

## **A Survey of Alabama chiropractors regarding health promotion, primary prevention, and primary care.**

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### **Abstract:**

Doctors of Chiropractic (DCs) perform health promotion as part of routine practice. In addition, the regulating body for chiropractic educational institutions has a standard in place on the teaching of this subject matter in all accredited colleges. The largest chiropractic professional organization in the U.S. (the American Chiropractic Association) and the Association of Chiropractic Colleges also have position statements supportive of prevention and health promotion as part of practice. However, very little is known as to whether practicing chiropractors have the aptitude, willingness, competence or the infrastructure to appropriately address primary preventive issues with patients. Additionally, little is known regarding attitudes and beliefs among DC's in different regions of the country and whether demographic and cultural norms will affect the ability to meet the accrediting agency's charge.

This study applies the Ecological Theory of health promotion to design a survey of attitudes, beliefs and practices of chiropractors in Alabama. Results indicate that although some health promotion practices are performed, many recommended screenings or procedures are not. In addition, though most clinicians agreed that public health measures should be a part of practice, in many cases they reported they did not perform them routinely. Further education and investigation are needed as to how chiropractors can be more involved in prevention and promotion of health as part of routine practice, including removal of actual and perceived barriers to this practice.

**Keywords:** health promotion | injury prevention | chiropractic care | wellness | chiropractic education | health education

## Article:

Doctors of Chiropractic (DCs) perform health promotion (HP) as part of their routine practice patterns.<sup>1</sup> In 2004, Hawk et.al. published a national survey of DCs in which 80% reported giving some information to patients regarding musculoskeletal injury risk reduction, exercise, stress reduction and other specific injury prevention.<sup>2</sup> In 2000, Rupert included questions about HP in an early study of practice patterns which indicated that the chiropractic profession has held an historic interest in this area as well as various levels of prevention and has utilized a preventive form of chiropractic care referred to as maintenance care.<sup>3</sup>

According to Rupert, maintenance care tends to fall into two categories: those traditional HP activities that are advocated by mainstream university-educated health educators such as weight control, exercise, smoking cessation, and activities that are specific to chiropractors such as the use of spinal manipulation to prevent reoccurrence of spinal pain. As it related to spinal manipulation, maintenance care was defined as, “a regimen designed to provide for the patient’s continued well-being or for maintaining the optimum state of health while minimizing recurrences of the clinical status.” Rupert’s study indicated that many DCs believed periodic spinal manipulation could prevent musculoskeletal conditions such as back pain from reoccurring and that even systemic disease might be reduced through spinal health with chiropractic care, though there is little evidence to support the later posit. The author stated that 90% of DCs chiropractors agreed or strongly agreed that the purpose of maintenance care is to minimize recurrence or exacerbation of a spinal condition or complaint. Eighty percent agreed or strongly agreed that its purpose is to “maintain or optimize the state of health.” DCs also recommended maintenance care to 79% of their patients and 34% tended to comply. The author did not provide information on what types of traditional HP activities are used by chiropractors.

The accrediting agency for all chiropractic colleges in the United States (US), the Council on Chiropractic Education (CCE), required all chiropractic colleges in this country to implement a HP-based curriculum as of January, 2007.<sup>4</sup> The CCE defined their version of HP as, “Maintenance of neurobiomechanical integrity inclusive of subluxations, prevention and general strategies to enhance quality and prevent disease, trauma and illness. This includes aspects of ergonomics, psychosocial support, exercise, diet, nutrition and lifestyle counseling and health screening.”

In 1995, in a national survey of 492 US chiropractors, Hawk and Dusio<sup>5</sup> provided a more comprehensive view of what types of preventive services DCs employed in their practices. The topics most often discussed with patients were related to musculoskeletal issues. However, DCs also discussed some traditional HP activities with their patients as well. The most frequent topics discussed were fitness (78%), nutritional supplements (64%) and postural education (59%). The least-discussed topics were family planning (15.6%), sexually transmitted disease (19.2%), immunization (24.7%) and AIDS (26.3%). Respondents reported greater levels of engagement

on topics related to the musculoskeletal system compared to such things as weight loss and sexually transmitted diseases. Further, the authors noted that 90% of respondents considered themselves to be primary care providers.

