The development of vaccination perspectives among chiropractic, naturopathic and medical students: a case study of professional enculturation

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Abstract An important influence on parents’ decisions about pediatric vaccination (children under 6 years of age) is the attitude of their health care providers, including complementary and alternative medicine (CAM) providers. Very limited qualitative research exists, however, on how attitudes towards vaccination develop among healthcare professionals in-training. We explored perspective development among three groups of students: medical, chiropractic, and naturopathic. We conducted focus group sessions with participants from each year of study at three different healthcare training programs in Ontario, Canada. Semi-structured and open-ended questions were used to elicit dynamic interaction among participants and explore how they constructed their attitudes toward vaccination at the beginning and part way through their professional training. Analyses of verbatim transcripts of audiorecorded interviews were conducted both inductively and deductively using questions structured by existing literature on learning, professional socialization and interprofessional relations. We found five major themes and each theme was illustrated with representative quotes.

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Numerous unexpected insights emerged within these themes, including students’ general open-mindedness towards pediatric vaccination at the beginning of their training; the powerful influence of both formal education and informal socialization; uncritical acceptance of the vaccination views of senior or respected professionals; students’ preference for multiple perspectives rather than one-sided, didactic instruction; the absence of explicit socio-cultural tensions among professions; and how divergences among professional students’ perspectives result from differing emphases with respect to lifestyle, individual choice, public health and epidemiological factors—rather than disagreement concerning the biomedical evidence. This last finding implies that their different perspectives on pediatric vaccination may be complementary rather than irreconcilable. Our findings should be considered by developers of professional and interprofessional educational curricula and public health officials formulating policy on pediatric vaccination.

**Keywords**  Chiropractors · Enculturation · Interprofessional · Naturopaths · Physicians · Professional education · Vaccination

**Introduction**

According to the World Health Organization, vaccinations are among the most successful and cost-effective public health interventions (World Health Organization 2006; Public Health Agency of Canada 2006). Despite widespread support for vaccination programs, many parents—including some whose children receive all the recommended vaccines—have expressed concerns about possible side effects or sequelae based on perceptions of insufficient research or negative outcomes (Kennedy et al. 2011; Salmon et al. 2005; Healy and Pickering 2011). Important influences on vaccination rates include attitudes of health professionals towards vaccination (Ridda et al. 2008; van-Haaren et al. 1995), whether they themselves are vaccinated (Kraut et al. 2011), and whether they receive information and education that is supportive of vaccination (Opstelten et al. 2010).

Some studies show that health care providers’ attitudes towards pediatric vaccination influenced parents’ decision whether or not to delay vaccinating their children (Gust et al. 2005, 2008). Trust in the advice of a child’s health care provider and ease of communication with him or her are key factors associated with the parental belief that they had access to enough information to make a good decision about immunizing their child (Gust et al. 2005; Benin et al. 2006).

The role of complementary and alternative medicine (CAM) providers, such as chiropractors and naturopaths, in relation to parents’ decisions whether or not to vaccinate their children, is less well understood. Some patients have elected to seek care from CAM providers because of conflict during vaccination discussions with their family physician or paediatrician (Busse et al. 2011). In addition, parents of unvaccinated children are more likely than parents of vaccinated children to access CAM providers (Salmon et al. 2004, 2005). Nonetheless, CAM providers in Canada are not targeted by public health care authorities to receive information on vaccines (Busse et al. 2008).

Prior studies have suggested that professionals’ attitudes toward vaccination vary both within and across fields (Busse et al. 2011; Dubé et al. 2013) and that professional training and socialization may influence students’ evolving attitudes (Busse et al. 2002, 2008; Zimmerman et al. 1997). There is, however, very limited research regarding how attitudes towards vaccination develop among healthcare providers in-training.
The purpose of this qualitative study was to explore the development of attitudes towards pediatric vaccination (for children under 6 years of age) during professional training, in three groups: medical, chiropractic, and naturopathic students. The information provided by this study will help guide educational curricula and inform public health officials formulating policy concerning vaccination.

Methods

The focus of this qualitative study was the development of medical, chiropractic and naturopath students’ perspectives concerning vaccination. We chose a constructivist approach for this study—focusing on how people construct their beliefs and how their experiences and social contexts shape those beliefs—as the epistemological cornerstone of the study, rather than a post-positivist perspective in which the emphasis is on revealing objective truth (Piaget 1970; Proulx 2006; Vygotsky 1978; Davis and Sumara 2003).

