

# Attitudes and Beliefs of Pregnant Women and New Mothers regarding Influenza Vaccination in British Columbia

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## Abstract

**Objective:** Although pregnant women have increased risks for influenza morbidity and mortality, influenza vaccination rates among pregnant women in Canada are consistently very low. This mixed-methods study investigated the attitudes and behaviour of pregnant women and new mothers regarding seasonal and pandemic influenza vaccination.

**Methods:** We conducted a baseline survey and qualitative focus groups with 34 women (26 pregnant women and 8 mothers of newborns), with a follow-up survey to assess outcomes at the end of the subsequent influenza season. Data analysis included descriptive statistics and directed content analysis based on the health belief model.

**Results:** Most women did not consider influenza vaccination to be an important preventative measure to take while pregnant, although some were more willing to consider vaccination during a pandemic. Omission bias played a substantial role as justification for not vaccinating. Participants expressed confusion about recommendations regarding vaccination during pregnancy and frustration with inconsistent messages from health care providers (HCPs), particularly with regard to pandemic vaccines. Women were vaccinated when they perceived themselves and/or their babies to be at increased risk for influenza. Vaccinated women had strong normative influences (usually an HCP or a family member) that affected their decision. Intentions accurately predicted behaviour for women who did and did not intend to be vaccinated.

**Conclusion:** Pregnant women did not perceive themselves to be at increased risk for influenza and did not believe that influenza vaccination was a necessary preventative health measure. A lack of safety information about vaccination during pregnancy and inconsistent messages from HCPs were barriers to vaccine acceptance. Recommendations from maternity care providers and communication about the

severity of and susceptibility to influenza for pregnant women would facilitate vaccine uptake.

## Résumé

**Objectif :** Bien que les femmes enceintes courent un risque accru de morbidité et de mortalité associées à la grippe, le taux de vaccination antigrippale chez cette population demeure très faible au Canada. Nous avons utilisé une méthode mixte pour évaluer les attitudes et les comportements des femmes enceintes et des nouvelles mères en ce qui concerne la vaccination contre la grippe saisonnière et la grippe pandémique.

**Méthodologie :** Nous avons réalisé un sondage initial auprès de 34 femmes (26 femmes enceintes et 8 autres mères d'un nouveau-né) et étudié qualitativement leur point de vue en formant des groupes de discussion. Nous avons ensuite effectué un sondage de suivi après la saison de la grippe. L'analyse des données comprenait des méthodes de statistique descriptive et une analyse des discussions dirigées reposant sur le modèle de croyances relatives à la santé.

**Résultats :** Selon la plupart des femmes, la vaccination antigrippale n'est pas une mesure de prévention importante durant la grossesse; toutefois, certaines étaient plus enclines à l'envisager durant une pandémie. Le refus de la vaccination s'explique en bonne partie par le biais d'omission. Les participantes se sont dites perdues dans les recommandations de vaccination pendant la grossesse et frustrées par les contradictions entre les différents fournisseurs de soins, surtout en ce qui a trait aux vaccins antipandémiques. Les femmes qui se sont fait vacciner l'ont fait car elles sentaient qu'elles ou leur bébé couraient un risque accru de contracter la grippe. Les femmes vaccinées avaient été fortement influencées par un discours normatif (généralement celui d'un fournisseur de soins ou d'un membre de la famille), ce qui avait joué un rôle dans leur décision. De plus, l'intention des femmes de se faire vacciner ou non était un excellent indicateur de leur comportement ultérieur.

**Conclusion :** Les femmes enceintes ne croyaient pas qu'elles couraient un risque accru de contracter la grippe, ni que la vaccination antigrippale était une mesure préventive nécessaire. Le manque de renseignements sur l'innocuité de la vaccination pendant la grossesse et les discours contradictoires de fournisseurs de soins ont nui à l'acceptation des vaccins. Enfin, pour améliorer le taux de vaccination, il faudrait que les femmes reçoivent des recommandations de leur prestataire de soins de maternité et de l'information sur le risque de grippe et la gravité de la maladie chez les femmes enceintes.

**Key Words:** immunization, pregnancy, neonates, risk, mixed methods

Competing interests: None declared.

