

# Immunization delivery in British Columbia

## *Perspectives of primary care physicians*

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### Abstract

**Objective** To explore the experiences of family physicians and pediatricians delivering immunizations, including perceived barriers and supports.

**Design** Qualitative study using focus groups.

**Setting** Ten cities throughout British Columbia.

**Participants** A total of 46 family physicians or general practitioners, 10 pediatricians, and 2 residents.

**Methods** A semistructured dialogue guide was used by a trained facilitator to explore participants' experiences and views related to immunization delivery in British Columbia. Verbatim transcriptions were independently coded by 2 researchers. Key themes were analyzed and identified in an iterative manner using interpretive description.

**Main findings** Physicians highly valued vaccine delivery. Factors facilitating physician-delivered immunizations included strong beliefs in the value of vaccines and having adequate information. Identified barriers included the large time commitment and insufficient communication about program changes, new vaccines, and the adult immunization program in general. Some physicians reported good relationships with local public health, while others reported the opposite experience, and this varied by geographic location.

**Conclusion** These findings suggest that physicians are supportive of delivering vaccines. However, there are opportunities to improve the sustainability of physician-delivered immunizations. While compensation schemes remain under the purview of the provincial governments, local public health authorities can address the information needs of physicians.

### EDITOR'S KEY POINTS

- In British Columbia, immunization delivery to children and adults is a partnership between public health and family physicians. Physicians are an invaluable contributor to delivering the provincial immunization program; they vaccinate most children and are more likely to provide timely immunizations. Moreover, physician recommendation is an important determinant of vaccine uptake by patients.
- This qualitative study found that primary care physicians in British Columbia remain strongly committed to recommending and providing immunizations to their patients. Time requirements and accessing up-to-date information were important challenges reported by participants. Improved compensation; an online vaccination registry that could be accessed by public health, providers, and patients; and improved information, education, and communication were among the supports suggested to sustain vaccine delivery by physicians.

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# La vaccination en Colombie-Britannique

## Le point de vue des médecins de première ligne

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### Résumé

**Objectif** Vérifier l'expérience des médecins de famille et des pédiatres qui font de la vaccination, notamment en ce qui concerne les obstacles qu'ils rencontrent et le soutien qu'ils reçoivent.

#### POINTS DE REPÈRE DU RÉDACTEUR

- En Colombie-Britannique, la vaccination des enfants et des adultes est un partenariat entre la santé publique et les médecins de famille. Les médecins jouent un rôle essentiel dans le programme provincial de vaccination; ils vaccinent la plupart des enfants et ils sont plus susceptibles de les vacciner en temps opportun. Les conseils des médecins sont aussi un facteur important pour convaincre les patients de se faire vacciner.

- Cette étude a montré que les médecins de première ligne sont fermement convaincus de leur rôle pour recommander et administrer les vaccins à leurs patients. Parmi les principaux défis identifiés par les participants, mentionnons les contraintes de temps et le manque d'accès à de l'information à jour. Les participants ont aussi suggéré des moyens de soutenir l'implication des médecins dans la vaccination, par exemple en améliorant la rémunération, en créant un registre électronique qui pourrait être accessible à la santé publique comme aux vaccinateurs et aux patients, et en améliorant l'information, la formation et la communication.

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**Type d'étude** Étude qualitative à l'aide de groupes de discussion.

**Contexte** Dix villes de la Colombie-Britannique.

**Participants** Un total de 46 médecins de famille ou omnipraticiens, plus 10 pédiatres et 2 résidents.

**Méthodes** Un moniteur a utilisé un guide de dialogue pour déterminer ce que les participants pensent de la vaccination et l'expérience qu'ils en ont en Colombie-Britannique. Les transcriptions mot-à-mot ont été codées indépendamment par 2 chercheurs. Les thèmes clés ont été identifiés et analysés de façon itérative grâce à une description interprétative.

**Principales observations** Les médecins accordaient beaucoup d'importance à la vaccination. Les facteurs qui encourageaient les médecins à vacciner incluaient leur conviction de la valeur des vaccins et le fait d'être bien informés sur ce sujet. Parmi les obstacles identifiés, mentionnons le fait de devoir consacrer beaucoup de temps et de ne pas être suffisamment informés quant aux changements de programme, aux nouveaux vaccins et au programme de vaccination pour adultes en général. Certains participants disaient entretenir de bonnes relations avec la santé publique locale tandis que d'autres mentionnaient des expériences contraires, et cela variait selon les sites géographiques.

**Conclusion** Ces observations donnent à croire que les médecins sont intéressés à vacciner. Toutefois, il serait opportun de trouver des moyens pour les soutenir dans cet engagement. Le mode de rémunération demeure sous la juridiction des gouvernements provinciaux, mais les responsables locaux de la santé publique ont la possibilité de combler les besoins de formation des médecins.

