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Title

Parental Perceptions of School-based Influenza Immunization in Ontario, Canada: a qualitative study.

Authors

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Abstract

Objective: To understand the perspectives of Ontario parents regarding the advantages and disadvantages of adding influenza immunization to school-based immunization programs.

Design: Descriptive qualitative study

Participants Parents of school-age children in Ontario, Canada who were recruited using a variety of electronic strategies (social media, emails, and media releases), and identified as eligible (Ontario resident, parent of one or more school-age children, able to read/write English) on the basis of a screening questionnaire. We used stratified purposeful sampling to obtain maximum variation in two groups: parents who had ever immunized at least one child against influenza or who had never done so. We conducted focus groups (teleconference or Internet forum) and individual interviews to collect data. Thematic analysis was used to analyze the data.

Setting: Ontario, Canada

Results: Of the 55 participants, 16 took part in four teleconference focus groups, 35 in six Internet forum focus groups, and four in individual interviews conducted between October 2012 and February 2013. Participants who stated that a school-based influenza immunization program would be worthwhile for their child valued its convenience and its potential to reduce influenza transmission without interfering with the family routine. However, most thought that for a program to be acceptable, it would need to be well designed and voluntary, with adequate parental control and transparent communication between the key stakeholder groups of public health, schools, and parents.

Conclusions: These results will benefit decision-makers in the public health and education sectors as they consider the advantages of immunizing children in schools as part of a system-wide influenza prevention approach. Further research is needed to assess the perceptions of school board and public health stakeholders.

STRENGTHS AND LIMITIONS OF THIS STUDY

- Several qualitative studies from the United States have identified issues from the perspective of parents, that are relevant to the design and implementation of programs to deliver immunizations (including influenza immunization) to school age children at school.
- However data from settings in which there is universal publicly funded healthcare, universal publicly funded influenza immunization, and well established programs for delivering vaccines other than influenza vaccine at school have been lacking.
- The issues raised by parents in our study were similar to those found elsewhere, including parents in the United States
- Our data provide guidance for program planners to develop programs that are acceptable to parents for delivering influenza vaccines in schools.

Introduction

Children are important drivers of influenza transmission.[1-5] Immunizing school-age children may provide direct benefits to the children as well as indirect benefits to high-risk groups.[6-11] Canada recommends vaccination of children aged 6-59 months and individuals ≥65 years, and also encourages vaccination of all healthy persons aged 5-64 years.[12] The province of Ontario has provided free influenza vaccines for all residents aged >6 months since 2000. However, coverage during the 2006-07 influenza season was only 31% among children aged 12-19 years, 28% among healthy children aged 2-11 years, and 37% among children aged 2-11 years with chronic health conditions.[13;14] Barriers to access are often cited as reasons for under-immunization.[15]

School-based influenza immunization (SBII) is a strategy to increase influenza vaccine coverage in children particularly "where background rates are likely to be very low and improvements in coverage are needed."[16] Ontario (population 13.4 million in 2012) is the only Canadian province to date where SBII is known to have been implemented, and it has been associated with an approximately 10% greater vaccine coverage in school-age children (39% vs. 30% for children aged 12-19 years, 36% vs. 24% for children aged 4-11 years), and a corresponding 19-24% reduction in influenza-associated physician office visits.[14] SBII may also have the potential to reduce disparities in uptake that might exist, based upon the recent Alberta experience with school delivery of adolescent-targeted human papillomavirus (HPV) vaccine delivery.[17] However, the decision to implement SBII is at the discretion of each of Ontario's 36 public health units (PHUs), and the number of PHUs offering SBII declined from a peak of 13 in 2001 to only 4 by 2010.[14]

Key stakeholders for the development and implementation of any school-based immunization program include parents and guardians, the education sector (e.g. school administrators), and the health sector (e.g., public health). We conducted a qualitative study to examine and understand parents' perceptions of the advantages and disadvantages of SBII, as well as the programmatic characteristics that would contribute to the development of robust SBII programs that are acceptable to parents in Ontario, Canada.

Methods

We conducted a descriptive qualitative study using focus groups (FG) as our primary means of data collection[18], using key informant interviews to confirm findings with rural participants. Given Ontario's large geographical area, we chose teleconferences (maximum duration of one hour) and Internet forums (asynchronous participation, approximately 15 minutes per day for five days) to facilitate participation by parents from across the province. Teleconferences and Internet forums have been found to be as successful as face-to-face sessions for focus groups.[19;20]

Recruitment

Between October 2012 and February 2013, we used purposeful sampling to recruit parents of school-age children living in Ontario using social media, deal forum websites, online classified ads, conventional mass media, and email lists.[21] Participants were eligible if they: 1) lived in Ontario; 2) had at least one child enrolled in school (kindergarten to grade 12); 3) were mostly or jointly responsible for making health decisions for their child; and 4) spoke and wrote in English. If eligible, participants were then asked questions about their demographic characteristics and indicated their preference for a teleconference or an Internet forum FG. For each FG, we invited

at least twice the number of individuals to participate as needed in anticipation that many of those invited would not participate, and we offered them two or three time slots as options. We conducted the teleconference FGs at the time when the maximum number of persons was available. Individuals who preferred Internet forums were provided with forum start and end dates, and asked to create an online account prior to the beginning of the first forum. We conducted recruitment in three rounds. Round 1 occurred in November 2012, Round 2 in December 2012, and Round 3 in February 2013. In Round 1, we offered a $5 Amazon.ca electronic gift certificate to eligible participants completing both parts of the web-based eligibility questionnaire. No incentive was offered in the subsequent two rounds of recruitment. After closing recruitment in each round, we stratified participants into two heterogeneous groups: 1) Ever Group: parents who had ever immunized at least one child against influenza; and 2) Never Group: parents who had never immunized any of their children against influenza. To ensure maximum variation in each group, we invited individuals based on additional criteria: single parent status, geographic location (urban vs. rural), gender, ethnicity, and age. The last round targeted parents from rural areas. We defined rural residents as being those who had a zero in the second position of their 6-digit postal code, indicating residence in an area that is not accessible by letter carriers.[22]

Study process

A trained facilitator (LC) moderated all FGs, with other team members (DM, JAP, SQ, HR) attending selected sessions. Researchers LC, DM, JAP, and SQ had experience and/or training in qualitative methods. All members of the research team except JCK were female and all had public health experience as well as a vested interest in promoting immunization within the public

domain. None of the researchers had relationships with any of the participants prior to the study. All participants were provided with a semi-structured interview guide in advance. This pilot-tested guide included a brief description of the study purpose, participant instructions, and the 11 core questions. During the FGs, the participants were encouraged to share their opinions, and to build on each other's thoughts and ideas about SBII. Repeat interviews were not conducted. One individual withdrew from an FG after being deemed ineligible to participate based upon disclosures made at the start of the FG. Following the FGs, we completed a round of individual interviews with rural parents as participation was low among this group. Teleconference FGs and telephone interviews were digitally recorded and transcribed verbatim by a qualified transcriptionist. Transcripts were not returned to the participants for comment. Field notes were written following each FG and interview including information about the process and personal observations. Internet forum and teleconference data were imported into NVivo 10 for analysis.