Between April and May, 2005, we conducted 11 focus group sessions with professional students at three healthcare training institutions in Ontario, Canada: McMaster Medical School (MMS), the Canadian Memorial Chiropractic College (CMCC), and the Canadian College of Naturopathic Medicine (CCNM). McMaster Medical School has a 3-year program, with approximately 130 students/year of study. CMCC has a 4-year program, with approximately 150 students/year of study. CCNM has a 4-year program, with approximately 120 students/year of study. CMCC is the only English-language chiropractic college in Canada and CCNM is one of two accredited naturopathic colleges in Canada (Busse et al. 2008).

Each focus group consisted of five to seven participants from each year of study in each program, except for the MMS year 1 group, which had only four participants. The aim in qualitative research is to have representative data drawn from information-rich sources rather than a representative sample from which to draw inferences about a larger population. As such, we sought out students who could provide insight into the formulation of beliefs and values about pediatric vaccination. We recruited study participants by engaging a local representative at each educational site.

We collected data in focus groups because the dynamic interaction among participants provides ‘shared and compared’ data that cannot be obtained through individual interviews or observation (Pope et al. 2002). Sessions were facilitated by a trained qualitative researcher with focus group experience but, to avoid possible bias, no clinical healthcare training. Questions were designed to explore participants’ beliefs regarding vaccination, the major influences on those beliefs, perceived risks and benefits of pediatric vaccinations, and perceptions concerning the factors that shape vaccination policy. All focus group sessions were audio-recorded with participants’ permission and transcribed verbatim for analysis. Research Ethics Boards at each site approved our study, and all participants provided written, informed consent prior to participation.

Anonymized focus groups transcripts were entered into NVivo10 (QSR International) to facilitate data reduction and organization. Five members of our research team read each transcript independently to gain an overall sense of the data, note patterns and recurrences, and reflect on preliminary interpretations. These same individuals then met to develop an initial open coding scheme. Following this inductive thematic analysis, an independent researcher analyzed the data using a set of pre-determined questions in order to examine specific content areas that emerged. These questions were informed by existing literature.
on learning, professional socialization and interprofessional relationships. Once agreement was reached among the research team members about the inductively and deductively derived themes, we re-analyzed the transcripts to identify instances of the themes and abstract illustrative quotes. In cases of divergent interpretations, we reached consensus through a process of discussion, clarification of meanings, review of context, and re-definition of concepts (Pope et al. 2000).

To ensure that findings were linked to participants’ experiences and views, we asked study participants to elaborate on, clarify, confirm or disconfirm emerging findings during the focus group sessions. We also ensured rigour by maintaining an audit trail or complete set of documents that recorded coding decisions, data analysis procedures, and evolving coding schemes (Rodgers and Cowles 1993), as well as triangulated the data from the various sources (focus groups; Creswell 2009).

In rigorous qualitative studies the researchers link their findings to the data, such as exemplary quotes from several different participants. One way to ensure this is to identify the source of each quote using an anonymous ID system. In this study we used a three-part code: professional school, year of study, and assigned respondent number (e.g. a 2nd year student at McMaster Medical School who was designated as the 6th respondent would be represented as MMS, Y2, R6). In keeping with accepted practice in qualitative research, we have endeavoured to improve readability of participants’ statements without changing the original meaning by use of square brackets to indicate where we have inserted text or ellipses (…) to show where we have removed words.

Results

We conducted 11 focus groups with a total of 62 participants. There were roughly equal numbers of women and men, with a mean age group of 20–30 years. Our review of the focus group transcripts revealed five themes regarding development of attitudes towards vaccination: (1) views prior to training; (2) the influence of formal and informal professional education; (3) perspectives on the “key issues” in pediatric vaccination; (4) main drivers of public debate and policy on pediatric vaccination; and (5) professional roles and vaccination. Specific insights that we distilled from these themes are explored in the “Discussion” section.

Views prior to training

Many students in each program noted that, before their professional training began, they were unaware of any debates surrounding vaccination; the value of universal pediatric vaccination was generally unquestioned. One said, “[p]ersonally, I follow the trend of my parents… it’s not really a question of where I got the information; for me it was a choice already made” CMCC, Y1, R6). Another observed that “this is just something that’s part of our culture… that vaccines were a good thing” (MMS, Y3, R1). One student who received vaccinations before travelling reflected that “it wasn’t even up for discussion. They’re [My parents are] like: ‘You’re getting this and you’re getting this’ ” (CCNM, Y1, R1).