In 2003, Evans<sup>6</sup> issued a call to action for the chiropractic profession suggesting that DCs focus on wellness, HP and more active participation in prevention-based chiropractic. He also indicated that there may be a paradigm shift in the philosophy and delivery of health care by traditional medicine as well as complementary and alternative medicine toward more preventive efforts. He called for chiropractic practitioners to be trained in public universities in traditional HP and public health if needed; and to emphasize more primary prevention as part of routine practice. The author called for chiropractic institutions to teach the profession how to be successful in prevention and wellness beyond chiropractic maintenance. Evans also stated that DCs should become more active in the development of public policy by becoming involved with local and national public health organizations. He specifically cited the need for clinicians in chiropractic to work in government agencies and at the policy level.

In 2001, Hawk<sup>7</sup> suggested the profession take steps to change its public image from that of “back doctors” to primary care prevention experts. She advocated the profession show the public it provides patient-centered care in which patients are assisted in self-care to facilitate optimal function. She also stated that the chiropractic profession should join with other disciplines, agencies and members of the public to contribute to the health of the nation and world. Hawk stressed the need for DCs to join such organizations as the World Health Organization and the American Public Health Association, as well as participate in the 2010 Healthy People initiatives.<sup>7,8</sup> In a 2000 publication, Hawk rhetorically asks, should chiropractic be a “wellness profession?”<sup>9</sup> The author pointed out that there are barriers that must be overcome if the profession is to play a prominent role in the delivery of primary care/ preventive services. She concluded that historically, chiropractic education has not focused on epidemiology and HP. As a result, most DCs are unaware of the large body of evidence-based literature on prevention and population health.

The American Chiropractic Association (ACA) has established a wellness committee and issued a vision statement that suggests a paradigm for the profession. The ACA seeks a transformation in health care, from a focus on disease to a focus on wellness according to their Wellness Model.<sup>10</sup> However, very little is known as to whether practicing DCs have the aptitude, willingness, competence or the infrastructure to appropriately address primary preventive issues with patients. Additionally, little is known regarding attitudes and beliefs among DCs in different regions of the country and whether demographic and cultural norms will affect the ability to meet the CCE’s charge. An examination of the readiness and systematic willingness to answer the CCE’s call is necessary to determine feasibility.

## **Theoretical Framework for Survey Development and Purpose of the Study**

The development of this survey instrument was based upon the theoretical framework of the Social Ecological Model (SEM) of health promotion, which McElroy et al. published in 1988,<sup>11</sup> in order to determine whether chiropractors in the state of Alabama practice HP as is currently defined by the CCE and, if so, to what extent. The SEM views health and health behavior from a reciprocal, ecological prospective. McLeroy and colleagues suggested the model, containing five interactive levels of influence, could explain most health behaviors. They include *intrapersonal* factors, *interpersonal* factors, *institutional* factors, *community* factors and *policy* factors.

Intrapersonal factors include characteristics such as personal knowledge, attitudes and beliefs concerning particular behavior and issues of personal and self-concept. Interpersonal factors include social networks such as family, friends and work groups. Institutional factors are social practices with organizational structures including the formal and informal rules and regulations for operation within the particular institution; suggesting organizational norms and changes of those norms can affect behavior of those individuals involved. Community factors are relationships among organizations, institutions and informal networks within defined boundaries; including the social standards of norms that exist within the community. Policy factors are policies and laws that are designed to protect the health of a community. Policies for health protection include regulations for healthy actions, disease prevention and disease control.

The SEM has been used in the study of many health problems and has served as the basis for assessments and interventions that address a broad variety of preventive health issues. These included a 2005 study of how infectious diseases spread.<sup>12</sup> In 2004 Sorenson reported on a smoking cessation intervention in a blue collar workforce, understanding the influence of socioeconomic position and particularly occupation, on smoking patterns; and framing of various interventions related to advocacy.<sup>13</sup>

