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3 **Representation of Information Regarding Vaccination on Canadian Chiropractor's**
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5 **Websites: A cross-sectional study**
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Abstract

Background: Vaccination is a contentious issue for some chiropractors.

Methods: In 2015/2016, we generated a database of all licensed chiropractors in Canada and identified chiropractor's websites that provided information on vaccination. We assessed the quality of vaccination information using the Web Resource Rating Tool (WRRT), determined whether vaccination was portrayed in a positive, neutral, or negative manner, and conducted a thematic analysis of vaccination-related content. We revisited all identified websites in 2019 to explore the impact of media attention regarding anti-vaccination statements by chiropractors.

Results: Among 9,131 chiropractors practising in Canada in 2016, 94 unique websites met our criteria; 17% (16) were positive, 20% (19) neutral, and 63% (59) negative towards vaccination. The four themes we identified were: (1) there are effective alternatives to vaccination, (2) vaccination is harmful, (3) evidence for and against vaccination, and (4) concerns with health policy regarding vaccination. The quality of vaccination content present on these websites was generally poor with a median WRRT score of 19% (interquartile range, 14% to 30%). When the same websites were followed up in 2019, 47% (45 of 94) had either removed all vaccination content or discontinued the website entirely. The majority (33 of 45; 73%) of websites/material that were removed had portrayed vaccination negatively.

Interpretation: The majority of the vaccination content depicted on Canadian chiropractic websites negatively portrays vaccination, and national media attention was associated with the removal of almost half of all such online material.

Word count: 2,490

Introduction

With approximately 9,000 practitioners, chiropractic is Canada's 3rd largest regulated healthcare profession.¹ Twelve percent of Canadians, largely adults, report attending a chiropractor in the past 12-months, predominantly for conservative management of low back and neck pain.^{2,3} The chiropractic profession comprises a range of providers, from evidence-based practitioners who focus on musculoskeletal complaints to traditional practitioners ('vitalists') who maintain historical beliefs that malpositioned spinal vertebrae ('subluxations') interfere with the nervous system, leading to a wide range of complaints and diseases.⁴ Historically, chiropractic has been extremely critical of vaccination,⁵ and many traditional practitioners maintain these attitudes^{6,7}.

A survey of students attending the Canadian Memorial Chiropractic College (CMCC), the only English-language chiropractic college in Canada, found that in the year 2000, only 40% of graduating students endorsed vaccination and 29% were against vaccination in general (31% were unsure).⁸ Re-administration of the same survey in the 2011/12 academic year at CMCC found that 83% of graduating students were in favor of vaccines in general;⁹ however, the repeat survey suffered from a high non-response rate vs. the original administration (33% vs. 75% of graduating students). A 2002 survey of all 643 licenced chiropractors in Alberta, Canada, (78% response rate) found 27% advised their patients against vaccinating themselves or their children.¹⁰

The Internet is an important medium for dissemination of both positive and negative vaccination information;¹¹ however, the general public lacks the necessary skills to distinguish evidence-based resources from those that are not¹². We reviewed the websites of Canadian chiropractors for content regarding vaccination and, subsequently, explored the impact of media attention on anti-vaccination statements by chiropractors.

Methods

We followed reporting standards set by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.¹³

Developing a database of Canadian chiropractors

We generated a database of all licensed Canadian chiropractors in June 2015 by extracting details on every member listed in the regulatory College website for each province.¹⁴⁻²⁴ For each licensed member, we performed a Google search with variations of their name, clinic name, and location to determine which chiropractors maintained an English-language website.

Identifying websites with vaccination content & appraising the quality of information

From July 2015 to March 2016 we systematically explored each unique website for vaccination content using the websites' search function with the root words vacc* and immun*. Pairs of reviewers evaluated all vaccination content independently using the Web Resource Rating Tool (WRRT).²⁵ This instrument assesses the quality of evidence, transparency, and usability of online health information, and assigns an overall score ranging from 0% to 100%, with higher scores representing better reporting quality, and a WRRT star rating which ranges from 0 (lowest quality) to 5 (highest quality). The same pairs of reviewers classified each website as providing positive, negative, or neutral information regarding vaccination. Any disagreements were resolved by discussion, or by an arbitrator when necessary.

We generated frequencies for all collected data. Categorical data were reported as proportions and continuous data as means and standard deviations if normally distributed and as medians and interquartile ranges (IQRs) if not. We aggregated WRRT scores for websites

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2
3 providing positive and neutral information and used an independent samples Mann-Whitney U
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5 test to explore for differences between scores from websites providing negative portrayals. All
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7 comparisons were 2-tailed, and we set our level of significance at $p < 0.05$. We performed all
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9 analyses using IBM SPSS Statistics, version 25.0 (Armonk, NY: IBM Corp).
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14 *Thematic analysis*

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16 We used thematic analysis to synthesize information regarding vaccination provided on
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18 chiropractor's websites into meaningful themes and labeled constructs.^{26,27} Pairs of reviewers
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20 used an open coding process to establish the primary categories of information from relevant
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22 material from each website, independently and in duplicate, and then connected the categories to
23
24 derive main themes. Any disagreements were resolved by discussion. Based on the codes (labels)
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26 generated from the analysis, pairs of reviewers generated a set of theoretical propositions
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28 (categories), independently and in duplicate, and achieved consensus. Last, four team members
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30 reviewed the results and confirmed the main themes of our study findings. We describe the
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32 results of our thematic analysis using subheadings along with selected illustrative quotes from
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34 website contents.
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42 *Impact of media attention on website vaccination content*

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44 After we had abstracted material on vaccination from chiropractor's websites, there were
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46 multiple national news stories highlighting anti-vaccination statements by some chiropractors,
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48 including some members of regulatory College's.²⁸⁻³⁷ In April 2019, we reviewed the same
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50 chiropractor's websites that we had identified to determine any changes following media
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52 coverage.
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5 *Ethics consideration*
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8 As per the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans
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10 Article 2.2 (a), research is exempt from research ethics board review if it relies exclusively on
11 publicly available information that is legally accessible to the public and appropriately protected
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15 by law.³⁸
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Results