Immunizations have been the single most effective public health intervention in the past 50 years.<sup>1</sup> In British Columbia (BC), immunization delivery to children and adults is a partnership between public health and family physicians.<sup>2</sup> Physicians are an invaluable contributor to delivering the provincial immunization program; they vaccinate most children in the lower mainland and are more likely to provide timely immunizations compared with public health (E. Kefalas et al, unpublished data, 2012). Moreover, physician recommendation alone is an important determinant of vaccine uptake by their patients.<sup>3,4</sup>

Immunization programs have changed dramatically over the past decade. In BC, new vaccines to prevent varicella, rotavirus, pneumococcal, and meningococcal infections were introduced into the routine childhood schedule.<sup>5</sup> Vaccine introduction was fast-paced and included changes to established dosing schedules, with more antigens administered at certain ages.<sup>5</sup> Physicians also faced new occupational safety requirements to use more expensive single-use safety syringes. While the Ministry of Health provided additional funding for childhood vaccine administration via new vaccine-specific fee billing codes,<sup>6</sup> the codes added yet another layer of complexity. As a result, the proportion of children immunized by physicians has dropped from 94% in 1999<sup>7</sup> to 71% in 2011 (E. Kefalas et al, unpublished data, 2012).

In order to better understand the sustainability of physician-based immunization delivery, we sought to increase our understanding of physicians' experiences with and attitudes toward physician-delivered immunizations to both children and adults. The primary objective of our study was to identify challenges faced by family physicians and pediatricians in providing vaccinations. Secondary objectives included determining their reasons for continuing to vaccinate, understanding their reasons for stopping vaccine delivery, exploring their relationships with public health, and identifying what was needed to support their continued delivery and recommendation of vaccines.

This paper describes results from a qualitative study using focus groups to examine the range of physician opinions and experiences regarding immunization delivery and administration in their practices.

## METHODS

### Participant recruitment

The study team members from each health authority identified an urban and a rural site in each of the 5 geographic health regions, as well as stakeholder physicians at each site. These were local opinion leaders with interest in immunizations or immunization delivery. They in turn identified key physician leaders who led postgraduate

family medicine electives or training programs or who organized local continuing medical education events. These individuals championed the recruitment for the focus groups within their geographic network of physicians. In areas without key leaders, potential participants were identified through the College of Physicians and Surgeons of British Columbia database and directly invited to participate. Participants received an honorarium of \$150. The study was approved by the University of British Columbia Behavioural Research Ethics Board.

### Data collection

A list of questions was collated by the study team. Telephone interviews were first conducted with 8 stakeholders from 3 (of 5) regional health authorities in order to test the questionnaire. Themes generated from these interviews helped refine questions used in subsequent focus groups held from July to September 2009. During each face-to-face focus group, a semistructured dialogue guide was used by a trained facilitator (J.C., J.L.). All conversation was audiorecorded and written field notes were kept.

### Data analysis

Verbatim transcriptions (without physician identifiers) were reviewed and coded by at least 2 study investigators (J.C., J.L.) using NVivo software or manual coding. Data were further analyzed using an interpretive description approach.<sup>8</sup> First, the phenomenon of interest was defined as the experiences and opinions of primary care physicians in administering and delivering vaccines. Next, possible meaning across experiences was explored and an iterative process was used to reach consensus on key themes.

## FINDINGS

Ten focus groups were held in urban and rural locations throughout BC (Vancouver, Richmond, Mission, Burnaby, Kamloops, Trail, Victoria, Courtenay-Comox, Prince George, and Dawson Creek). A total of 58 physicians participated, with 3 to 10 participants per focus group. In general, there was great interest among physicians in participating in the study. Lower recruitment was noted in rural sites where there was a limited pool of physicians, and often physicians who had intended to participate were reported to be away owing to after-hours service obligations. The participants consisted of 46 family physicians or general practitioners, 10 pediatricians, and 2 residents. On average, fully licensed physicians were in practice for 22 years (range 4 to 36 years). Eleven participants did not currently perform immunization. Among those who did offer immunizations, half (n=23) immunized adults or provided private vaccines only.

Several themes emerged from the focus groups and were categorized into 3 topics: barriers to vaccination, facilitators of vaccine delivery, and requests for support (Table 1).

### **Barriers for physician-delivered immunizations**

*Time:* Physicians identified the time commitment associated with both vaccine delivery and inventory management as their main obstacle.

[W]hen they come with the immunization it's [a] bit of a chaos or time-consuming process because not only do you have to do all the immunization preparation, you have to give the shot, you have to check the kid, you have to answer all the parents' questions about the child because, you know, the parents made a special visit and their other kids are there. So it's a very sort of a time-consuming ... process to go through.