Received on May 26, 2016

Accepted on July 14, 2016

<http://dx.doi.org/10.1016/j.jogc.2016.08.004>

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J Obstet Gynaecol Can 2016;■(■):1-8

## INTRODUCTION

Influenza vaccination not only protects a pregnant woman but can provide up to six months of protection for her newborn infant.<sup>1,2</sup> Pregnant women are three to four times as likely as non-pregnant women to be hospitalized with acute respiratory distress during influenza season.<sup>3,4</sup> This risk was augmented during the 2009 pandemic,<sup>5</sup> when the rate of hospitalization for pregnant women was four times that of the general population. Affected pregnant women were more likely to require ICU admission and had a higher risk for preterm delivery.<sup>6-8</sup>

The SOGC has recommended seasonal influenza vaccine for pregnant women since 2007, including the monovalent pandemic vaccine.<sup>9</sup> The National Advisory Committee on Immunization likewise recommends influenza vaccination for pregnant women, who are identified as being “at high risk of influenza-related complications or hospitalization.”<sup>10</sup> Although an increased uptake of pandemic influenza vaccine by pregnant women was seen in Canada during the 2009 pandemic (ranging from 43% to 65%),<sup>11,12</sup> rates have subsequently fallen to pre-pandemic levels; Legge et al. reported that from 2010 to 2012, less than 20% of women in Nova Scotia who were pregnant during influenza season underwent vaccination.<sup>13</sup> This is in contrast to rates in the United States, which annually approach 50%.<sup>14</sup>

Despite higher risks of influenza complications during pregnancy and recommendations from experts to immunize, pregnant women in Canada are less likely to be vaccinated than non-pregnant women,<sup>15,16</sup> and women do not perceive themselves, their unborn baby, or their new infant to be at increased risk from influenza infection.<sup>17-19</sup> To increase uptake of influenza vaccine among pregnant Canadian women, it is important to understand the concerns or barriers that may be preventing vaccination in this population.

Quantitative research has demonstrated that safety concerns about vaccines are associated with not having

influenza vaccination, while perceived susceptibility to influenza, perceived benefits for children, and cues to action are associated with a greater likelihood of vaccine uptake among parents.<sup>20</sup> In this mixed-methods study, we sought to expand on these findings using surveys and focus groups within a population of pregnant women and new mothers in British Columbia who could reflect on both seasonal influenza and the H1N1 pandemic.

## METHODS

Participants were recruited via posters and direct approach in waiting areas at BC Women's Hospital in Vancouver and at clinics affiliated with the University of British Columbia's Faculty of Medicine within the Greater Vancouver region as well as at community perinatal support events. Of 81 potential participants, 47 (58%) declined to participate or did not respond. Reasons for refusal included lack of interest, being “too busy,” having miscarried, being in labour, or being in ill health. The resulting sample of 34 women was sufficient to reach data saturation and to conduct our analyses. All participants provided written informed consent and received a \$25 gift card. Each participant was identified by a unique code number that was used to identify responses in the baseline questionnaires, in focus group transcripts, and in the follow-up Internet survey.

Demographic information and baseline information about attitudes and behaviours regarding vaccines was collected from all participants at study intake (immediately before the focus group interview). Towards the end of the subsequent influenza season (April to June 2011), all participants were asked to participate in an online survey to determine whether their intention at intake regarding vaccination predicted their subsequent behaviour and to elicit additional information on their sources of information about influenza vaccination and the factors which encouraged or discouraged immunization. Twenty-two of the 34 participants responded to the survey. Descriptive statistics were generated for the survey variables using SAS version 9.1 (SAS Institute Inc., Cary, NC).

Eight focus group interviews were conducted at the hospital and affiliated clinics over the summer and fall of 2010, as the North American influenza season approached. Each of the group interviews (five with pregnant women and three with new mothers) lasted approximately 90 minutes, and the number of participants in each group ranged from two to nine. A group moderator and note-taker were both present in the interviews, and at times one of the study investigators also observed. The group interviews were semi-structured in nature, with an interview guide rooted in the health belief model<sup>21</sup> and theory of planned behaviour<sup>22</sup> that was

## ABBREVIATIONS

HBM	health belief model
HCP	health care provider

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