*Historical use of theory-based models.* Although national surveys have been performed regarding the attitudes and practices of DCs regarding prevention, a literature review found no theory-based surveys that measure their HP practices. Health behavior theories have been used in the past as a basis for development of reliable surveys regarding a variety of health topics. These include a 1999 study in which Grant et.al. used the Health Belief Model to develop a telephone survey instrument designed to measure the general public's knowledge, attitudes and perceptions of the diagnosis of asthma;<sup>14</sup> the Trans-theoretical Model of Behavior Change to

develop survey items regarding the use of thermometers in the preparation of food;<sup>15</sup> and the Theory of Planned Behavior to develop a survey to assess whether written materials which focused on improving the referral and prescribing practices of primary care practitioners affected their behavior.<sup>16</sup> Williams developed a reliable survey based on the SEM which dealt with alcohol consumption among college athletes;<sup>17</sup> and Evans and colleagues used the Theory of Reasoned Action to assess the potential use of HP and preventive methods among graduating chiropractic interns.<sup>18</sup>

The results of national surveys have indicated that most chiropractors engage in some activities that could be considered HP; however the majority of these activities are related to musculoskeletal issues. DCs licensed in the State of Alabama who are members of the Alabama State Chiropractic Association (ASCA) were invited to participate in this survey. This survey focused on how DCs in this state viewed their role as health care providers and identified activities they believed were appropriate, what specific activities they used in their practices and how often they engaged the patient on various HP topics.

## **Methods**

In this study of Alabama chiropractors a survey instrument was created by developing questions that correspond to the five constructs of the SEM<sup>11</sup> and based on the prior work of Williams.<sup>17</sup> The following steps were used to develop this survey instrument:

1. Review of current, relevant literature
2. Review existing surveys concerning chiropractic and health promotion
3. Develop questions based on level of social ecology
4. Develop and modify questions to fit target audience and develop instrument
5. Expert Panel Review of survey for construct validity
6. Review of survey by focus group for comprehension and readability
7. Pretest instrument
8. Pilot test instrument

## **Sampling and Survey Administration**

After approval for this study was granted by the Institutional Review Board of the University Of Alabama, participants of a focus group pre-tested the survey instrument. Participants of the focus group were 17 members of the ASCA Executive Board. Adjustments were made to the instrument based on input from this group. The survey instrument was then tested for face validity by two DCs who have graduate degrees in health promotion and three PhDs in the field. It consisted of 45 items developed using the SEM and was placed on SurveyMonkey™, an internet web site designed for gathering information through internet surveys. DCs who were current members of the ASCA and who subscribe to the Association's electronic messaging service were invited to visit the web site and complete the survey. All participants signed informed consent forms advising them of their rights and informing them of their right to privacy. Participation in this study was voluntary. The survey was administered in the spring of 2008.

## **Data Analysis**

Once surveys were completed the Survey Monkey™ software provides the researcher with a Microsoft™ Excel file. This file was converted to an SPSS (v. 14, Chicago, IL) database. Data were coded for appropriate analysis including categorization of age and recoding certain variables into binary coding to facilitate variable assessments. Frequencies were generated on demographic variables and chi-square analysis was performed for variables to test for significant relationships among variables. Results were considered statistically significant at  $p < 0.05$ .

## **Results**

### **Demographics**

Of the 197 individuals who subscribe to the messaging service, 107 started the survey and 105 completed 100% of the survey. Over 80% of respondents were males and >60% were aged 40 and older. Thirty-seven percent had been in practice for >20 years and 24% had practiced <5 years. Fifty-six percent stated their practice community was "middle-class" and about 48% characterized it as "urban or suburban." Fifty-three percent held only a DC degree and among

those holding an additional degree 39% held a bachelor degree. Basic demographic information is listed in **Table 1**.

**Table 1. Respondent demographics and practice classifications.**

<b>Gender</b>	<b>n (%)</b>
Male	88(82)
Female	19(18)
Missing	0(0)
<b>Age in years</b>	
<30 years	8(8)
30-39	34(32)
40-49	28(26)
>50	36(34)
Missing	1(1)
<b>Years in practice</b>	
<5	26(24)
5-10	18(17)
11-15	15(14)
16-20	8(7)
>20	40(38)
Missing	0(0)
<b>Membership in Public Health Org</b>	
American Public Health Assn	2(2)
Local Public Health	6(6)
Other	6(6)
None	93(86)
Missing	0(0)
<b>Practice community</b>	

Rural	21(20)
Urban	20(18)
Suburban	31(29)
Small town	35(33)
Missing	0(0)
<b>Community classification</b>	
Affluent	19(18)
Middle-class	60(56)
Lower middle	22(21)
Missing	1(1)
<b>Role classification</b>	
Portal of entry	31(29)
Primary care	46(43)
Neuro-musculoskeletal	28(26)
Other	2(2)
Missing	0(0)

### **Intrapersonal levels of influence**

All of the respondents with the exception of 5 were members of the ASCA, an organization whose membership consists of slightly less than half of all the licensed chiropractors in the state. Both ACA and ASCA tend to be evidence-based organizations that would attract members with similar practice philosophies.