Analysis

Following each round of data collection, four research team members (LC, JAP, DM, SQ) individually coded the data using the process of thematic analysis.[18;23 24] Each person read all transcripts to generate an initial set of codes. The initial codes were then collated into potential themes, where all data were gathered relevant to each theme. The themes were then reviewed to ensure that they reflected the coded extracts as well as the entire data set. Through ongoing analysis, the themes were refined and linkages between them were identified. Team members met regularly to review the emergent themes and reach consensus. Because new themes were still arising at the end of the first round of FGs, recruitment was re-opened and second round FGs

continued until saturation was reached. Following analysis, the themes were compared to the existing literature to determine congruency of the findings.

Ethics and role of the funding source

The study was ethically approved by the Research Ethics Boards of the University of Toronto (University of Toronto Health Sciences Research Ethics Board, protocol # 28086) and Bruyère Continuing Care Research Ethics Board (protocol # M16 – 12 – 035). Participants gave informed consent prior to taking part in the study; the consenting process included information about the researchers and the purpose and rationale of the study. The study was funded by the Canadian Institutes of Health Research grant number PIR 124309. The funding source had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, or approval of the manuscript.

Results

Between November 2012 and February 2013, we conducted 10 FGs and four key informant interviews over three rounds. Fifty-five people participated. Round 1 comprised one teleconference (six parents) and two Internet forums (15 parents) FGs. Round 2 entailed three teleconference (10 parents) and four Internet forums (20 parents) FGs. Round 3 involved four key informant interviews (four parents). Of the 55 participants, 41 (75%) were female, 26 (47%) were 40 years or older, 25 (45%) had more than one child, 50 (91%) were from urban areas, 10 (18%) identified themselves as single parents, and 30 (55%) had ever had a child immunized against influenza (Table 1).

Themes

Two major themes describing Ontario parents' perceptions of the advantages and disadvantages of influenza immunization in schools were identified: the effects of SBII at each stakeholder level and recommendations for an ideal program (Table 2). These themes mapped to the coding tree created during analysis as they had been derived directly from the data.

Theme 1: Perceived effects at the individual and system level

i) Impact on children and their families

Pressure to immunize: Parents expressed both support and concern for the fact that implementing SBII would increase pressure to have children immunized, and would force parents to make a decision. Those supportive of SBII thought that this added pressure could be beneficial, resulting in increased vaccine uptake in children.

> *"… there are people who don't immunize their children for a variety of things, but influenza in particular…so I think that having it [influenza immunization] in school would put some pressure on some of those people to immunize their children…that could be seen as an advantage because I think that it would increase uptake..." (P27)*

However, others thought that the decision to vaccinate one's child against influenza should be personal, and the implementation of SBII may lead to inappropriate external influence on the decision-making process. This was especially true for those who expressed overall

negative views about vaccination, or were uncertain about the merits of seasonal influenza vaccine.

"I think the one disadvantage that I could think of is because it's part of the school-based program, I think some parents who may not want to use it, may feel pressured, because it is offered at school, and they may feel pressured to use it." (P23)

Integration into family life/accessible: Most parents agreed that SBII would be time-saving and more convenient for families and less disruptive to the family routine than seeking immunization at conventional healthcare locations. This issue was mentioned repeatedly by parents from rural areas, for whom influenza immunization often required considerable travel and time due to limited access to immunization providers and a lack of public transit.

"If we miss that (clinic) then we must travel to one of the clinics in Ottawa (a 90-110 minute round trip plus time waiting in clinic) or make arrangements with our doctor. (However) in the past our GP has only been able to vaccinate the family once the clinics have finished, which is usually well past the optimal period for preventing infection." (P46)

"…If you don't have a primary care physician…you can't get it (flu shot) done at a walk-in clinic". (P54)

Immunization of non-student populations: A few parents expressed concern that SBII may affect adult immunization coverage. Since the practice of influenza immunization was commonly

done as a family and often for the benefit of the children, they thought that parents may be less inclined to get immunized themselves if their children were immunized at school.

ii) Impact on healthcare system

Vaccine uptake: Many parents thought that if SBII was well developed, timed appropriately within the school year, and safely implemented, it had the potential to increase influenza immunization coverage. These parents anticipated a positive impact on the healthcare system, with increased vaccine uptake leading to decreased disease spread and healthcare utilization.

Cost-effectiveness of SBII program: Some parents commented on the need to understand the costs of SBII before assessing its value. Several thought that if the program increased immunization coverage, the community-wide benefit of fewer cases of influenza would justify the increased program costs.

"I think the long term health care costs in reducing the risk of a flu epidemic, would be less than the short term costs of providing the vaccination free of charge." (P44)

However, others were unsure about who would be expected to fund the program. These participants were concerned about additional financial costs to schools and the healthcare system, and thought that they needed more information before supporting SBII.

"Perhaps the teachers would have to do more work? …Where does the budget for this come from? Would it affect school budgets at all?" (p46)

Opportunity for transmission: A few parents mentioned that SBII allowed their children to get vaccinated in a setting where individuals would tend to be relatively healthy, in contrast to the perceived risk of exposure to ill persons while waiting in physician offices or in line-ups for public health mass vaccination clinics. School clinics were thus viewed as being comparatively healthy environments, decreasing opportunities for transmission of influenza to children and their families.