We identified 9,131 registered Canadian chiropractors, of which 3,733 (41%) were associated with a publicly available website (Figure 1). Of the 3,733 websites, we found 140 websites (4%) with vaccination content, which reduced to 94 (3%) unique root domain websites (e.g., google.com was the root domain, whereas google.com/images included a directory/path file). The majority (63%, 59 of 94) of chiropractic websites providing information on vaccination were negative in their messaging; 20% (19) were neutral and 17% (16) were positive. (Table 1, Figure 1, Appendix 1) The quality of vaccination content present on chiropractors' websites was generally very poor with a median WRRT score of 19% (IQR 14% to 30%), and did not differ based on whether messaging was negative or not ($p=0.48$). (Table 2)

Thematic analysis

We identified four main themes that emerged from our analysis of chiropractors' website content. (Table 3) Of the 16 positive websites, 15 provided statements that vaccination had been established as effective. Out of the 19 neutral websites, the most common statement (endorsed by 7 websites) was that the public should be provided with the current best evidence regarding vaccination in order to make informed decisions.

I. Alternatives to vaccination

Twenty-one websites indicated that chiropractic care was an alternative to vaccination. For example: "*People who receive regular chiropractic adjustments have immune system competency that is 200% greater than those who don't.*"

http://wellingtonchiropracticandwellnessgroup.com/health_page.php?page=/dcnewsletter/jan11

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3 Another 14 websites suggested that naturopathic remedies could replace vaccination. As noted
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5 on one such site: “*A healthy alternative to the conventional flu shot is a homeopathic natural*
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7 *immune boost shot. Homeopathy works by gently stimulating the body’s innate ability to heal*
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9 *itself and there are virtually no side effects.*” ([http://www.mypurebalance.ca/health-](http://www.mypurebalance.ca/health-programs/natural-immune-boost-for-flu/)
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11 [programs/natural-immune-boost-for-flu/](http://www.mypurebalance.ca/health-programs/natural-immune-boost-for-flu/)) Five websites provided material that promoted
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13 environmental improvements as responsible for falling rates of vaccine-preventable diseases,
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15 instead of vaccines; for example: “*In light of these vital statistics, Palevsky finds it more*
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17 *reasonable to assume that the reason for the reduction in incidence and mortality rates of these*
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19 *diseases was predominantly due to the implementation of other public health strategies,*
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21 *including: clean water, better living conditions, improved sanitation and improved nutrition,*
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23 *than to the introduction of vaccines.*”
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25 ([https://dynamishealthcentre.com/articlesresources/vaccinations/points-of-doubt-regarding-](https://dynamishealthcentre.com/articlesresources/vaccinations/points-of-doubt-regarding-vaccine-efficacy/)
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27 [vaccine-efficacy/](https://dynamishealthcentre.com/articlesresources/vaccinations/points-of-doubt-regarding-vaccine-efficacy/))
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35 II. Dangers of vaccination

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37 Almost all websites negatively portraying vaccination included content that attributed severe side
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39 effects to vaccines (e.g. “*...vaccinations seem to, at least temporarily, increase one type of*
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41 *immunity while decreasing general immunity to many other forms of viruses and other ailments*”;
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43 <http://www.minorchiropractic.com/article/2253.html>), or concluded they caused disease; for
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45 example:
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51 “*There is a growing concern that one of the major threats to the development of healthy immune*
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53 *systems has been the increasing emphasis on artificial immunity through vaccines... At the same*
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3 *time, rates of asthma, autism, allergies, digestive disorders, autoimmune diseases, cancer, and*
4 *many other chronic conditions are also rising. Many scientists, chiropractors, medical doctors*
5 *and parents have become alarmed that this massive volume and combination of inoculations is*
6 *jeopardizing the long-term health of individuals and future generations.”*
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12 (<http://paramountfamilychiropractic.com/hylnet/clientapp/healtharticles.php?id=214>)
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17 “A shocking research study published on May 4, 2011, shows a link between the number of
18 vaccinations given to infants and an increase in infant mortality rate.”
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22 (<http://www.focuschiropractic.ca/article/2177.html>)
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26 Moreover, 26 websites made claims that vaccines contained toxic components; for example:
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28 “The final ingredient in a vaccine is a stabilizer like formaldehyde, a known cancer-causing
29 agent for which there is no safe allowable limit for your body.”
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33 (<http://www.alconachiropractic.ca/hylnet/clientapp/healtharticles.php?id=214>) And, “Joseph
34 Mercola, M.D., says that many authors have noted a direct correlation between the number of
35 flu shots and the incidence of Alzheimer’s, attributing to the aluminum and mercury in every flu
36 shot.” (<http://nrhc.ca/187/the-flu-shot/>)
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45 III. Evidence regarding vaccination

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47 While many chiropractic websites commented on the evidence for vaccination, the majority of
48 such sites claimed there was evidence of ineffectiveness; for example: “Mass vaccination was
49 halted in Third World countries because it didn’t work.”
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3 (<http://chetday.com/smallpoxepidemic.htm>) Some sites claimed the evidence was biased, or
4
5 selectively presented to highlight potential benefits and downplay possible harms: “*Just like all*
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7 *vaccines there are side-effects with the flu shot. The CDC and other organizations would have*
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9 *you overlook them for the supposed benefit of being inoculated against the flu.*”

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12 (<http://nrfc.ca/187/the-flu-shot/>) Or, that evidence is conflicting and there is still uncertainty
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14 regarding the harms of vaccination: “*Research linking autism to vaccines is conflicting.*
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16 *Thimerosal, a preservative in vaccines that is 49 percent ethyl mercury, was removed from*
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18 *childhood immunizations in 2001. However, some flu vaccines may still contain thimerosal.*”

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21 (<http://www.edwinlauchiropractic.com/newsletters/OHU-2009%2001-12.pdf>)