### **Interpersonal levels**

Data collected from this study indicated that the vast majority of DCs agreed or strongly agreed

that it was appropriate to engage in HP activities such as referring patients for prostate screening (93%), colonoscopy (79%), mammogram (85%) and blood lipid screening (85%). However when asked what percentage of the appropriate patients they actually referred for screenings, far fewer followed through; prostate (70% referred 25% or less), colonoscopy( 78% referred 25% or less, mammogram(77% referred 25% or less) blood lipid screening (72% referred 25% or less). DCs stated it was appropriate to counsel patients with regard to tobacco use and weight control. However, only 49.1% counseled 25% or less of the appropriate patients regarding weight control while 59% counseled 25% or less the appropriate patients regarding smoking cessation. In addition, though 43.9% thought of themselves as primary care providers only 42% reported screening 50% or less of the appropriate new patients for disorders as simple to detect as hypertension. Thirteen percent screened less than 25% and 18% screened none. Only with regard to vigorous physical activity did the majority of respondents both agree that it is appropriate to counsel patients (100% agreed or strongly agreed) and stated they followed through with counseling, although they did so at lower percentages. (48% counseled 75% or more). Unlike other prevention activities, the discrepancies between reported attitudes and behavior with regard to vigorous physical exercise supports the notion that musculoskeletal conditions continue to be the primary focus for most DCs in this study; regardless of how they describe their role as a practitioner. Females were more likely to feel it appropriate to counsel on weight management (26% vs 58%, p=0.01). **Table 2** contains information related to DCs' attitudes and practices on various counseling topics.

**Table 2 Chiropractors' attitude toward appropriateness of counseling on prevention topics and percent of patients counseled on topic.**

Appropriateness of counseling topic	n (%)					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Missing
Nutrition	72(67)	35(33)	0(0)	0(0)	0(0)	0(0)
Tobacco cessation	73(68)	29(27)	3(3)	1(1)	0(0)	1(1)
Weight mgt	72(67)	30(28)	2(2)	1(1)	0(0)	2(2)
Physical activity	73(68)	33(31)	0(0)	1(1)	0(0)	0(0)
Prostate screen	59(55)	38(35)	4(4)	4(4)	0(0)	2(2)
Mammography	44(41)	44(41)	7(7)	6(6)	2(1)	4(4)
Referral for colonoscopy if >50	43(40)	40(37)	12(11)	10(10)	0(0)	2(2)
Cholesterol/ lipid screening	46(43)	44(41)	10(9)	5(5)	1(1)	1(1)

<b>Provided*</b>	<b>none</b>	<b>≤25%</b>	<b>26-50%</b>	<b>51-75%</b>	<b>&gt;75%</b>	<b>Missing</b>
Weight	6(5)	46(43)	20(19)	13(12)	21(20)	1(1)
Physical activity	0(0)	13(12)	10(10)	32(30)	51(47)	1(1)
Tobacco cessation	20(19)	41(38)	9(8)	15(14)	20(19)	2(2)
Hypertension (new patients only)	18(17)	14(13)	9(8)	7(7)	53(49)	6(6)
Prostate screen	45(42)	28(26)	7(6)	6(6)	20(19)	1(1)
Blood lipids	42(39)	33(31)	10(9)	9(9)	12(11)	1(1)
Colonoscopy	57(53)	25(23)	5(5)	11(10)	9(9)	0(0)
Mammography	51(47)	29(27)	6(6)	9(9)	11(10)	1(1)

\* Percent of patients within last month who were screened, counseled, or given recommendation, when appropriate.

### **Institutional levels**

Respondents had strong opinions regarding institutional levels of influence. Ninety eight percent believed DCs should be advocates for prevention. Ninety percent indicated they would attend continuing education courses on prevention if they were offered. Respondents also overwhelmingly supported (80%) curriculum changes in chiropractic colleges which would increase the number of courses on prevention.