Burden on non-SBII settings: A small number of parents thought that introducing SBII could ease strain on the healthcare system. These parents associated currently structured influenza immunization programs with long line-ups in mass vaccination clinics, and thought SBII could potentially decrease the burden influenza immunization places on family doctors and public health clinics.

iii) Impact on school system

Parents had conflicting views on the appropriateness of using schools to deliver a healthcare program like SBII. Some thought that schools were a suitable and convenient location to vaccinate children. Others were uncertain about the roles and responsibilities of schools compared to those of local public health. If schools were actively involved in SBII implementation, there was concern as to whether they were well-equipped to coordinate the program successfully, whether this might interfere with education, and whether school-based

immunizations would be recorded properly, with the mechanisms in place to track and transfer the data as needed.

"My biggest concern…is the logistics of it… Who is monitoring and how are we going to do that in terms of the schedules? And beyond the schedule, how that information is going to be passed on?" (P2)

There was also some apprehension as to whether SBII program implementation was an achievable goal given the amount of coordination that would be required from the various stakeholders. A few parents were concerned whether every aspect of the program would be considered, beyond the logistics, to reflect the best interests of children.

"… I'm worried about public health lining up hundreds of kids to be immunized and only having time for the logistics of getting that done and not having the time to care for emotional states. (P51)

Theme 2: Considerations and recommendations for a successful SBII program

Although there were parents who were firmly against seasonal influenza vaccines for their children, many expressed that there could be value to a SBII program, but identified several issues that would need to be addressed before they would feel comfortable using the program.

Parental control over child's health: All parents agreed that the program should be 100% voluntary but acknowledged that opinions were mixed on this. However, they said as long as there was a choice, they would not oppose it.

"As long as these programs are optional, I think they provide a good service. Parents decide what is best for their children and there should be no pressure to participate." (P48)

Many parents thought the use of rewards for children being immunized (e.g. stickers, candies) would be positive and would help increase the comfort level of the child being immunized. However, in one FG, a couple of parents expressed concerns that giving rewards only to immunized children would potentially stigmatize those who did not receive the vaccine.

Program coordination, implementation and management: Several parents stressed that the timing of the program was important. Planning the annual clinics at the same time of the year, in the right period for disease prevention, and adding clinic dates to school calendars at the beginning of the year would be essential.

In the absence of experience with SBII, and in many cases, any school-based immunization program, some parents were unaware that nurses from the local public health

agency deliver immunization programs (e.g., for HPV and meningococcal vaccines) in schools. These parents expressed concerns about who would be giving the vaccine: Would they be professionals? Would the location and process be hygienic? Others raised concerns about how side effects or allergic reactions would be managed.

"As long as it was being done in a safe clean environment and administered by trained professionals, then nothing would stop me from having my children given a flu shot at school." (P51)

"…my biggest fear has always been the reaction to the vaccine, whether or not they would get the right amount of attention if there was a negative reaction." (P11)

Shared stakeholder responsibility: The majority of parents spoke of the need for effective communication between all stakeholders (school/parents/public health), to ensure everyone is well informed with appropriate information to make decisions. Keeping lines of communication open, and being sensitive to the needs of the different parent groups (such as unique cultural or economic groups or those with differing opinions about influenza immunization) was considered essential. Parents also provided suggestions about effective communication channels.

"…having an information session for new parents every year…would be wonderful." (P26)

Educating parents about influenza and influenza vaccines: Participants thought that the ideal SBII program would include education for parents about both influenza illness and influenza

vaccine. Some parents perceived that influenza was not a serious disease. Others thought they needed more information about vaccine effectiveness and vaccine safety, particularly for children. Parents stressed the need for consistent messaging from sources perceived to be trustworthy. They strongly recommended that official communications be standardized to increase acceptance and decrease confusion.

The needs of the child: Some parents recommended that the programs be flexible and provide for the differing needs of children, such as creating different approaches depending on the age of the child, or for children with special needs.

> *"The first factor would be age. If he was young and uncomfortable with the idea then I'd pass just so I could be there with him. If he was old enough (5th grade and higher)…I'd have him immunized at school." (P47)*

Parents expressed the need to provide a safe environment for the children, and to make sure that those responsible for the program respect a child's dignity throughout the immunization process. This would include protecting their feelings and any potential insecurities (e.g., not being forced to partially disrobe in front of classmates; ensuring privacy for children afraid of needles). A couple of parents emphasized the importance of maintaining focus on the child, by describing their own past immunization experiences that did not do this, which they felt influenced their willingness to use an SBII program.

"I think a lot of times we don't give our kids enough dignity…When I was a kid we had these scoliosis tests done and I was a chubby kid. And, you know, we'd have to remove our shirt in front of all the other kids and…you get a lot of fun poked at you. It was very hard as a child. I think we should give them that dignity...They might be children but they're also human." (P26)

Discussion

As is the case for any program that delivers vaccines to schoolchildren, parents are key stakeholders, and their perspectives and recommendations are valuable for a program's success. In our study, parents noted several benefits of SBII, including the convenience of having their child vaccinated without disruption to the family routine, and the potential for higher vaccine uptake resulting in reductions in disease transmission (thus ultimately also in reductions in burden for acute care). However, our findings suggest that for such a program to succeed, parents must understand how it will be managed and coordinated, and perceive that they have sufficient information to make an informed and voluntary decision about their child's participation. Consistent messaging on these issues is essential.

Our results are similar to those found elsewhere. In the United States, focus groups and surveys of parents of children from all grade levels of school (elementary, middle school, and high school) have found that convenience is perceived to be an advantage of delivering influenza vaccine at schools; however, concerns about vaccine effectiveness, vaccine safety, trust issues, and the need for better information and effective communication have been common threads in studies of delivering influenza vaccine through schools.[25-27] Similarly, program coordination, implementation, and management issues were issues of importance to parents, including such

issues as children being immunized in the absence of a parent, worries about the impacts of peer pressure on their children, and a need for reassurance that immunization would be done by qualified, credentialed professionals.[25] These concerns can be managed based upon American experience with school delivery of influenza vaccines[28] and Australian experiences with school delivery of HPV vaccines.[29;30] In Ontario where there is universal, publicly funded influenza immunization, although vaccine may be provided in pharmacies and mass public health immunization clinics, the vaccine is usually provided in physician offices.[13;14] Other publicly funded vaccines recommended for school-age children are provided in schools, primarily by public health nurses. As suggested elsewhere,[31] involving family physicians and other healthcare providers in presenting unified support for school delivery of influenza vaccine may help to alleviate parents' concerns with delivery of influenza vaccine in an environment outside of their medical home.