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24 Only 15 websites acknowledged that current evidence was supportive of vaccination, and these
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26 largely highlighted the position statement by the Canadian Chiropractic Association: “*The*
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28 *Canadian Chiropractic Association recognizes that vaccination and immunization are*
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30 *established public health practices in the prevention of infectious diseases.*”

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33 (<https://www.physiomed.ca/blog/general-tips/surviving-cold-flu-season/>)

34 35 36 37 38 IV. Health policy regarding vaccination

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40 A minority of chiropractic websites provided content regarding vaccination policy, with most
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42 claiming that the dangers of contracting certain vaccine-targeted infections had been over-
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44 exaggerated, as had the effectiveness of some vaccines. The majority of such claims focussed on
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46 influenza (e.g., “*...the flu vaccine may not give the benefits that were previously advertised.*”
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48 <http://www.focuschiropractic.ca/article/1793.html>). Other subthemes were that industry was
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50 active in lobbying for healthcare policy that would benefit them financially: “*A February 11,*
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52 *2007 story appearing in the Washington Post and no less than 72 different news publications has*
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3 *exposed the fact that a major drug company, Merck & Co. is behind the large lobbying effort to*
4 *have 18 states pass laws making their vaccine required for 6th grade girls. If these laws pass,*
5 *Merck, which last year showed revenues of \$22.6 billion, stands to earn hundreds of millions of*
6 *dollars.”* (<http://www.robieatspringgardenchiropractic.com/article/1592.html>)
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12 Some sites claimed that mandatory vaccination was an infringement on personal liberty
13 and provided links to the National Vaccine Information Center (NVIC) website: “*As more*
14 *vaccines have been recommended and mandated by government health officials, NVIC is*
15 *receiving more reports from Americans describing how they are being harassed for trying to*
16 *make informed vaccine choices for themselves and their children”*
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24 (<http://www.nvic.org/reporting-systems.aspx>) And that the public should be better educated
25 about vaccination in order to make informed decisions: “*Vaccinations are a controversial subject*
26 *and it’s imperative to inform yourself before deciding whether or not to vaccinate yourself or*
27 *those under your care.”*
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33 (<https://dynamishealthcentre.com/articlesresources/vaccinations/>)
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38 *Impact of media attention on chiropractic website vaccination content*

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40 Approximately three years after a number of media outlets began exploring anti-vaccination
41 statements by some chiropractors, almost half of the websites identified in our study (47%; 45 of
42 94 sites) had been discontinued or all content regarding vaccination had been removed. This
43 predominantly affected sites that had published information portraying vaccination negatively;
44 specifically, 33 of 45 (73%) negative websites maintained by chiropractors had been
45 discontinued or their vaccination content removed. Amongst the 49 websites that were still
46 active, 53% (26 of 49) provided negative information regarding vaccination. (Appendix 2)
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Interpretation

Close to half of Canada's 9,131 chiropractors maintain a website, 4% of which provided information regarding vaccination, the majority of which was critical. The quality of vaccination information was generally very poor, and common themes were that there are effective alternatives to vaccination, vaccines are dangerous and can cause disease, the evidence is often biased, conflicting, or shows that vaccines are ineffective, and that vaccination should not be mandatory. Following national media attention to anti-vaccination statements by some chiropractors (including members of regulatory Colleges), approximately half of chiropractors' websites providing information on vaccination were discontinued or the information regarding vaccination was removed.

The Canadian Chiropractic Association is supportive of vaccination and has published a statement that vaccination is not within the scope of practice for chiropractors,³⁹ a position that is supported by four provincial regulatory Colleges. (Appendix 3) However, the history of regulating information on vaccination by chiropractors is complex. In 2004, following media attention on anti-vaccination statements by chiropractors, the College of Chiropractors of Ontario (CCO) approved a Standard of practice (S-015) requiring its members to refrain from discussing vaccination with their patients or the general public. Traditional chiropractors strongly disagreed with this Standard (Appendix 4) and some responded, in part, by seeking and acquiring elected positions on the CCO.^{36,40}

The change in leadership at the CCO had two results: (1) the Standard prohibiting chiropractors from discussing vaccination with their patients was not enforced,^{36,41} and (2) the Standard (which was incorporated into S-001) was revised on February 8, 2011, to allow chiropractors to provide "balanced" information on vaccination to the public⁴⁰. Similar issues

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3 may have affected the British Columbia College of Chiropractors.⁴² Following recent media
4 attention, the CCO Standard (S-001) was amended in 2018 and 2019 to prohibit chiropractors
5 from “*Providing information on vaccination on a member's website or social media Account*”.⁴³
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7 More recently, the CCO has proposed an amendment that would disallow any academic
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chiropractor from assuming a leadership position within the CCO,⁴⁴ perhaps as a way to guard against competing views. These challenges have resulted in speculation as to whether the chiropractic profession is capable of self-regulation,⁴⁵ and some chiropractic opinion-leaders have called for splitting the profession into two factions: evidence-based chiropractors and traditional chiropractors⁴.

The Canadian media has drawn attention to anti-vaccination statements by some chiropractors, and seemingly had a large impact on curbing publication of such online material. While this is laudable, chiropractic regulatory colleges should monitor chiropractors’ websites for misleading information, and enforce their standards of practice. Moreover, it may be helpful for medical and public health associations work with Canadian chiropractic associations to collaborate on promotion of vaccination programs,⁴⁶⁻⁴⁸ as has been done by the American Public Health Association ⁴⁹.

Our study is limited by the dynamic nature of the Internet, where websites can appear, disappear, or be moved to other addresses overnight. Additionally, we only included websites published in English, and therefore our findings may not extend to websites published in other languages. Strengths of our study included a rigorous approach to identify all practicing chiropractors in Canada and any associated websites. Both ratings of the quality of vaccine information, and the overall messaging (i.e., positive, neutral, or negative) were conducted independently and in duplicate by pairs of reviewers to increase reliability.