### **Policy levels**

Respondents seemed to be somewhat conflicted with regard to government involvement in the development of health polices for the nation. A total of 52 % either agreed or strongly agreed on some role for government in developing health policy while 22% were undecided and 26% disagreed or strongly disagreed. Most respondents agreed or strongly agreed with legislative bans on smoking in public places (89%) and foods containing trans fats (67%) however, when

asked if local, state and federal agencies should establish laws which govern health behavior only 45 % agreed or strongly agreed with this and 32% disagreed or strongly disagreed while 23% were undecided. Similarly only 43% supported an outright ban on cigarette sales. **Table 3** contains information on interpersonal, policy, and legal aspects of SEM and chiropractor attitudes and **Table 4** contains cross-tabulations related to demographic variables and counseling practices.

**Table 3. Chiropractors' attitude toward interpersonal, policy and legal aspects of public health and prevention.**

Topic	n (%)					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Missing
Insurance companies prevent DC from being reimbursed for prevention	85(79)	16(15)	2(2)	1(1)	1(1)	2(2)
Support smoking ban in public	71(66)	22(21)	7(6)	4(4)	1(1)	2(2)
Important for DC to advocate prevention	58(54)	46(43)	1(1)	0(0)	0(0)	2(2)
Support ban on transfats	45(42)	23(21)	17(16)	12(11)	5(5)	5(5)
Patients are receptive to prevention messages	42(39)	56(52)	7(7)	2(2)	0(0)	0(0)
Would attend CE course on prevention	41(38)	54(50)	7(7)	3(3)	1(1)	1(1)
Support ban on cigarette sales	38(35)	8(8)	17(15)	34(32)	8(8)	2(2)
State law negatively affects ability to offer prevention	26(24)	18(17)	12(11)	40(37)	9(9)	2(2)
Colleges should teach more prevention	23(21)	62(58)	16(15)	3(3)	1(1)	2(2)
Support govt establishment of laws to protect health	23(21)	23(21)	24(22)	21(20)	13(13)	3(3)
State law prevents ordering of screenings	21(19)	11(10)	9(9)	43(40)	20(19)	3(3)

**Table 4. Respondents' attitudes toward prevention and counseling and practice of screening and counseling, by practitioner gender, age, years in practice and primary care ideology.**

	<b>Gender</b>	<b>Male (%)</b>	<b>Female (5)</b>	<b>P-value<sup>1</sup></b>
<b>Appropriate to counsel on</b>				
Weight management		26.4	57.9	.01*
Physical activity		78.2	78.9	.60
Tobacco cessation		34.9	26.3	.33
<b>Screened within last month</b>				
Hypertension (new patients)		58.5	63.2	.46
<b>Recommended screening when appropriate</b>				
Males for prostate		25.3	21.1	.48
Blood lipids		20.7	15.8	.45
Colonoscopy		18.2	21.1	.50
Mammography		17.2	26.3	.27
Support public smoking ban		89.7	83.3	.34
Support restaurant transfat ban		65.5	72.2	.40
	<b>Age</b>	<b>&lt;40 years</b>	<b>40 and older</b>	<b>P-value<sup>1</sup></b>
<b>Appropriate to counsel on</b>				
Weight management		38.1	28.6	.21
Physical activity		78.6	77.8	.56
Tobacco cessation		38.1	30.6	.28
<b>Screened within last month</b>				
Hypertension (new patients)		52.4	63.8	.17
<b>Recommended screening when appropriate</b>				
Males for prostate		21.4	25.4	.41
Blood lipids		14.3	23.8	.17

Colonoscopy	14.3	21.9	.24	
Mammography	12.2	21.9	.16	
Support public smoking ban	82.5	92.2	.12	
Support restaurant transfat ban	59.0	71.0	.21	
	<b>Years in practice</b>	<b>≤15 years</b>	<b>&gt;15 years</b>	<b>P-value<sup>1</sup></b>
<b>Appropriate to counsel on</b>				
Weight management	36.2	27.1	.21	
Physical activity	81.0	75.0	.30	
Tobacco cessation	37.9	27.7	.18	
<b>Screened within last month</b>				
Hypertension (new patients)	56.4	63.0	.32	
<b>Recommended screening when appropriate</b>				
Males for prostate	19.0	31.3	.11	
Blood lipids	17.2	22.9	.31	
Colonoscopy	15.3	22.9	.22	
Mammography	10.3	29.2	.01*	
Support public smoking ban	86.0	91.7	.27	
Support restaurant transfat ban	61.1	72.9	.15	
	<b>Primary care ideology</b>	<b>No</b>	<b>Yes</b>	<b>P-value<sup>1</sup></b>
<b>Appropriate to counsel on</b>				
Weight management	23.3	43.5	.02 *	
Physical activity	73.3	84.8	.12	
Tobacco cessation	25.4	43.5	.04 *	
<b>Screened within last month</b>				
Hypertension (new patients)	59.3	59.5	.57	
<b>Recommended screening when appropriate</b>				

