity. [http://www.wfc.org/website/WFC/Library.nsf/CatalogByTitleLive/Chiropractic%20Report%20-%20Identity%20Issue,%20July%202005,%20The/\\$FILE/TCR.pdf](http://www.wfc.org/website/WFC/Library.nsf/CatalogByTitleLive/Chiropractic%20Report%20-%20Identity%20Issue,%20July%202005,%20The/$FILE/TCR.pdf). Vol. 19 No.4. 2005.

3. Robert J. The multiple facets of the Swiss chiropractic profession. *Eur J Chiropr* 2003;50:199-210.
4. Die Bundesversammlung der Schweizerischen Eidgenossenschaft. Bundesgesetz über die universitären Medizinalberufe (Medizinalberufegesetz, MedBG) [23 June 2006].
5. Ackermann-Liebrich UA, Nocera S, Merten S. Creating competent health-care specialists: the Swiss school of public health. *World Hosp Health Serv* 2007;43:29-31.
6. Der Grosse Rat des Kantons Bern. Gesundheitsgesetz (GesG) [Titel Fassung vom 6. 2. 2001].
7. Regierungsrat des Kantons Bern. Verordnung über die beruflichen Tätigkeiten im Gesundheitswesen (Gesundheitsverordnung, GesV). [24 October 2001].
8. Braithwaite D, Emery J, De LS, Sutton S. Using the Internet to conduct surveys of health professionals: a valid alternative? *Fam Pract* 2003;20:545-51.
9. Smith D, McMurray N, Disler P. Early intervention for acute back injury: can we finally develop an evidence-based approach? *Clin Rehabil* 2002;16:1-11.
10. Chou R, Huffman LH. Medications for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. *Ann Intern Med* 2007;147:505-14.
11. Watkins C, Harvey I, Carthy P, Moore L, Robinson E, Brawn R. Attitudes and behaviour of general practitioners and their prescribing costs: a national cross sectional survey. *Qual Saf Health Care* 2003;12:29-34.
12. Davis DA, Mazmanian PE, Fordis M, Van HR, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. *JAMA* 2006;296:1094-102.
13. Eva KW, Regehr G. Self-assessment in the health professions: a reformulation and research agenda. *Acad Med* 2005;80:S46-54.

Access to *Journal of Manipulative and Physiological Therapeutics Online*  
is available for print subscribers!

Full-text access to *Journal of Manipulative and Physiological Therapeutics Online* is available for all print subscribers. To activate your individual online subscription, please visit *Journal of Manipulative and Physiological Therapeutics Online*, point your browser <http://www.mosby.com/jmpt>, follow the prompts to **activate your online access**, and follow the instructions. To activate your account, you will need your subscriber account number, which you can find on your mailing label (*note*: the number of digits in your subscriber account number varies from 6 to 10). See the example below in which the subscriber account number has been circled:

Sample mailing label

This is your subscription  
account number →

\*\*\*\*\*3-DIGIT 001  
SJ P1  
AUG00 J076 C: 1 (1234567-89) U 05/00 Q:1  
J. H. DOE, MD  
531 MAIN ST  
CENTER CITY, NY 10001-001

Personal subscriptions to *Journal of Manipulative and Physiological Therapeutics Online* are for individual use only and may not be transferred. Use of *Journal of Manipulative and Physiological Therapeutics Online* is subject to agreement to the terms and conditions as indicated online.