1
2
3 **Conclusion**
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5 Although a minority of Canadian chiropractors provide vaccination content on their websites, the
6 quality of information is often poor and the majority of sites portray vaccination in a negative
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8 manner. National media attention was associated with removal of almost half of all such online
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10 material.
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12 critically for important intellectual content, gave final approval of the version to be published
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14 and agreed to be accountable for all aspects of the work.
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Table 1: Canadian chiropractors and websites identified

Province	No. of chiropractors (%)	No. of chiropractic websites (%)	No. of chiropractic websites with vaccination content
Ontario	5797 (64%)	2812 (69%)	106
British Columbia	803 (9%)	285 (7%)	7
Quebec	1003 (17%)	373 (9%)	3
Manitoba	319 (4%)	132 (3%)	9
Newfoundland	65 (1%)	26 (1%)	2
Nova Scotia	148 (2%)	76 (2%)	4
Prince Edward Island	7 (0.1%)	5 (0.1%)	0
Saskatchewan	184 (2%)	41 (1%)	0
Alberta	726 (8%)	302 (7%)	5
New Brunswick	79 (1%)	32 (1%)	7
Total	9131	4084	143

Table 2: Quality of vaccination content reporting among unique

	Positive messaging (n=16)	Neutral messaging (n=19)	Negative messaging (n=59)
WRRT score (0-100%), median (IQR)	17.9% (11.6 – 18.9)	22.3% (14.3 – 39.3)	20.5 (14.3 – 32.4)
WRRT star score, n (%)			
0 (lowest quality)	14 (88%)	13 (68%)	4 (7%)
1	1 (6%)	5 (26%)	34 (58%)
2	1 (6%)	1 (5%)	11 (19%)
3	0	0	9 (15%)
4	0	0	1 (2%)
5 (highest quality)	0	0	0

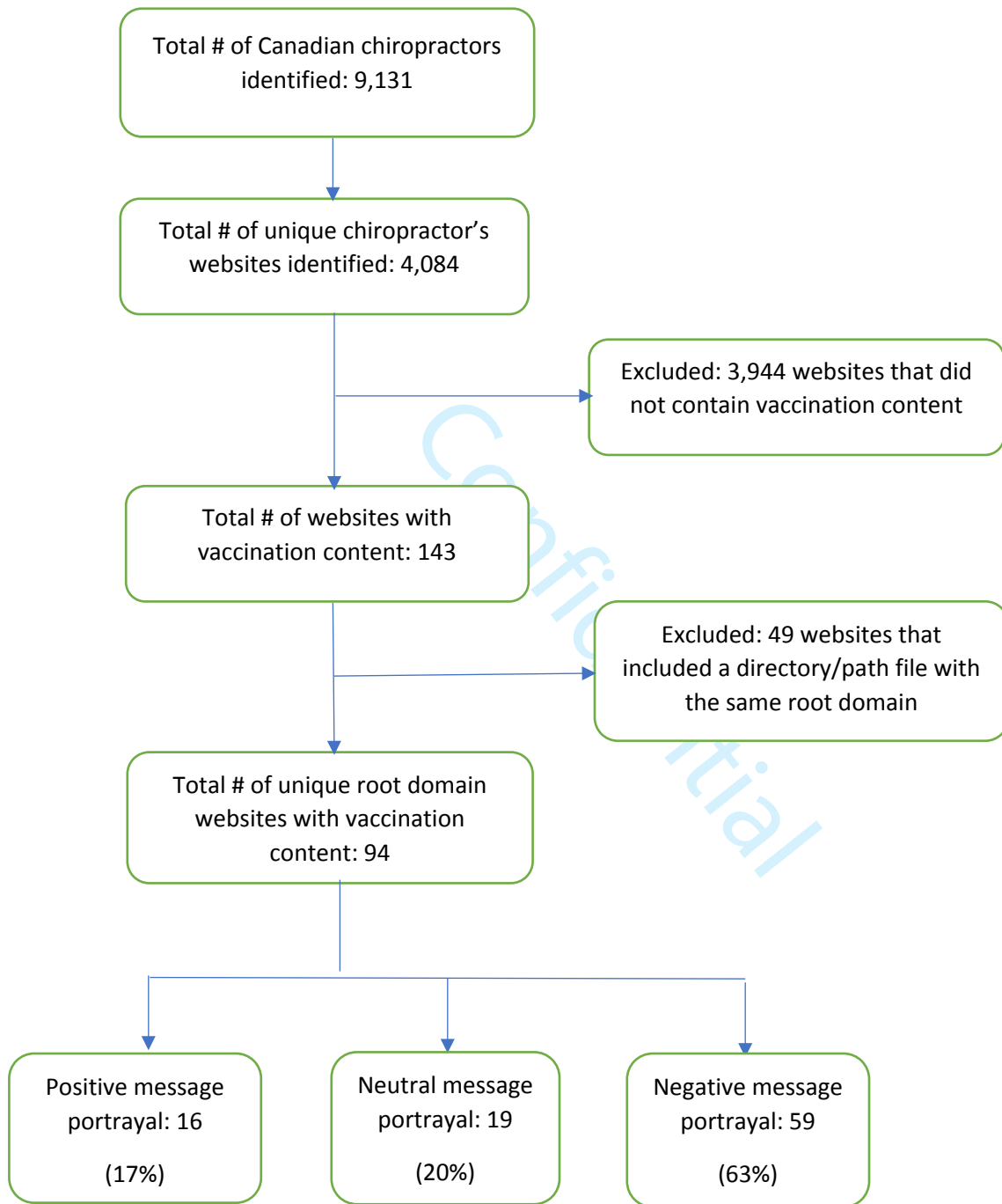
WRRT: Web Resource Rating Tool

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Table 3: Themes and sub-themes of vaccination content from chiropractor's websites