Our study had some limitations. Participants of the Internet forums often provided very brief responses per question, with limited discussion. Future focus groups using this type of format should schedule a short time period of 30 minutes to an hour for all participants to join the online discussion simultaneously to encourage stronger engagement and richness of response. As with all qualitative research, it is unknown whether the opinions expressed by our participants are representative of Ontario parents. We sought information solely from parents; future studies should include other important stakeholders such as school board officials and health unit management and staff.

Nonetheless, the findings of this study will inform public health officials and program managers about the potential acceptability of SBII programs from the parental perspective. These recommendations may also be useful for evaluators of any of the currently existing

immunization programs delivered in schools in Ontario. Future research should focus on confirming our results through quantitative analysis, and also seek input from other stakeholders, such as public health and educators.

Declaration of Competing Interests

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that : all authors had financial support from the Canadian Institutes for Health Research for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Data sharing

Data sharing: no additional data available.

Transparency

DM affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained

Contributors and Guarantor

MLR and JCK conceptualized the study, monitored data collection, and drafted and revised the paper. DM developed the analysis plan, participated in the analysis, and drafted and revised the paper. DM is the guarantor. LC, JAP and SQ conducted the data collection and analysis, and drafted and revised the paper. AEW participated in the analysis and revised the paper. HR participated in the data collection. MIS contributed to the study design, specifically data

acquisition. All authors reviewed and approved the manuscript as submitted. All authors had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1: Description of Participants

Characteristics	Round 1 n=21 (%)	Round 2 n=30 (%)	Round 3 n=4 (%)	TOTAL N=55 (%)
Influenza vaccination Status				
Ever had a child vaccinated against influenza	12 (57)	14 (47)	4 (100)	30 (55)
Never had a child vaccinated against influenza	9 (43)	16 (53)	0 (0)	25 (45)
Urban vs. rural residence				
Rural	20 (95)	30 (100)	0 (0)	50 (91)
Urban	1 (5)	0 (0)	4 (100)	5 (9)
Single (lone) parent status				
Single parent	3 (14)	7 (23)	0 (0)	10 (18)
Other	17 (81)	23 (77)	4 (100)	44 (80)
Prefer not to answer	1 (5)	0 (0)	0 (0)	1 (2)
Sex				
Female	11 (52)	26 (87)	4 (100)	41 (75)
Male	10 (48)	4 (13)	0 (0)	14 (25)
Number of children				
1	13 (62)	15 (50)	2 (50)	30 (55)
2	6 (29)	9 (30)	1 (25)	16 (29)

3 or more	2 (9)	6 (20)	1 (25)	9 (16)
Number and proportion of parents with at least one child in level of school				
Kindergarten	8 (38)	13 (43)	0 (0)	21 (38)
Elementary school (Grades 1-6)	7 (33)	18 (60)	3 (75)	28 (51)
Middle school (Grades 7-8)	3 (14)	5 (17)	1 (25)	9 (16)
High school (Grades 9-12)	6 (29)	4 (13)	0 (0)	10 (18)
Age range (years)				
20-29	4 (19)	4 (13)	0 (0)	8 (16)
30-39	10 (48)	10 (33)	1 (25)	21 (38)
40 or older	7 (33)	16 (53)	3 (75)	26 (47)
Education				
High school	2 (10)	2 (7)	0 (0)	4 (8)
Some post secondary or college diploma	3 (14)	10 (33)	3 (75)	16 (29)
University degree	16 (76)	18 (60)	0 (0)	34 (67)
Other/no answer	0 (0)	0 (0)	1 (25)	1 (2)

Table 2: Themes arising from the data

Level 1 Theme	Level 2 Theme	Level 3 Theme
Perceived effects at the individual and system level		
	Impact on children and their families	
		Pressure to immunize
		Integration into family life/accessible
		Immunization of non-student populations
	Impact on healthcare system	
		Vaccine uptake
		Cost effectiveness of SBII program
		Opportunity for transmission
		Burden on non-SBII settings
	Impact on school system	
Considerations & recommendations for a successful SBII program		
	Parental control over child's health	
	Program coordination, implementation & management	
	Shared stakeholder responsibility	
	Educating parents about influenza and influenza vaccines	
	The needs of the child	

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Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups

Table 1
Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	**Lines of Manuscript in which items are addressed**
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	Page 9 line 48-51
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	Title pages 1, lines 25-8, 32, 37,42, 46, 51, 56; p2 lines 4, 10-11
3.	Occupation	What was their occupation at the time of the study?	Title pages 1-2
4.	Gender	Was the researcher male or female?	P 9 line 53
5.	Experience and training	What experience or training did the researcher have?	P 9 line 51-56
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	P 10 line 3-4
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. *personal goals, reasons for doing the research*	P 11 lines 18-23
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	P 9 lines 53-56
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	P 10 line 39
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive,*	P 8 line 41

No	Item	Guide questions/description	**Lines of Manuscript in which items are addressed**
		convenience, consecutive, snowball	
11.	Method of approach	How were participants approached? e.*g. face-to-face, telephone, mail, email*	P 8 lines 41-46
12.	Sample size	How many participants were in the study?	P 11 line 37-39
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	P 10 line 13-16
Setting			
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	P 8 lines 27-30
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	P 9 lines 48-51
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	Table 1 on p 24
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	P 10 lines 6-11
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	P10 line 13
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	P 10 lines 20-22
20.	Field notes	Were field notes made during and/or after the interview or focus group?	P 10 line 25-27
21.	Duration	What was the duration of the interviews or focus group?	P 8 line 27-32
22.	Data saturation	Was data saturation discussed?	P 10 lines 51-54, p 11 line 3
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	P 10 line 25
Domain 3: analysis and findings			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	P 10 lines 36-38
25.	Description of the coding tree	Did authors provide a description of the coding tree?	P 26 Table 2
26.	Derivation of themes	Were themes identified in advance or derived from the data?	P 10 lines 39-49
27.	Software	What software, if applicable, was used to manage the data?	P 10 line 29-30