Those few participants who had formed an opinion about pediatric vaccination cited a variety of information sources, including family members, caregivers, the Internet, print and television media, public health pamphlets, and courses or other sources encountered during their undergraduate education. The anecdotal experiences of people close to
students were also influential; for example, participants described family member experi-
ences with vaccine-preventable diseases and stories about adverse reactions to vaccines
heard in work environments.

The influence of formal and informal professional education

As students embarked upon professional education, many became aware of the debate
surrounding pediatric vaccination and acknowledged their need to learn more. In all three
programs, perspectives generally evolved from unquestioned acceptance and anecdotal
opinions towards views based on their profession’s practices and/or scientific research they
had encountered.

Formal education played a role in forming their views; many students noted the in-
fluence of lectures and teaching sessions. Also important were more informal experiences,
ranging from clinical rotations, to discussions with peers, and participation in public
vaccination programs. One chiropractic student, for instance, noted the importance of
interactions with other chiropractors in the field, while a medical student described how “in
our clinical rotations, residents…who are also fellow physicians, have played a great
influence in my knowledge base for [vaccination]” (CMCC, Y3, R4).

Often cited as the greatest—and least critically examined—influence on student per-
spectives was the beliefs of senior or respected people in their respective fields, such as
professors and speakers. Students in all three professions reported relying on the opinions of
professors. As one participant explained, “when we hear it in class, we’re absorbing this
stuff and basically taking it at face value…I’m not questioning whether the source of the
professor’s information is accurate or not, I’m just writing it in my notes” (CCNM, Y1, R2).

During their education, students reported learning how to think systematically and
critically appraise research papers. These skills played an increasingly important part in the
formation of their perspectives on topics like pediatric vaccination; students tended to most
value sources that they believed took objective and balanced approaches to the evidence,
whether in journals or speeches. Indeed, several students expressed a desire to hear more
open debate on vaccination and other contentious issues.

Such independent research appraisal, however, was limited by time constraints. A number
of students stated their preference for clear and concise information on topics like pediatric
vaccination. As one observed, “I just haven’t spent the time to go out and do the research
myself and I figure if one of my professors is going to speak about it…I feel that [his/her
opinion] is based on good evidence…” (CCNM, Y2, R2). In a similar vein, another said,

One of the big sources that I know many of the medical students use is ’Up-to-Date.’
[It] encompasses information from many sources, from scientific studies, from
textbooks, from expert opinions, and it provides very good summary information on
very specific questions which are very easily applicable to clinical scenarios and
clinical situations (MMS, Y3, R4).

Perspectives on the “key issues” in pediatric vaccination

On this topic as well, there was significant agreement both within and across the profes-
sional student groups. Students in all three programs generally favoured pediatric vacci-
nation and acknowledged the large health improvements associated with this preventative
measure. Members of all groups also emphasized the need for professionals to weigh the
pros and cons of pediatric vaccination and stay abreast of current research. One medical
student said, “I think that generally vaccines help save lives, but more work needs to be done in terms of administrating it the right way and coming up with better and more effective vaccines” (MMS, Y1, R3). A chiropractic student stated, “…for some of the vaccinations, the risks of not being vaccinated are much greater than the risks of getting vaccinated… So I think chiropractors, MD’s, naturopaths, nurses, anyone in the health care profession, should be more informed about all aspects of it” (CMCC, Y3, R6).

There was also widespread agreement on the importance of educating patients regarding vaccination. As one student put it “the most important thing is that people become informed, and get all the information” (CMCC, Y3, R4). Students from all three healthcare programs cautioned that individual vaccines should be distinguished based on severity and a weighing of costs and benefits. For instance, one naturopath student counselled parents to “err on the side of safety” (CCNM, Y2, R4) and get the polio vaccine for their children, and one medical student expressed concern over using new and less tested vaccines produced by the pharmaceutical industry (MMS, Y1, R5).