Males for prostate	20.0	30.4	.16
Blood lipids	13.3	28.3	.04 *
Colonoscopy	11.5	28.3	.03 *
Mammography	16.7	21.7	.34
Support public smoking ban	83.3	95.6	.04 *
Support restaurant transfat ban	62.7	72.1	.23
	<b>Practice setting=rural</b>	<b>No</b>	<b>Yes</b>
			<b>P-value<sup>1</sup></b>
<b>Appropriate to counsel on</b>			
Weight management	30.4	34.0	.42
Physical activity	76.8	80.0	.44
Tobacco cessation	33.9	32.7	.53
<b>Screened within last month</b>			
Hypertension (new patients)	56.9	62.0	.37
<b>Recommended screening when appropriate</b>			
Males for prostate	21.4	28.0	.29
Blood lipids	16.1	24.0	.22
Colonoscopy	14.3	23.5	.16
Mammography	16.1	22.0	.30
Support public smoking ban	87.0	90.2	.42
Support restaurant transfat ban	67.3	66.0	.53

<sup>1</sup> Fisher's exact test.

\*Statistically significant at p<.05.

### **Primary care ideology**

When asked whether they considered their role as a chiropractor to be portal of entry, primary care, neuro-musculoskeletal only, or “other,” 43% stated they considered themselves primary care providers. Another 29% felt they were portal of entry and 26% said they were neuro-musculoskeletal only. Those who reported a primary care ideology were more likely to state weight management was important than those with another view of their role (23% vs 43%,  $p=0.02$ ); were more likely to feel tobacco cessation counseling was important (25% vs 43%,  $p=0.04$ ); to feel blood lipid screening (13% vs 28%,  $p=0.04$ ); and colonoscopy (11% vs 28%,  $p=0.03$ ) were important; and support smoking bans in public (83% vs 96%,  $p=0.04$ ).

## **Discussion**

### **Limitations**

This pilot survey of DCs may not be representative of all doctors in Alabama nor other parts of the US. The majority of respondents (83%) identified the ACA as the professional organization which best reflected their personal practice philosophy. Also, all respondents with the exception of five were members of the ASCA, an organization whose membership consist of slightly less than half of all licensed chiropractors in the state. These facts may represent a sampling bias. However, responses do seem to follow previously identified patterns regarding DCs and their involvement on a variety of preventive topics including promoting health in practice. Many DCs who participated received little, if any, training in how to perform preventive services, how to dialogue with patients about behavior change and how to get reimbursed for these services so there is an inherent bias in the research from that perspective.

The cross-sectional nature of the assessment makes certain assumptions and does not take into account sample sizes nor the make-up of the doctors who participated as compared to those who did not. Future research should include large numbers of DCs in a randomized, stratified sample and we acknowledge these limits and caution the interpretation of pilot results.

The results of this preliminary study of Alabama chiropractors are similar to other studies done on a national level. Other studies found evidence that DCs do provide some primary prevention services. Forty-three percent of the respondents in the Alabama study identified themselves as primary care providers yet, 18% percent never screened new patients for hypertension and 14% screened 25% or fewer patients. The fact that 43% of the DCs in this study describe themselves as primary care providers may indicate that these providers have an unorthodox view of primary care. This attitude could be a reflection of a holistic, conservative-based philosophy or these individuals may simply have little understanding of the role of a primary care provider. The behaviors could be explained as a reflection of training prior to a CCE mandate for teaching HP or other barriers such as difficulty being reimbursed for preventive services. With that stated, those with a primary care ideology reported engaging in preventive screening more frequently

and supported smoking bans in public places to a significantly greater degree than those without it. Therefore, chiropractic education programs could possibly enhance their efforts by indicating and teaching where DCs could fill gaps in the delivery of needed primary care services in the U.S.