No	Item	Guide questions/description	**Lines of Manuscript in which items are addressed**
28.	Participant checking	Did participants provide feedback on the findings?	P 10 line 25
Reporting			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.*g. participant number*	Quotes and participant numbers on p 12, 13, 14, 16-20
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	Throughout results and discussion pp 12-22
	Clarity of major themes	Were major themes clearly presented in the findings?	P 26Table 2
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Discussion section of manuscript p 20 - 21

Parental Perceptions of School-based Influenza Immunization in Ontario Protocol

Introduction

Children are believed to be important drivers of influenza epidemics (1) and recent studies suggest that immunizing school-aged children also indirectly protects families and communities.(2-7) School-based influenza immunization (SBII) is an attractive strategy to attain high rates of immunization coverage among children, but to date, Ontario is the only Canadian province where this has been implemented and only in some public health units (PHUs). Ontario's public health services are administered by 36 PHUs. In 2010, SBII programs were offered in 4 PHUs and were previously offered but discontinued in 17 PHUs. 15 PHUs have never implemented SBII programs. Although some PHUs were not able to sustain SBII, those that implemented SBII attained higher vaccine coverage than those that did not.(8)

For the purposes of this study, we define SBII as influenza immunization delivered in schools by Ontario public health units.

Key stakeholders for the development and implementation of any school-based immunization program come from three sectors: the healthcare system; education (e.g. school boards' school administrators); and the parents of children who are targeted for program participation. If the perspectives of stakeholders are not considered in the design and implementation of a program, or in program decision making, the program may fail. The focus of this study is parental perceptions of school-based influenza immunization. Further work needs to be done to examine the perspectives of the public health and education sectors. There are no published Canadian studies of parental perceptions of SBII and only two from the United States.(9,10)

A study of parental perceptions of SBII has been funded and is in progress in Alberta, a province that does not currently employ SBII. In Alberta, unlike in Ontario, the majority of influenza immunizations are provided by public health in public health mass immunization clinics rather than by doctors in physician offices. These differences in the healthcare delivery context merit an examination of the Ontario situation. The findings of this study will inform public health policy and program managers about the potential acceptability of SBII programs and how they need to be structured for success from the perspectives of parents. Study findings will also be foundational for the development of survey instrumentation that can be used in the future to evaluate SBII programs and possibly school-based programs for delivering other vaccines designed and implemented by the public health sector.

Determinants of Immunization Acceptance

Numerous studies have examined factors associated with the acceptance of vaccines and the population coverage attained by immunization programs in developed countries, particularly focusing on the acceptance of childhood immunizations (but programs predominantly target infants and pre-school children and do not generally include influenza vaccines). Immunization acceptance can be viewed as planned behaviour, therefore the Theory of Planned Behaviour (widely used in health studies), has been used to organize the literature for this proposal. According to the theory, behavioural intention is the strongest predictor of behaviour, moderated by barriers that arise between intention and behaviour. Intention is predicted by beliefs/attitudes, social norms and perceived behavioural control.(11) This theory is particularly useful because it best predicts intention when the behaviour of interest is specified in terms of the action (i.e. behaviour may be vaccine specific) and is closely tied to context. Associations between demographic

characteristics and behavioural intentions or actual behaviour occur because those attributes are antecedent to one or more of beliefs/attitudes, social norms or perceived behavioural control, which in turn affect behavioural intention. Healthcare system attributes such as geographic or financial access to health programs mediate one or more of the relationships between intention and behaviour, or by directly influencing one or more of beliefs/attitudes, social norms or perceived behavioural control.

Immunization Decision Making

Social normative influences, including peer support, affect immunization decisions.(12) Even when parents believe that immunizations are risky, the recommendations of healthcare providers influence their decisions.(13,14) Important contextual factors include the nature of the vaccine (12,15) and the occurrence of a disease outbreak.(12) Beliefs that influence parental decision making include beliefs about vaccine safety and effectiveness, disease risk and disease severity and perceived superiority of immunity from contracting wild disease rather than from immunization.(12) Factors associated with vaccine behavior labeled as 'practicalities'(12) or as 'healthcare structural factors'(16) might be considered to be barriers or influences on perceived behavioral control as framed in the Theory of Planned Behavior. These include having a contraindication to immunization such as high fever on the planned day of immunization, direct and indirect financial costs, difficulties attending the immunization appointment due to time constraints or lack of child-care for other children, problems with transportation to the clinic or poor facilities within the clinic and finally, uncertainty about how or with whom to arrange an appointment. Barriers identified by Tickner and colleagues (17) include lack of time for working mothers, illness in the family, having other child-care commitments and inadequate healthcare professional availability to provide support. Demographic factors associated with lower vaccine uptake include lower parental income or education and higher birth order of the child (12,17) and rural versus urban residence.(16) Among adolescents (aged 11 – 18 years) in the United States, immunization barriers included: direct costs of immunizations and indirect costs (such as time lost from work or school), lack of health insurance, lack of knowledge of the need for immunizations and fear of the pain of injectable vaccines.(18) Consent and confidentiality are relatively unique barriers for youths in this age group, particularly for older adolescents. Many use healthcare services but are not allowed to provide consent for immunizations. Healthcare system barriers include lack of system-wide tracking and lack of uniformity in laws for consent or laws requiring immunization for school attendance.

Influenza Immunization

In 2005, five years after the implementation of universal public funding for influenza immunization in Ontario, only 23% of Canadian youths aged 12 – 17 years had received influenza vaccine in the prior year.(19) Reasons for not being immunized included beliefs that it was not necessary, that doctors thought it not necessary and barriers to access such as cost, lack of transportation and personal and family responsibilities.(19) Misperceptions about influenza immunization among parents of healthy young children include beliefs that children are unlikely to contract influenza, that influenza vaccine causes rather than prevents influenza infection and that immunization is unsafe for young children.(20) In a Calgary study (conducted when only children aged less than 2 years were eligible for publicly funded influenza vaccine), parents' reasons for not having their children immunized against influenza included: the perceptions that it was not necessary (i.e., their child was not at risk, or that influenza was not a severe disease); that parents lacked sufficient information to make an immunization decision; that they perceived that the vaccine was not efficacious, or was not safe; inconvenience (including timing) and cost.(21) However, the immunization decisions of parents of school-aged children are also influenced by the impact of child illness on the

parents themselves.(22) Among parents of elementary school children in the United States, those whose children had missed school in the prior year because of respiratory illness were more likely than others to indicate an intent to have their children immunized for protection against wintertime respiratory illness than other parents (OR 1.6, 95% CI 1.1to 2.2). Vaccine acceptance was also higher if parents had experienced work absenteeism to care for their sick child (OR 1.6, 95% CI 1.2 to 2.2).