There were some important divergences in perspectives on pediatric vaccination across the professional groups as well. However, these differences for the most part did not emerge from power struggles concerning scope of practice, though one medical student did view vaccination as within the scope of physicians and not that of other professions: “vaccinations are… an aspect of medicine, and physicians are the experts to discuss and inform patients on that” (MMS, Y3, R1). Nor did they derive from direct conflict over biomedical evidence; students in all three programs generally favoured pediatric vaccination and acknowledged the large health improvements associated with this preventative measure historically.

Where students in the three professions most diverged was in how much they emphasized related issues or factors. Chiropractic and naturopathic students stressed individual and parent choice: “[V]accinations are completely individual… an individual decision” (CCNM, Y4, R6; “I think, absolutely, people/parents should have a choice” (CMCC, Y3, R5). Naturopathic students in particular took a holistic perspective, asserting the importance of prevention, healthy lifestyles and “allowing your immune system to develop in the way that it should” (CCNM, Y2, R4). Several naturopathic students worried about the long term ramifications of widespread vaccination.

While medical students voiced concerns about these related factors, they tended to focus more on the larger scale public health effects of vaccination. As one explained,

[I]f we studied the history of vaccinations…we would be able to convince the patients that [they] are indeed a blessing … that we really need to start looking on the positives that have come from this, rather than the few isolated negatives, and put things in perspective (MMS, Y3, R4).

Another described the benefits of ‘herd immunity’ and how everyone, even those not actually vaccinated, may gain from widespread vaccination. It is important to note, as a caveat, that although medical students were the most likely to articulate the public health benefits of vaccination, they were not the only group to do so. One chiropractic student, for instance, described how universal vaccination may protect vulnerable populations and naturopathic students noted that vaccinations may reduce the burden on family caregivers and save healthcare dollars.

**Main drivers of public debate and policy on pediatric vaccination**

Students in all three professions felt that the healthcare system, school boards, senior residences, governments, businesses and pharmaceutical companies had an interest in
promoting pediatric vaccination. As one naturopathic student said, “[i]t makes good business sense. It will save your company money because people won’t be out being sick or looking after their kids who are sick” (CCNM, Y2, R4). Others from several specialties noted that it was less costly for the government to fund vaccination campaigns than to have large numbers of people coming for treatment at emergency departments.

Differences appeared, however, in students’ responses to the pro-vaccine orientation of these institutions. Several medical students felt it was a logical outcome of research and “generally in the public’s best interest” (MMS, Y2, R1). Many chiropractic and naturopathic students, on the other hand, viewed these institutional pressures with more suspicion. Several observed that pharmaceutical companies had a lot of influence in the health care system as well as powerful interests in promoting vaccination. One warned that if vaccination programs were abolished, “[t]here’d be outcry from the pharmaceutical companies, there’d be outcry from the public. That pressure, in and of itself, I think is a whole source of decision-making for them that supersedes, at current times, everything else” (CCNM, Y3, R1).

Although skepticism existed towards pro-vaccine arguments, especially studies funded by pharmaceutical companies, students in all three specialties acknowledged that anti-vaccination arguments were frequently based on scanty or anecdotal evidence. One naturopathic student observed that, when colleagues are questioned about why they are anti-vaccine, “they don’t have anything concrete to back it up” (CCNM, Y4, R1). A chiropractic student elaborated on this point: “I think a lot of it is re-quoted information from previous quotes, that a lot of times, in its infancy wasn’t based on any good science, but it gets repeated over and over again” (CMCC, Y4, R2).

Many students believed that fear, reassurance and other emotional factors played a role in vaccination decisions—on both sides. One naturopathic student noted the pressure that is put on parents to conform and get their child vaccinated, while another felt that people often refused vaccination based on ‘conspiracy theories’ about electronic tracking devices and so on. One medical student made a similar point: “the people there [North Africa] were convinced that vaccinations against polio were in fact a conspiracy by the US to sterilize the women. So, they eliminated vaccinations and that year the number of polio cases just skyrocketed”. (MMS, Y2, R1).

In all focus groups, students seemed to be honestly and insightfully wrestling with the same complex issues that policy makers do: biomedical efficacy, personal choice, public good, possible side effects, long term influences on immune systems, and so on. One student provided a thoughtful example of their thought processes:

I think it’s a very controversial topic…I know, from a public health perspective, it’s definitely a good idea to vaccinate people. From a cost perspective, it’s a lot easier to vaccinate and prevent diseases then try to deal with them. But, at the same time, there might be things going on with vaccines that we’re not aware of … [agreement from other group members] (CCNM, Y1, R1).