Theme	Sub-themes	Frequency of endorsement
1. There are effective alternatives to vaccination	chiropractic can boost immunity	21
	naturopathy can boost immunity	14
	better living conditions, improved sanitation and improved nutrition are more effective than vaccination	5
2. Vaccines are dangerous	cause severe side effects	51
	have toxic components (e.g. mercury)	26
	compromise immunity	22
	cause autism	14
	increase rates of various chronic diseases	13
	cause Guillain-Barré syndrome	9
	cause allergies	8
	cause sudden infant death syndrome	5
	cause asthma	5
	increase risk of cancer	4
	cause diabetes	3
	cause attention deficit hyperactivity disorder	2
	cause Crohn's disease	2
	cause Shingles	2
increase risk of Alzheimer's disease	2	
3. Evidence regarding vaccination	cause ear infections	1
	there is insufficient evidence to support vaccination	51
	the evidence in favor of vaccination is poor quality and/or biased	20
	the evidence supports vaccination as effective	15
	the evidence for vaccination is conflicting	7
	anecdotal evidence suggests that the harms of vaccination outweigh the benefits	2
	4. Health policy regarding vaccination	dangers of vaccine-targeted diseases are overblown by public health agencies and the media
vaccines should not be mandatory		15
the Centres of Disease Control and Prevention has important conflicts of interest regarding vaccination		11
the public should be better educated about vaccination		7

Figure 1: A flow diagram of Canadian chiropractors' websites with vaccination content



Appendix 1: Chiropractic websites identified with content regarding vaccination

No.	Unique primary website	Message portrayal	WRRT total score (0-100%)	WRRT star rating (0-5)
Ontario				
1	http://amlingerfamilychiropractic.com/health_page.php?page=/dcnewsletter/march13	negative	14.3	1
2	http://bosnarhealth.com/?page_id=69	negative	35.7	2
3	http://cdn2.perfectpatients.com/childsites/uploads/1117/files/hpv-report-2014.pdf	negative	39.3	2
4	http://circle-of-life.ca/?p=58	negative	26.8	1
5	http://divinespine.ca/blog/flu-shot-fallacies/	negative	7.1	0
6	http://docferguson.com/frequently-asked-questions/	negative	17.9	1
7	http://drbenkim.com/	negative	26.8	1
8	http://drdgroleau.com/2014/08/29/vaccinations-not-mandatory-for-ontario-students/comment-page-1/#comment-20	negative	23.2	1
9	http://drdianemeyer.com/	negative	62.5	3
10	http://hamiltonchiro.ca/	negative	60.7	3
11	http://hopechiropractic.ca/why-chiropractic/chiropractic-research/ear-infections/	negative	14.3	1
12	http://innerbalancechiropractic.ca/	negative	26.8	1
13	http://nrfc.ca/187/the-flu-shot/	negative	14.3	1
14	http://optimumwellnesscentres.com/april-8-2011-chronic-fatigue/	negative	19.8	1
15	http://p3health.net/?s=vaccin	negative	35.3	3
16	http://paramountfamilychiropractic.com/	negative	62.5	3
17	http://pikechiropractic.com/blog/flu-shot-hoax	negative	32.4	2
18	http://stallaertchiropractic.com/blog/13/118/4-Tips-to-Stay-HEALTHY-This-Flu-Season.html	negative	7.1	0
19	http://thechiropracticphilanthropist.com/191-dr-nancy-tarlow-the-vaccination-conversation/	negative	17.9	1
20	http://wellingtonchiropracticandwellnessgroup.com/	negative	34.8	3
21	http://www.adiochiropractic.net/	negative	42.9	2
22	http://www.alconachiropractic.ca/	negative	14.3	1
23	http://www.alliancechiroandwellness.com/Newsletters/AllianceIssue37.pdf	negative	23.2	2

24	http://www.axischiropractic.com/Family%20Care/Family%20Care.html	negative	24.1	2
25	http://www.chiropracticgeneration.com/	negative	45.2	3
26	http://www.cornerstonehealth.ca/naturopathy/h1n1-hysteria/	negative	26.8	1
27	http://www.drbarryyoung.com/	negative	10.7	1
28	http://www.drvalliant.com/	negative	42.9	3
29	http://www.haltonchiropractor.com/articles/article-flu-shot/	negative	16.1	1
30	http://www.kawarthalakeschiropracticblog.com/613/fibromyalgia-facts/	negative	14.8	1
31	http://www.livewellchiro.ca/index.php?p=439641&s=245&articleid=216	negative	58.9	3
32	http://www.mainfamilychiro.com/articles/Flu+Colds/	negative	7.1	0
33	http://www.mypurebalance.ca/	negative	10.7	1
34	http://www.oakvilleuptownchiropractor.ca/natural-health-information/shot-in-the-dark/	negative	20.5	1
35	http://www.optimumwellnessclinic.ca/	negative	23.8	2
36	http://www.phoenixhealth.me/add-and-adhd/	negative	26.8	2
37	http://www.spinewise.ca/the-natural-way-to-maximize-your-childs-health/	negative	17.9	1
38	http://www.thenaturalwayclinic.com/	negative	9.8	0
39	http://www.wellnessfirst.ca/Articles/E26-%20Death%20by%20Vaccines.doc	negative	14.3	1
40	http://www.woodbridgechiropractor.ca/articles/Flu+Colds/	negative	20.5	1
41	http://yournewlifenow.blogspot.ca/	negative	16.1	1
42	http://www.nvic.org/reporting-systems.aspx	negative	12.5	1
43	http://lifechiropracticcentre.ca/chiropractic-care/measles-and-vaccination-information	neutral	14.3	1
44	http://maximizedhealth.ca/chiropractic-benefits/boost-your-immunity-naturally/	neutral	14.3	1
45	http://summitnaturalhealth.ca/	neutral	42.9	2
46	http://www.chiro-docs.com/index.php?p=415709&s=245&articleid=2385	neutral	55.4	3
47	http://www.kihclinic.com/articles/the-h1n1-vaccine	neutral	16.1	1
48	http://www.lakeshorechiropractic.com/index.php?p=65615&s=245&articleid=2385	neutral	42.9	2