A systematic review of parental beliefs and attitudes to childhood immunization found that beliefs fell into four major themes: perceptions of harms from immunization, distrust, access issues and 'other'.(23) Perceived attributes (by parents, children or schools) as well as real attributes of vaccines may be associated with children being under-immunized and/or accessing public health immunization clinics.(24,25) Key factors that affect decision making include whether or not children have older siblings (26); having at least one other household member immunized (21); parental income (27); complexity of parental work schedules; lack of transportation and difficulties in arranging child-care (28); lone parent status and type of school (elementary vs. junior/senior high).(29) Some parents do not favour school-based immunization because of a desire to be present when the children are immunized (30) or because they do not perceive that schools are good places to immunize children.(31)

Purpose

The purpose of this qualitative study is to understand the perspectives of Ontario parents regarding the advantages and disadvantages of adding influenza immunization to school-based immunization programs.

Primary Research Question

- What are parents' perspectives of school-based influenza immunization programs in Ontario?

Methods

We will use focus groups to gather qualitative data about our topic. Focus groups are facilitated group discussions that provide opportunities for different perspectives to be elicited. They provide an environment in which parents may feel safe to share beliefs that may differ from those of health professionals. They can elicit information from the interactions among parents that parents may be hesitant to provide in individual interviews and they provide an opportunity for parents to interact with each other, build upon and clarify their opinions and elicit new ideas.(32,33) Focus groups are also considered to be particularly useful to gain lay perspectives on health service issues.(34)

To facilitate the participation of individuals from diverse geographic regions, these focus groups will be conducted in two ways:

1) Via teleconference, using a toll-free line. These will comprise three to five participants and will be approximately 60 minutes in length.(35)
2) Via web-based bulletin board (hereafter referred to as Internet forums). These will also be comprised of three to five participants, although we may invite additional participants if some drop out. Participants will be expected to participate for approximately 15 minutes each day for five consecutive days.(35)

Participants will be asked to identify their preferred method of engagement when they are invited to participate in the focus group. Please see Appendix 1 for the study design flow chart.

We will conduct a pilot test of the screening survey with 10-20 parents to assess: the ease of use of the web-based platform; any technical issues; and comfort level with the questions being asked. See Appendix 4 for details of the pilot testing protocol.

Teleconference and Internet forum focus groups were chosen because Ontario is a very large province and we hope to have broad geographic representation in our study sample. Teleconference and Internet forum formats allow us to access participants from all over the province in a cost-effective manner. Additionally, our target population is parents of school-aged children and this is a demographic with busy schedules that may deter them from attending in-person group sessions. These types of focus groups allow parents the flexibility of attending from home or other convenient locations, as well as in an asynchronous manner. Finally, qualitative research experts have studied the use of various formats for focus groups and have found that they can be as successful as traditional in-person sessions.(35, 36)

The facilitator for both types of focus groups will be the research manager who is a trained facilitator with extensive experience in facilitating different types of groups. Further, an investigator with extensive experience in facilitating qualitative focus groups will observe the first few sessions (with consent from participants) to ensure that qualitative research rigour is maintained. The trained interviewer will be either Dr. Donna MacDougall, Associate Professor at St. Francis Xavier University, Dr. Margaret Russell, Associate Professor at the University of Calgary, or Dr. Anne McCarthy, Full Professor at the University of Ottawa. Dr. MacDougall and Dr. McCarthy are experienced qualitative interviewers and researchers. Dr. Russell has experience with conducting focus groups and is the Co-Principal Investigator for a similar study being conducted in Alberta.

Population and Sampling

We will use stratified, purposeful sampling,(33) and will stratify by the following two groups:

1. Parents who have ever immunized at least one child in their family against influenza
2. Parents who have never immunized a child in their family against influenza

As outlined in the background section of this protocol, we also anticipate potentially finding differences in the three groups listed below. If we find in the initial focus groups that these differences are significant, we may expand the stratification to include three focus groups in each of the identified target groups:

a) Single parents. Single parent status is associated with larger family size, lower income and transportation challenges (25% of single parents do not have a car),(37) as well as with perceptions of the acceptability of school-based immunization programs.(29)

The organization and delivery of health services may differ between rural/urban areas and rural/urban differences in vaccine uptake (influenza and other vaccines) have been observed.(16,38)

b) Parents residing in urban areas.
c) Parents residing in rural areas

Each person who completes the full screening survey will be given a $5 amazon.ca gift card. Each focus group participant will be provided with a $25 Chapter's Gift Card in recognition of their contribution.

The number of focus groups required to attain theme saturation – the point where no new information is obtained (39) may vary, but a minimum of three groups per stratum is recommended.(35,40) The recommended number of persons for inclusion in a teleconference focus group is five.(35) We will also invite five participants (more if some drop out) to participate in Internet forum focus groups. At the time of screening, we will ask participants about their preferred method of engagement; will conduct the two types of focus groups (Teleconference and Internet forum) concurrently, and will continue until theme saturation is reached. We anticipate having a minimum of three focus groups for each of the two populations (parents who have never had their child immunized and parents who have had at least one child immunized)

Recruitment

Recruitment will be based on several web-based methods and traditional approaches. Web-based methods include utilizing popular social media sites (Facebook, Twitter), classified advertisements websites (Kijiji, Craigslist), deal forum websites (RedFlagDeals, Smart Canucks), email lists (Ontario Health Study participants), website links on various healthcare organization's websites (Public Health Ontario, public health units). We will also reach out to parents using professional networks, including the community health centre and pediatric hospital networks. We may vary the approaches depending on the level of response and outcome achieved.

The first round of focus groups will consist of one teleconference and Internet forum group for each of the two stratified groups (parents with at least one child immunized against influenza, parents with no children immunized against influenza). When we have sufficient eligible participants, we will randomize the participants. Randomization helps ensure a nonbiased cross-section, essentially giving everyone in the pool an equal chance of selection. Randomization is an effective strategy to minimize selection bias. A systematic random sampling strategy will be used to allocate participants to a stratified focus group.(35) We will inform all participants completing the screening survey that they will be randomly selected to participate in a focus group, from among all eligible participants. Once the analysis for this round of focus groups is complete, we will then continue to recruit and randomize until theme saturation is reached. Please see Appendix 7 for additional details of the recruitment strategies.