**Professional roles and vaccination**

Students in all professions who addressed this topic were generally open to views expressed by students and practitioners in other professions and to integrating their approaches. While the one medical student quoted above saw the vaccination as falling solely within his/her profession’s scope, others appeared more open to input from other professions. Another medical student, for example, saw “a significant role” for “alternative [and]
complementary medicine” (MMS, Y2, R2), and felt that it was detrimental to patients to put up barriers between CAM and traditional, biomedical Western medicine.

Both medical and naturopathic students saw it as their role to educate themselves and patients on the pros and cons of vaccination, to keep up to date on recent research, and to act as patient advocates—although naturopath students put more emphasis on individualized care, patient choice and empowerment. Chiropractic students were divided on their role. Many, in accordance with legislation that had restricted their ability to offer advice on vaccination, saw it as outside of their scope and “not really something that we’re well educated on” (CMCC, Y4, R5). A few others, though, thought that they had sufficient education to offer a professional opinion, and should not be barred from providing information to patients if asked.

Students in all specialties believed that the Ministry of Health and professional schools should provide objective, evidence-based and balanced information on vaccination, and that open debate on the topic should be encouraged at schools and in public. Several medical students thought this could help them keep up to date and remain lifelong learners. Chiropractic and naturopathic students emphasized access to unbiased information; as one put it: “[t]hey should be providing information on both sides and let us make a choice” (CMCC, Y3, R6).

Discussion

Although many insights about the formation of professional students’ values and beliefs concerning pediatric vaccination emerged from our study, our discussion focuses on four specific insights that can help guide the development of health education curricula as well as public health information and policy.

The first is that students in this study generally started their professional training with an open mind concerning pediatric vaccination. Second, professional schools had a strong shaping effect on students’ perspectives, in a number of different ways. Formal educational events, such as lectures delivered by professors and other senior, respected members of the profession, had a major influence on students’ beliefs. Indeed, students in the early years of professional training often accepted this information uncritically. Informal educational activities and socialization, such as discussions with colleagues and participation in clinical programs, also helped to shape student perspectives.

These results accord with existing literature on professional enculturation and the profound influence it can have on students’ evolving perspectives (Hall 2005; Beattie 2003; Abbott 1988). One clear implication is that educators and other professionals working with students need to be aware of both the explicit and the more subtle, practice-based means by which they contribute to shaping student beliefs concerning pediatric vaccination and other important topics. Failure by the formal curriculum to directly address conflicting information regarding vaccination may allow informal influences to play a greater role in the development of student perspectives (Busse et al. 2002; Wilson et al. 2004).

A third insight concerns students’ developing capacity to appraise scientific research in an independent and critical manner. This capacity was enabled by their professional education; but it was also a potential source of tension, since their independent perspectives might differ from mainstream opinion in their profession. Students in all professions expressed a desire to hear controversial issues such as pediatric vaccination debated
openly, as well as to receive clear, concise, balanced and objective information from their schools and the Ministry of Health—so that they could form their own opinions on the issue. What exactly constitutes balanced and objective information might be controversial, however. Previous research indicates that perception of balance among health profession students may vary depending on existing attitudes to vaccination—with those who view it positively endorsing formal sources of information, like courses and scientific literature, and those who view it negatively favouring informal lectures and information provided by non-peer-reviewed magazines and trade journals (Busse et al. 2002).

It is well established in constructivist literature that people construct beliefs about the world based on their personal and cultural experiences (Piaget 1970; Proulx 2006; Vygotsky 1978; Davis and Sumara 2003). One implication of the current study is that educators in the health professions should acknowledge and work with this feature of learning. They should present students with clear, rigorous and well-researched information on vaccination while also being open to debate and alternative perspectives. This pedagogical shift can be seen as a movement from dictating what knowledge is correct, to nurturing students’ learning and engaging them in current knowledge discussions in their field—a shift that accords well with newer approaches in health professions education (Bradshaw and Lowenstein 2007).1

Finally, the present research has implications for interprofessional collaboration and education. Literature on this topic often suggests that perspectival differences among health professions arise from socio-cultural tensions involving class, gender, history, power, and economic interests (Hall 2005; Abbott 1988; Klein 1983). Hall (2005), for instance, describes the way in which health professions have long sought to monopolize certain areas of practice and exclude other professions. In the current study, however, there was relatively little evidence of such socio-cultural tensions.