49	http://www.meridianspineandsport.ca/?s=vaccin	neutral	17.9	1
50	http://www.pinewoodhealth.ca/blog/general-category/dont-want-the-flu-shot/	neutral	12.5	1
51	http://www.thetorontochiropractor.com/index.php?p=407212&s=245&articleid=2385	neutral	17.9	1
52	http://globalnews.ca/news/1804162/canadian-study-finds-flu-shot-could-increase-risk-of-getting-sick/	neutral	28.6	1
53	http://www.kcnh.ca/docs/Cold-Flu-Prevention-Treatment.pdf	neutral	42.9	2
54	http://advancedhealth.ca/conditions/infant-child-and-adolescent-health-concerns/vaccination-and-immunization.html	positive	22.3	1
55	http://advancedhealthrecovery.ca/12-way-to-have-a-healthy-holiday-season/	positive	39.3	2
56	http://applecreeksportsmedicine.com/july-28th-is-world-hepatitis-day/	positive	30.4	2
57	http://windsormedicalclinic.com/portfolio_posts/vaccines/	positive	48.2	2
58	http://www.abbeymed.ca/abbeyupdates.html	positive	17.9	1
59	http://www.adelaideclinic.com/Living-Well/so-youre-pregnantwhat-now-519167	positive	17.9	1
60	http://www.belmarrahealth.com/	positive	34.8	2
61	http://www.hazeldeanchiropractic.com/how-i-read-a-news-article/	positive	14.3	1
62	http://www.physiomed.ca/blog/general-tips/surviving-cold-flu-season/	positive	10.7	1
63	http://www.sportmedicineclinic.com/Living-Well/so-youre-pregnantwhat-now-519163	positive	23.2	1
64	http://www.torontoathleticclub.com/living-well/so-youre-pregnantwhat-now-519161	positive	10.7	1
65	http://www.waterloowellingtonlh.in.on.ca/en/newsandstories/current_news/20141023fluupdate.aspx	positive	17.9	1
66	https://www.brightalmond.com/clinical-focus/infectious-disease/	positive	32.4	3
67	https://www.facebook.com/permalink.php?story_fbid=222612737804579&id=195816277123383	neutral	10.7	1
68	http://www.chiropractic.ca/about-cca/code-of-ethics/vaccination-immunization/	positive	17.9	1

69	http://www.huffingtonpost.ca/michael-kruse/chiropractors-vaccination-debate_b_3280713.html	positive	17.9	1
70	http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3743646/	positive	8.9	1
British Columbia				
71	http://www.minoruchiropractic.com/articles/vaccination/	negative	25.4	1
72	http://www.sumasmtnchiropractic.com/index.php?search=vacc&p=240601&Submit=Search	negative	26.8	1
73	http://www.edwinlauchiropractic.com/newsletters/OHU-2009%2001-12.pdf	negative	30.4	2
74	http://www.focuschiropractic.ca/articles/vaccination/	neutral	25.4	1
75	http://nswellness.ca/cold-and-flu-prevention/	neutral	10.7	1
76	http://www.metrochiro.com/articles/vaccination/	neutral	25.4	1
Alberta				
77	https://www.naturmend.com/blog/2013/01/30/jan-30-the-flu-is-finally-retreating/	negative	17.9	1
78	www.calgaryspineandsport.com/	negative	13.3	1
79	http://corechiropracticandwellness.com/Vaccines	negative	14.3	1
80	www.gatewaychiropractic.ca/	neutral	14.3	1
Manitoba				
81	http://entertogetwell.ca/chiropractic-care-for-kids/	negative	17.9	1
82	http://www.krampchiropractic.com/	neutral	13.3	1
83	http://www.loewenchiropracticclinic.com/	neutral	11.5	1
New Brunswick				
84	http://www.chiroplusdieppe.ca/pregnancy-and-children	negative	28.6	1
85	http://rothesaychiropractic.ca/?s=vaccin	negative	10.7	1
86	http://www.frederictonchiropractors.com/community-links	negative	69.6	4
Newfoundland				
87	http://dynamishealthcentre.com/	negative	24.6	2
88	http://www.drburton.com/dr-burton-blog	negative	14.3	1
Nova Scotia				
89	http://atlantic.ctvnews.ca/vaccination-debate-why-some-parents-are-choosing-not-to-vaccinate-their-kids-1.1796563	negative	14.3	1
90	http://www.pillarsofhealth.ca/?s=vaccin	neutral	64.3	3

91	http://www.robieatspringgardenchiropractic.com/articles/vaccine/	neutral	19.5	1
Quebec				
92	http://chiropratiquessante.com/revue-trimestriell/	positive	19.2	1
93	http://www.triade.ca/index.pl/liens	positive	17.9	1
94	http://www.sourcdevitalite.com/conference-sur-la-vaccination	positive	16.1	1

WRT: Web Resource Rating Tool

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Appendix 2: Change in chiropractor's websites with vaccination content from 2016 to 2019

Province	Active in 2019			Inactive or vaccination content removed in 2019		
	positive	neutral	negative	positive	neutral	negative
Ontario	12	8	21	4	4	21
British Columbia					2	4
Alberta			1		1	2
Manitoba					1	2
New Brunswick		2	1			
Newfoundland			1			1
Nova Scotia			2			1
Quebec		1				2
Total	12	11	26	4	8	33

positive, neutral, and negative = websites that provided positive, neutral or negative information regarding vaccination

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3 **Appendix 3: Position statements of Canadian chiropractic associations regarding**
4 **vaccination (accessed 15 June 2015)**
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8 **Canadian Chiropractic Association:**
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10 “The Canadian Chiropractic Association recognizes that vaccination and immunization are
11 established public health practices in the prevention of infectious diseases. Vaccination is not
12 within the scope of chiropractic practice. The appropriate sources for patient consultation and
13 education regarding vaccination and immunization are public health authorities and health
14 professionals with a scope of practice that includes vaccination.”
15

16
17 <https://www.chiropractic.ca/about-cca/code-of-ethics/vaccination-immunization/>
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21 **Manitoba:**
22