Responses seemed to demonstrate a willingness of the DCs surveyed to learn more about prevention and might provide motivation for leaders in the profession to emphasize prevention as a vital, core component of every chiropractic practice as well as promote prevention oriented post graduate courses. By doing so the gap between care that is delivered and what should be could possibly be narrowed.

## **Conclusion**

Despite positive attitudes toward engaging in HP practices and primary prevention, disparities exist between what DCs believe should be done regarding prevention and what they actually do in their practices. They may also have an unorthodox view of primary care. This could signal opportunities to train chiropractors to deliver more HP in their practices. Clearly they have an interest but may not have the self-efficacy to perform many of these tasks. This could easily be rectified by focusing on post graduate, continuing education efforts which are already mandated each year for license renewal. A broader, randomized, stratified sample of DCs can and should be assessed with this or a similar survey taking into account the use of the SEM.

## **References**

1. Christensen M, Kollasch M, Hyland JK. *Practice Analysis of Chiropractic*. Greeley, CO: NBCE, 2010.
2. Hawk C, Long C, Perillo M, Boulanger K. A survey of US chiropractors on clinical preventive services. *J Manip Physiol Ther* 2004;4:287-298.
3. Rupert R. A survey of practice patterns and the health promotion and prevention attitudes of US chiropractors. Maintenance care: Part 1. *J Manip Physiol Ther* 2000;23 (1):1-9.
4. Council on Chiropractic Education. *Standards for Doctor of Chiropractic Programs and Requirements for Institutional Status*. Scottsdale, AZ: Council on Chiropractic Education, 2007.
5. Hawk C, Dusio M. A survey of 492 U. S. chiropractors on primary care and prevention-related Issues. *J Manip Physiol Ther* 1995;18(2):57-64.

6. Evans MW. Health promotion and chiropractic: act now. *J Amer Chiropr Assoc* 2003 40 (3), 22-24.
7. Hawk C. Toward a wellness model for chiropractic: the role of prevention and health promotion. *Top Clin Chiropr* 2001;8(4):1-7.
8. Healthy People Initiative. United States Department of Health and Human Services.  
[URL] <http://www.healthypeople.gov/2020/default.aspx>
9. Hawk C. Should chiropractic be a “wellness” profession? *Top Clin Chiropr* 2000;7(1) 23-26.
10. American Chiropractic Association. Wellness Model.  
[URL] [http://www.amerchiro.org/level2\\_css.cfm?T1ID=10&T2ID=117](http://www.amerchiro.org/level2_css.cfm?T1ID=10&T2ID=117)
11. McLeroy KR, Bibeau D, Stecker A, Glanz K. An ecological perspective on health promotion programs. *Health Ed Qtrl* 1988;15:35-377.
12. Lewis N. Is the social-ecological framework useful in understanding infectious diseases? The case of HIV/AIDS. *EcoHealth* 2005; 343-348
13. Sorenson G, Barbeau E, Hunt M, Emmons K. Public health matters, reducing social disparities in tobacco use: A social-contextual model for reducing tobacco use among blue-collar workers. *Am J Public Health* 2004;94(2): 230-239.
14. Grant E, Turner-Roan K, Daugerty S, et al. Development of a survey of asthma knowledge, attitudes, and perceptions. *Chest* 1999;116:178S – 183S.
15. Takeuchi M, Edlefsen M, McCurdy SM, Hillers VN. Adopt food thermometer use when

cooking small cuts of meat: An application of the transtheoretical model. *J Food Production* 2005;18(9), 1874-1883.

16. Grimshaw J, Zwarenstein M, Tetroe J, et al. Looking inside the black box: a theory-based process evaluation alongside a randomized controlled trial of printed educational materials (the Ontario printed educational message, OPEM) to improve referral and prescribing practices in primary care in Ontario, Canada. *Implementation Science* 2007; 2- 38.

17. Williams RD. *Application of the social ecology model on alcohol use among college athletes*. [dissertation]. Tuscaloosa, AL: The University of Alabama; 2006.

18. Evans M, Ndetan H, Williams R. Intentions of chiropractic interns regarding use of health promotion in practice: applying the Theory of Reasoned Action to identify attitudes, beliefs, and influencing factors. *J Chiropr Educ* 2009;23(1):17-27.