Another source of professional difference described in the literature is the diverse subject matter or phenomena that professionals focus on or engage with. Different complex systems within the world (organisms, social groups, economies, ecologies and so on) generate different kinds of behaviours and rules, and therefore cannot be reduced to a single disciplinary or professional model (Anderson 1972; Newell 2001; McMurtry 2011). Healthcare, for example, is often depicted as being concerned with various levels of nested living systems relevant to patient health: Systems ranging the micro (cellular) level, to the meso (cells, organs, bodily systems), to the personal (patient as a ‘whole’, autonomous, learning person), to macro level factors such as the social, economic and ecological contexts in which a patient is embedded (McMurtry 2009; Bell et al. 2002; Leischow et al. 2008).

This latter source of professional differences seems more applicable to the present study. While there was widespread agreement among student groups concerning the importance of patient education and biomedical evidence surrounding vaccination, there were significant differences in the emphasis put on other, related factors. Chiropractic and especially naturopathic students strongly advocated healthy lifestyle choices, individual choice, and other ‘whole person’ factors, whereas medical students tended to focus more on the larger scale public health effects of vaccination.

Research supports a concern with all these foci: Both public health and respecting patient choice are important to effective, modern healthcare. The issue for health

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1 Interestingly, this progressive, constructivist approach to professional education has parallels in patient education. Previous research indicates that parental vaccine related decisions are influenced by the patient-provider interaction, balanced information and discussion (Glanz et al. 2013; Smith et al. 2006).
professions educators—and the health care system more generally—is how to recognize, balance and combine all these factors in pediatric vaccination education and practice. This is obviously a significant challenge, one that the current study does not address. By showing that perspectival differences among the professional students are not necessarily irreconcilable, but rather result from different and complementary foci, however, this study may point the way toward more productive interprofessional understanding and collaboration—at least around the issue of pediatric vaccination. For instance, educators might choose to have more discussions among students from different professions, perhaps supported or scaffolded by a visual model that maps out their somewhat differing but complementary foci related to health care.

Conclusion, limitations and future research

Vaccine-preventable diseases have re-emerged in many parts of the world. Europe, US and Canada have experienced outbreaks of measles (Council on Foreign Relations, n.d.) and the World Health Organization recently declared the spread of polio a public health emergency of international concern (World Health Organization 2014). At the same time, complementary and alternative medicine (CAM) is being increasingly used, and these practitioners and schools have taken on greater importance in society. Due to the previously demonstrated relationship between alternative medicine providers and the communication of vaccine-hesitant sentiment (Busse et al. 2002, 2008; Wilson et al. 2004), it is crucial to understand how these providers’ perspectives on pediatric vaccination are developed.

The current study offers important insights into the development of these perspectives, as well as how they compare to those of medical students. Such insights can help public health officials work collaboratively with administrators from mainstream and alternative medical schools, to ensure that vaccination information is conveyed accurately and in a manner that respects the differing perspectives and contributions of various professionals.

There are several limitations associated with this study. First, participants may have censored their answers or tone in order to appear as ‘good participants’ (social desirability bias). Secondly, readers not familiar with qualitative research methods may be tempted to generalize the findings beyond the three groups of health care trainees included in the study. It is important to remember our aim was to explore how perspectives on pediatric vaccination were developed within these specific groups and compare findings to the literature, not to make generalizations about a larger population.

Future research could be undertaken in a number of related directions, such as using surveys of larger, randomly selected samples drawn from several groups of health care trainees; a mixed methods design to add quantitative accuracy and detail to the depth of understanding derived from interviews and focus groups; expanding the type of trainees to include nursing and pharmacy students; exploring in more depth the relative role of formal and informal learning environments on the development of vaccine perspectives of future health care practitioners; and comparing the views of learners to those of parents of young children and vaccination policy-makers.

Furthermore, findings of this sort are rarely static; as social values, technology and curricula evolve, the same research could produce different results. Similar studies could therefore be repeated on a periodic basis, especially following curricular reforms. Because vaccination is both one of the most important public health interventions in history and a
source of on-going controversy among health providers and the people they care for, future studies on the development of health professionals’ perspectives on vaccination are certainly warranted.

Conflict of interest None.

Appendix

Appendixs containing the (1) Focus Group Interview Questions and (2) Questions Used to Structure Deductive Data Analysis, are available upon request.

References