23 “The Manitoba Chiropractors Association (MCA) is a proponent of preventative healthcare and
24 recognizes that vaccination and immunization are established public health practices in the
25 protection of individuals from infectious diseases. Vaccination is not within the scope of
26 chiropractic practice. The MCA directs its members to not provide advice on the topic of
27 vaccination and immunization. Patients are encouraged to be an active participant in their
28 healthcare by making informed decisions. Appropriate sources for patient consultation regarding
29 vaccination and immunization are public health professionals for whom vaccination and
30 immunization is within their scope of practice. The MCA regulates the chiropractic profession in
31 Manitoba under The Chiropractic Act. The MCA is dedicated to regulating the chiropractic
32 profession in a manner that supports quality care and upholds public trust; as well as furthering
33 awareness and understanding of the benefits of chiropractic care.”
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36

37 [http://manitobachiropractors.ca/wp-content/uploads/2017/10/Vaccination-and-Immunization-](http://manitobachiropractors.ca/wp-content/uploads/2017/10/Vaccination-and-Immunization-Position-Statement-.pdf)
38 [Position-Statement-.pdf](http://manitobachiropractors.ca/wp-content/uploads/2017/10/Vaccination-and-Immunization-Position-Statement-.pdf)
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42 **British Columbia:**
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44 “The British Columbia Chiropractic Association recognizes that vaccination and immunization
45 are established public health practices in the prevention of infectious diseases. Vaccination is not
46 within the scope of chiropractic practice. The appropriate sources for patient consultation and
47 education regarding vaccination and immunization are public health authorities and health
48 professionals with a scope of practice that includes vaccination.”
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52 <https://www.bcchiro.com/about-us/position-statements/>
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Alberta:

“While the Alberta College and Association of Chiropractors (ACAC) is a strong proponent of preventive health care and the protection of individuals from infectious disease, vaccination and immunization are not within the scope of practice for chiropractic.

The ACAC directs members to refrain from providing advice about vaccination or immunization, and encourages patients to make informed decisions in consultation with public health professionals.

The ACAC regulates the chiropractic profession in Alberta under the Health Professions Act. The ACAC is dedicated to regulating the chiropractic profession in a manner that supports quality care and upholds public trust; as well as furthering awareness and understanding of the benefits of chiropractic care.”

https://albertachiro.com/ACAC/ChiropracticinAlberta/Regulation_and_governance/Position_statements/ACAC/Chiropractic_in_Alberta/Regulation%20and%20governance/Position_Statements.aspx?hkey=5ae485f3-3101-4f2d-b245-e3b066f6cd01

Ontario:

“As a provincial association, OCA is a charter member of the Canadian Chiropractic Association (CCA). We support the CCA’s Position Statement on Immunization/Vaccination which can be read below, or on the CCA’s site”

<https://www.chiropractic.on.ca/immunization-and-vaccination/>

Appendix 4: Notes from the Chiropractic Awareness Council regarding the Standard of Practice on communicating information on vaccination



CAC:FYI - Notes from last CCO Meeting

From the Desk of Dr. Diane Meyer
February 10th, 2004
CCO Observer, Chiropractic Awareness Council

Dear Colleagues,

A little piece of Chiropractic and the honour and privilege that goes with it died today.

I attended my first CCO meeting on Tues Feb. 10th and was witness to the amazing process of how quickly a small group of people can change the face of our profession to an unprecedented degree.

Here is a synopsis of what happened:

Ms. Regina Willmann (public appointed member) is the chair of the Quality Assurance (QA) committee which also consists of Dr. Drew Potter (elected member), Dr. Jeffrey Lustig (non council member), Dr. Allan Gotlib (President, elected member), and Mr. Richard Frame (public appointed member). The QA reviewed the incoming member and public comments and responses concerning the proposed vaccination standard. Ms. Willman reported on the recommendations of the QA committee and stated that it had three versions of the proposed new standard for the CCO's review (see attached). Ms Willman stated that the QA committee underwent a great deal of discussion (4.5 hours) and had a unanimous decision with the new proposals.

Next was a viewing of the CBC's Marketplace interview which was aired recently. Although the reason for this viewing was not stated, it was clear to all in attendance that this was presented as an example of what the committee was trying to avoid. Words such as "evangelistic, minority, damaging, radical, and radical minority" were stated by some of the public members (Ms. Willmann and Ms. Helen Foster). The one thing that the Marketplace piece did reveal was the rift in the profession on what the stand of Chiropractic was on the issue of vaccination.

Ms. Willman promptly asked for a vote on which of the three proposals should be implemented. At this time Dr. Gotlib asked if we could put the issue to a vote, whereafter, council members asked to view the material first. Following review of the three proposals a

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4 discussion followed. One thing (which is really ironic if you look at it) which was agreed by
5 the council members was that the section describing the CCO's policy on the effectiveness
6 of vaccination should be removed. This is the same position statement that the CCA uses.
7 The end result was an automatic elimination of proposal 2 and 3. Strangely the QA
8 committee agreed with this.

9
10 The meeting was often heated and there were feelings of frustration on both sides of the
11 issue. The view of Ms. Willman and a few other CCO members was that this was an issue of
12 SCOPE of PRACTICE and that because we do not have the right to administer vaccines we
13 should not have the right to discuss anything about them. Ms. Willman also expressed her
14 view that she did not want this issue to drag on due to "the climate towards Chiropractic
15 out there". I interpret this to mean that there is a strong political force acting against
16 Chiropractic and this issue may add fuel to the fire. Dr. Gotlib also reviewed the RHPA and
17 discussed the "risk of harm clause" which will hold a DC liable if any harm was incurred to
18 a patient after following advise from the DC. Several members expressed their concern of
19 the infringement on their freedom of speech and their ethical obligation to patients to share
20 any information they (the Dr.) felt was necessary. Those which expressed their concerns
21 were Dr's Marshall Deltoff (elected member), Gilles LaMarche (elected member), David
22 Leprich (elected member), and Lynda Montgomery (elected member). Very vocal opinions
23 supporting the new standards came from Dr's Potter and Gotlib as well as Ms Willman and
24 Ms Foster.