Mainly it was staffing. It's a lot of work for the staff to ... pick up the vaccines, monitor the fridge temperatures ... record them to send in to public health, and ... with the number of vaccines increasing it was just increasingly burdensome for the staff.

*Vaccine refusal by clients:* Physicians found it challenging to deliver immunizations to conscientious objectors, as some patients were not open to dialogue: "One of the issues is there are some patients who are just ... dead set against immunization so I find that [it is] a struggle to convince them. Usually I'm not successful. They're just dead set against it."

*Lack of clarity about the adult immunization program:* Most participants were unaware of the existence and scope of the adult program and the remainder found it inadequate or poorly implemented.

I think the adult immunization program is extremely fragmented. They're pretty much exclusively relying on patients to present themselves and keep track of their

own stuff as opposed to there being anything more structured .... Nobody ever seems to know what they need or don't need. There's just a vacuum out there.

*Information needs regarding new vaccines:* New vaccines presented a unique challenge to providers, particularly in answering questions posed by patients. For example, the H1N1 influenza vaccine raised considerable safety concerns that physicians believed they were unprepared to address. "I mean our patients are whipped into a frenzy by the media about this and are inundating us with questions. But there's very little that comes from public health about that until the vaccines are about to be released."

*Inadequate support by public health:* Relationships between physicians and local public health varied dramatically by geographic location. Physicians in 4 focus groups stated that this relationship was poor, citing communication as the main reason.

One of the biggest failures in this province is the lack of reminders to family docs, the lack of keeping us up to date frequently with what are the recommended vaccines.

I don't feel ... much faith with public health looking out to a) give me any information or b) help me at all.

In these communities, physicians thought they were viewed as "competitors" in vaccine delivery. They also reported difficulties accessing adequate quantities of publicly funded vaccines. This ultimately left physicians feeling undervalued. Some physicians did not appreciate the partitioning of care delivery with public health, as it adversely influenced their bonding with younger patients. One participant commented, "So in terms of the public health programs, I think the major negative is that it's caused a disengagement with physicians and the population at large regarding immunization and discussion in the office."

**Table 1. Themes emerging from the focus groups**

MAIN THEMES	SECONDARY THEMES
Barriers for physician-delivered immunizations	Time Vaccine refusal by clients Lack of clarity about adult immunization program Information needs regarding new vaccines Inadequate support by public health
Factors that facilitate physician-delivered immunizations	Belief in the role of immunization delivery in providing quality care Adequate information, especially regarding new vaccines Positive relationship with public health
Supports requested to sustain vaccine delivery by physicians	Increased compensation through less complex mechanism Online immunization registry accessible to providers, public health, and clients Information, education, and communication

### **Factors that facilitate physician-delivered immunizations**

*Belief in the role of immunization delivery in providing high-quality care:* Physicians cited multiple reasons for providing childhood vaccinations. They believed in the value of immunizations; they believed vaccination was an integral part of well-child care; they wanted to make it efficient for parents; and they found that regular visits for immunization delivery provided the opportunity to establish and maintain trusting relationships with patients.

*Adequate information, especially regarding new vaccines:* Information was highly valued by respondents as a support in providing vaccines. Most respondents relied on pharmaceutical representatives as their primary source of information.

I have to admit I use the pharmaceutical [representatives]; they have great handouts. We usually confirm it with our sites first but we do use those a lot because they're very splashy. They're easy to give out. No one else gives this information to provide patients. So I think that's even more important.

Additional sources of information for some physicians included public health, continuing medical education sessions, the Internet, and the *Canadian Immunization Guide*.<sup>1</sup> However, most were not aware of the provincial immunization guidelines.<sup>5</sup>

*Positive relationship with public health:* In 3 locations, physicians thought that public health saw them as a valued partner in vaccination. Physicians were seen as the primary stewards of their patients and believed they were supported by public health.

I think they value us quite highly because we're the ones who are going to be educating the patients.

The public health community health units are very good. When we call them up—say we need to get the shots—they get them ready right away so we can send somebody to pick them up. So I think in that sense, they're partnering with us. If we have questions about how to catch up with somebody ... we can call the community health [units] and they help us out .... So I think we work well with them.

### **Supports requested to sustain vaccine delivery by physicians**

*Increased compensation through a less complex mechanism:* Most participants did not understand the provincial compensation mechanism for vaccine payments and did not bill the government for administered vaccines. While several physicians stated they were pleased to finally receive remuneration for vaccinating children,

the amount was thought to be inadequate. Physicians also expressed interest in receiving higher compensation for vaccinating adults: "So [compensation] doesn't account for any kind of extra manpower that it takes ... so that you can stay up and running. 'Cause people are still sick. You still gotta do that job and the other job."