Systematic Random Sampling

We will be randomly selecting participants for the four types of focus groups at least three times. We will conduct one round of focus groups, do the analysis, make changes and then go on to the next round of focus groups.

We anticipate having more parents complete the screening survey than are needed for the focus group. The size for each focus group is five.

The four types of focus groups are:

Group 1: Parents with at least one child immunized in the past – teleconference focus group
Group 2: Parents with at least one child immunized in the past – Internet forum focus group
Group 3: Parents with no child immunized in the past – teleconference focus group
Group 4: Parents with no child immunized in the past – Internet forum focus group

Step One

We will separate the respondents into their respective groups sorted by the date they completed the survey, starting with the earliest, who will become participant number one. We will then use a systemic random sampling method to select the focus group members.

For the teleconference focus groups, we will further stratify by time of day they selected to complete the teleconference focus group.

Step Two

The N (sample size) needed for each focus group is five. If we assume 100 participants are available to be sampled, the want sample size (n) =5. The sampling fraction would be f = 5/100 = 5%. In this example, the interval size (k) is equal to N/n = 100/20 = 5.

We would then select a random integer from 1 to 20. As an example, we would choose 4. So, we would go down the list starting with participant number 1, and would take every 5th participant (choosing participant 4, 24, 44, etc.). We will end up with five randomly selected participants for the focus group.

The systematic random sampling method has been chosen as it allows for fluctuations in group size, while ensuring the participants chosen for the focus groups will be randomly selected.(41)

Evaluation of Recruitment Strategies

Depending on the type of recruitment method, we will use various criteria to evaluate the effectiveness of our recruitment strategies (see Table for measures/outcomes). See Appendix 5 for more information on the types of recruitment strategies being used.

Screening

Screening will be done using web-forms, although PDFs will be available for those who prefer providing information by email, fax or mail. Parents who contact the researchers will be screened for eligibility and for attributes permitting those eligible to be invited to participate in one of the two focus group types. Screening will be done to ensure the potential participants have at least one school-aged child and to ensure they have the attributes permitting allocation to specific focus groups (Appendix 2). Once participants are considered to be eligible, the study will be explained to them and they will provide implied consent by continuing through the screening process. Once they give consent, we will collect the necessary demographic and contact information that will allow us to set up the focus group sessions to ensure maximum participation.

Data Collection –Teleconference Focus Groups

Two research staff will "attend" each focus group: a trained facilitator and a trained research assistant. With the permission of the participants in the teleconference focus groups, the discussions will be recorded for later transcription and the information they provide will be used for analysis. A senior qualitative researcher will attend the first few sessions to ensure qualitative research rigour is maintained.

An open-ended semi-structured interview guide will be used to provide structure to the discussion. Semi-structured guides provide a sequence of themes to be covered in an interview and suggested questions,(42) but are used with openness to change the form of the questions so the interviewer can follow-up on answers and stories being told by interviewees. Question probes are provided to help the interviewer probe deeper into an interviewee's stories (Appendix 3). Recordings will be transcribed immediately after each Teleconference interview and analysis will begin following receipt of each transcript, thus an iterative process of data collection and analysis will occur.

Data collection – Internet Forum Focus Groups

Data collection in the Internet forum focus groups will be done by participants agreeing in advance to participate in an asynchronous electronic discussion over the course of five consecutive days. Participants agree to sign in each day and check the Internet forum, read the question(s) for the day and check the comments of other participants to formulate their responses. We anticipate participants will spend approximately 15 minutes each day providing their comments and responses. We will not be monitoring the amount of time spent by participants on the Internet forum. They will be informed that the data collected in this manner will be used for analysis.(35) Again, a senior qualitative researcher as outlined above may monitor the first few sessions to ensure qualitative research rigour is maintained.

The questions will follow the same approach outlined above for the teleconference focus groups. The facilitator will post a question or series of questions each day and will ensure the participants follow a structured sequence or path of inquiry.(35) Analysis will be done immediately after each focus group, allowing the desired iterative process of data collection and analysis.

Analysis

Focus group data will be analyzed using Grounded Theory as the theoretical framework, utilizing a constant comparative process. We will conduct a quantitative analysis of the social media strategies used for recruitment. The Teleconference interview, Internet forum and field note text will be imported into NVivo™ software to aid in data organization, review, coding and analysis and to facilitate an exploration of trends and themes that emerge from the data. Data will be analyzed and themes elicited within and across Teleconference interviews and Internet forum discussions. The thematic approach to analysis involves a process of initially reading each transcript to get an overall sense of the data; then reading and re-reading the data (in this case using NVivo™ as a coding tool) to identify major topics or issues in the data. This process of identifying topics will initially be done by at least two team members. Once a Teleconference interview or Internet forum discussion has been coded, the working group will review the results to ensure that both clinical and methodological perspectives are brought to the analysis. The process of coding will also involve discussions of the issues identified in the data and is iterative, adding new Teleconference interview/Internet forum discussion data as it is received.

Should questions arise around the issues identified during this process we will probe the issues further in subsequent focus groups for elaboration or clarification. As the data analysis moves to the analytic level relationships among the themes and issues will be identified and tested in a process that documents these contexts and contingencies. Coding is a procedure that disaggregates data to manageable segments, provides identifiers for those segments and following segment-comparing, allows researchers to sort data into useful categories.(43) Consensus decision-making will be used when needed to arrive at mutually agreed-upon coding.

Both direct interpretation of unique instances and "aggregation of instances until something can be said about them as a class" (categorical aggregation)(44) will be employed in the analysis. Themes are "common threads that run though the data"(45) and are identified as the relationships among categories become clear in the analysis. Themes will be identified by looking for patterns within the data, but also in an iterative process by going back and forth between looking at the data as a whole and returning to parts within the data. The expected outcomes will be an understanding of parental perspectives (advantages and potential barriers) on adding annual influenza immunization to currently offered school-based immunization programs. These outcomes will provide important information to inform policy and program action as we anticipate we will understand how best to position school-based influenza immunizations programs to be successful, from the perspective of parents.