25
26 There was discussion that the standard was not complete and that addendums still needed
27 to be put together and brought to the board for discussion. This will happen at the next
28 scheduled board meeting on Friday April 16, 2004.

29
30 During this discussion Dr Gotlib expressed concern that if there was opposition to this
31 standard that those in opposition could stand against legal proceedings due to " fiduciary
32 responsibility" (the meaning of which was not defined, but the warning came out loud and
33 clear). Webster's Dictionary defines "fiduciary" as "to be held in trust". One public member
34 asked if there was not some way that the right to give patients information could be
35 preserved. To this she was informed that the way our standard was at this time was " not
36 working". An example of the standard not working was the Marketplace interview which
37 suggested that the information Dr. Collins gave to her patients was not balanced but
38 skewed on the side of not vaccinating. At this point Dr. Bruce Walton (non-elected CRC
39 Chair) said that although this was the slant that Marketplace was trying to get across, he
40 was able to discern from information which was displayed on the computer screen in the
41 background of the CBC segment which was aired that indicated Dr. Collins did offer much
42 more balance information than the interview led us to believe. Meaning, what we heard the
43 media say and what was said were not always the same thing. The interview was edited to
44 be negative towards Chiropractors.

45
46 During the discussion there was a great deal of debate over the words vaccination and
47 immunization. Dr. Lamarche asked the members to change the wording of the standard so
48 that immunization was replaced by vaccination. Dr. Gotlib responded by saying that they
49 are the same thing because that is how medicine and the public perceive it. At this point
50 Dr. Deltoff read aloud the medical dictionary definitions and explained how they were
51 indeed very different. Dr. Gotlib again explained that the essence of the two words meant
52 the same thing and Ms. Willman responded by saying that the public viewed the two words
53 as the same thing. To this Dr. Deltoff responded that this standard was not written for the
54 public but for the learned profession which should be using correct terminology. At this
55 time the members were asked if they would view the two words as the same and a majority

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of them replied "yes".

Dr. Walton proposed that the wording of vaccination be used instead of immunization and asked if Drs LaMarche and Deltoff would accept the proposal. At this point Ms. Willman asked if Dr's LaMarche and Deltoff would be happy with the standard if they simply changed the word immunization to vaccination. Their response was "it is a start". The issue was then dropped and never returned to.

Further discussion ensued and Dr. Gotlib referred to the OCA, CMCC, and the CCA views on vaccination. These were implied to supposedly be representative of the opinions of the entire profession.

Dr. Deltoff was able to read the ACA stand, and also a position statement by the Association of American Physicians and Surgeons:

"Public policy regarding vaccine is fundamentally flawed. It is permeated by conflicts of interest. It is based on poor scientific methodology (including studies that are too small, too short, and too limited in populations represented), which is, moreover, insulated from independent criticism. The evidence is far too poor to warrant overriding the independent judgments of patients, parents, and attending physicians, even if this were ethically or legally acceptable. Indeed, evidence is accumulating that serious adverse reactions are being ignored."

This was done with some opposition by certain council members but the public members were anxious to hear them. There were several instances when Dr. Deltoff and Dr. LaMarche had to fight to be heard. Ms. Willson reviewed the contents of several legal documents including the RHPA (Regulated Health Professions Act) which discussed the scope of practice issue.

Dr. Gotlib referred to a conversation with Dr. Paul Carey, head of the CCPA who stated that no Chiropractor would be protected by the CCPA if there were any lawsuit arising out of a vaccination issue.

There was further discussion. Dr. Gotlib said that there was much on the agenda to discuss and put the issue to a vote. At this time Ms. Jo-ann Willson (CCO Registrar and General Counsel) adamantly indicated that "there was no way we were ready to make a decision" and suggested that a lunch break take place immediately. Dr. Gotlib suggested that a vote take place anyway to which Ms. Willson responded again that the members could in no way be ready to make this decision.

Lunch followed.

During lunch I was informed by a board member that there were approx. 300 member and public responses and that the breakdown was approximately 50/50. The feedback ranged from very positive to very negative, professional to unprofessional, supportive to vehemently opposed.

To my surprise as we reentered the board room after lunch we had not even sat down yet when Dr. Gotlib again said that the issue was up for a vote. And there you have it... a vote 9:4 in support of the proposed standard of practice denying CCO registered chiropractors from discussing vaccination with their patients. All public members and Dr. Leprich, Dr. Potter and Dr. Brian Schut (elected member) voted for, with opposing views by Dr's Deltoff, LaMarche, Montgomery and Jacques Laquerre (elected member).

Dr. Lamarche asked that his vote be "Noted" for the record as being against this standard. Dr Gotlib then asked to have the members consent to having their name on record so that those in opposition were on record if there were any fiduciary proceedings against them.

That was it guys.... short, fast and definitely not sweet!

The minutes of this meeting will be passed to all members and fully endorsed by the CCO at the next meeting. There may be an opportunity here.

In my opinion there was a deliberate plan in the way that the vote was quickly pushed through after lunch. It happened way too fast. A future meeting will discuss the addendums. Those who support the right to educate patients must be in full force for the next CCO meeting. There is no way to know how that meeting would have gone if there were 40 passionate and professional DC's there.

Our great profession is slipping away right through our fingers. It obvious to me that the medical/pharmaceutical industry has quite a lot of influence on our leaders. While our Boards sit with glazed eyes doing what is "good for the public" our ability to serve the public Chiropractical is being diminished and embraced by the very medical world which has fought so hard against us. Folks, if this keeps up it is clear to me that we will not survive. We will bit by bit be diminished to symptomatic low back technicians... nothing more... nothing less.

I cried that day. Mostly for my patients, both now and in the future. But I also cried in shame of the destruction of the legacy that our Chiropractic forefathers left for us to guard in the Sacred Trust.

This is not a vaccination issue...it is one of principle, ethics and freedom.

Let's hope that we have enough Chiropractors around who are willing to fight for their patients right to undiluted and unadulterated Chiropractic care.

Yours in Chiropractic,

Dr. Diane Meyer

witnessed and acknowledged by Lorri Fleming, CHA

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