When asked about desired compensation, suggestions included a fee for counseling provided to the child and parents (in terms of responding to questions), higher fees for visits involving vaccines, higher vaccination fees if vaccine delivery occurs during mass immunization clinics, vaccine tray fees, and incentives to review immunization status.

*Online immunization registry accessible to providers, public health, and clients:* As immunizations can be provided by many providers and patients struggle to maintain their personal paper records, physicians expressed strong support for an Internet-based immunization registry. Such a registry would be accessible to verify a patient's immunization status or to record immunizations delivered. For maximum efficiency, it was recommended that this registry link with electronic medical records: "One [idea] is electronic record-keeping so that it can be easily searchable and it would be available to other providers to know that certain immunizations have been covered."

*Information, education, and communication:* Physicians requested access to vaccine-specific information that could be used both by themselves and by their patients. Participants also suggested greater promotion of vaccines through mass media campaigns.

## **DISCUSSION**

This qualitative study elucidates the experiences of BC physicians regarding vaccine delivery. We found that participating physicians remained supportive of vaccine delivery and believed it was an integral part of their scope of practice. A number of obstacles emerged such as the time required for immunization visits, the complexity of vaccination schedules, information needs (particularly for new vaccines), and a disconnect with local public health. These have also been reported in previous studies.<sup>9-11</sup> The 2003 National Immunization Strategy acknowledged many of these challenges,<sup>12</sup> and called for a national communication strategy and the creation of an immunization registry network. In response, BC has a dedicated immunization website for the public and providers. This website links to credible and important tools for providers such as information on new vaccine programs, the provincial immunization manual, and recommended but currently unfunded vaccines. Yet, physicians in many parts of the province reported



feeling unsupported by public health. This begs the question whether physicians are aware of this tool and if they find it helpful. Local public health authorities also need to initiate a dialogue with local primary care physicians in order to understand their challenges and find out how they can be supported better in order to make immunization delivery sustainable. Opportunity remains to strengthen immunization curricula in medical schools and family medicine residency training programs and to reach practising physicians through continuing medical education.

Participants had a number of suggestions to strengthen vaccine delivery including reimbursement incentives, the creation of an Internet-based registry, and improved information dissemination. Similar recommendations have been identified by physicians in other jurisdictions.<sup>13,14</sup> Adult vaccination is perceived to be inadequately compensated, as physicians can either bill for a general visit fee or vaccine delivery but not both. Because a physician visit usually involves more than vaccine delivery alone, physicians tend to vaccinate adults out of a moral imperative to protect their patients even though they cannot bill for vaccine delivery. British Columbia is also leading the creation of an immunization registry called PANORAMA, which will be accessible only to public health immunizers. Unfortunately, despite an identified need from physicians for wider access to client-specific immunization records, such a feature is not currently planned for the registry.

This study emphasized the importance of a healthy partnership between physicians and local public health as integral to forging sustainable immunization delivery by physicians. This relationship was reported to be a source of support or a barrier in different locations. Further reflection by local public health is required on how barriers have, and can be, addressed. These findings will be used to inform the development of a quantitative survey to be administered to all primary care physicians in the province.

## Limitations

Qualitative studies are limited by a lack of external validity and generalizability. Despite the honorarium, recruitment proved difficult in several locations, and groups were smaller than anticipated. However, the focus groups included 46 physician participants from a range of urban and rural settings across the province. We also found recurrent themes emerged from the 10 focus groups and that these themes reached saturation, which helped to ensure the trustworthiness of the data.<sup>15</sup> By design, this study was broad in scope and designed to explore barriers and challenges in general. The study design thus precluded us from examining in detail the unique issues associated with administration of vaccines to children as compared with adults or administration of large campaigns such as the annual influenza campaign.

## Conclusion

Primary care physicians in BC remain strongly committed to recommending and providing immunizations to their patients. Time requirements and accessing up-to-date information were important challenges. Physicians can now offer more vaccines to protect their patients. Many are funded but a growing number require out-of-pocket payment. Physicians are required by the Canadian Medical Protective Association to discuss and recommend both funded and unfunded vaccines.<sup>16</sup> Regular education “booster” events that aim to keep physicians current on changes to the immunization program would be helpful. This study also found that the nature of the relationships between physicians and local public health varied by geographic location. This requires further attention if the goal of optimal and timely vaccine coverage is to be achieved.

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## Contributors

**Drs Buxton, Kaczorowski, Linekin, O'Briain, Scheifele, and Dawar, Ms Derban, Ms Machin, and Ms Morgana** contributed to the design and conception of the study. **Mr Catterson** and **Ms Li** contributed to data acquisition. **Drs Omura, Buxton, Kaczorowski, Hasselback, and Dawar** and **Mr Catterson** and **Ms Li** contributed to data analysis and interpretation. All authors contributed to the development and review of the manuscript, and all agreed with the contents of the final manuscript.

## Competing interests

None declared

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