The research team will meet regularly to discuss and agree upon the evolving data coding and analysis. We will use a structured codebook approach (46) to document codebook development and thematic prevalence monitored through the use of 'saturation tables' (39) to provide an audit trail for the establishment of data redundancy.

Evaluation of Recruitment Strategies

On the screening survey, we will have a question to determine how participants first heard about the survey. Options include 1) Facebook, 2), Twitter, 3) Craigslist, 4) Kijiji, 5) RedFlagDeals, 6), Smart Canucks, 7) Website (please specify), 8) Email list (please specify), 9) Newsletter 10) Public health website or poster; 11) Community health centre (website or poster, please specify) 12) Word of mouth; 13) Friend or family, 14) Other (please specify) and 15) Prefer not to answer. Participants cannot provide more than one answer to this question. From these responses, we will track the proportion of participants by recruitment method that met the criteria for the screening survey and completed the entire screening survey. We will also compare the total cost per participant by each method for a completed survey (i.e., cost effectiveness). This will be calculated by totaling all the recruitment costs before and during the campaign for a specific method and dividing by the number of participants who completed the survey, attributable to that method. We will also compare the total time per participant by each method for a completed survey (i.e., efficiency). This will be calculated by totaling all the times involved in labour before and during the campaign for a specific method and dividing by the number of participants who completed the survey, attributable to that method. Lastly, we will compare the demographic characteristics and immunization behaviours of participants who completed the survey by each recruitment method.

Rigour

Qualitative methodological rigour will be assessed through trustworthiness (47); criteria include assessments of credibility, transferability (see below); dependability and confirmability. Credibility (similar to internal validity) refers to the fit between the respondents' (i.e., interviewees') views and the researchers'

interpretations and representation of same. Dependability refers to the researchers' responsibility for ensuring the research process was logical, traceable and documented. Confirmability establishes rigour through linking findings and interpretations across data sources in readily discernible ways.(43) Triangulation using multiple sources of data (including Teleconference interviews, Internet forum discussion data, survey data, field notes and local documents) and multiple researchers to clarify meanings and verify team members' interpretations of data (48) contributes to the trustworthiness of the findings.

The purpose of this study is to gain insight into parents' perspectives on school-based influenza immunization (SBII) programs in Ontario. To do this we must successfully recruit focus group participants and attain data redundancy in the analysis of data obtained from the Teleconference interviews or Internet forum discussions. To achieve transferability of findings we must describe Ontario immunization programs as well as the study participants so that research users can assess the usefulness of study findings for their contexts. Thus the indicators of achievement of project purpose will be the number of Teleconference interviews/Internet forums held compared to those planned (according to the criteria presented in the sample size section above); the mean number of participants per interview or discussion thread; and assessment of attainment of data redundancy (in the tables themes generated from participants). Finally it will include the reporting of data on the attributes of persons who respond to our invitations to participate compared to those who actually participate in the interviews (i.e. rural/urban residence, age group, sex, educational attainment, lone parent status, ethnicity, number and grade distribution of their children and influenza immunization status of the children in the participant families).

Strengths and Limitations

The strengths of this study include the use of rigorous qualitative methods, the multidisciplinary team and the use of multiple types of data (Teleconference interview transcripts, Internet forum discussions and field notes). The investigators include experts in qualitative methodology, team members from different health disciplines and medicine.

It is possible that data redundancy may not be attained within each stratum.(35) However, even in the absence of data redundancy, the information gathered will be useful to immunization program planners who may be able to transfer some of the insights to school-based immunization programs for vaccines other than for influenza, or to include information from identified themes that were not captured in the published literature in any future surveys that might be done as part of evaluations of immunization programs.

Confidentiality

Participants will be informed that the data collected will be kept confidential. Further, participants in the teleconference focus groups will be informed that the interviews will be recorded and the transcripts of the conversations will be used for analysis, although the participants will not be identified by name in the transcript. Participants in the Internet forum groups will be informed that the data collected will be identifiable by a name they choose at screening. They will have the choice of using their own first name or a nickname. All the information they provide electronically will be collected and used for analysis. Identifying information will be stripped from the electronic data once the focus group is completed and the data is downloaded onto the researchers secure servers.

Security

The data collected will be kept on password protected, secure servers at the Bruyère Research Institute. Only the research team members involved in conducting the Teleconference interviews will have access to participant names. Only research team members involved in the analysis will have access to the anonymized data. Paper copies of the transcripts, forms and master code list with participant names will be kept in secure file cabinets in locked offices.

The survey software used for the screening survey is FluidSurveys, a Canadian company with the servers located in Canada. See Appendix 6 for the FluidSurveys privacy policy. The survey data will use SSL encryption, which is the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.

The Internet forum program used to facilitate the Internet forum discussions will be selected for its i) level of data protection; and ii) secure data storage. The Internet forum data will not be encrypted, because we could not find forum software that has this level of security. However, we have chosen a software package (Simple Machines Forum software) that has the most secure system available. It should be noted that we will not ask for any personal information, other than a nickname, for the Internet forum. In addition, the forum software selected includes several security features:

1. Users who click on the link to register to the forum will be asked to provide a username, email address and password. They will also be asked to complete a visual verification test (this prevents spam in the forum). Visual verification is when a user is asked to type in text that is distorted slightly so robot machines cannot spam the registration process. Users will then be asked to read and agree to the forum's rules (see below). Users must click "I agree" before they can register.

2. Once the user has completed the registration fields and clicks on the "register" button, they will receive an automatic email notification to the email address they provided. This email will confirm their username and password, and notify them that their account will need to be approved by an administrator (study staff) before being activated.

3. The administrator will receive a notification that a new member would like to join the forum and that they require approval. The approval process has two steps:

    a. The administrator will first check that the email address of the prospective member appears on the list of users who have been invited to participate in a focus group. Only users who have been invited will be granted access to the forum. Users who have not been invited to participate in a focus group will be rejected.
    b. Once the user has been confirmed as an invited focus group participant, the administrator will assign the user to a "member group". The user will receive an email notifying them that their account has been activated. The user will then be able to log in to the forum and participate in their assigned member group.

The term "member groups" refers to groups of members that have similar permission settings and access rights on the forum. A unique member group will be assigned for each online focus group we hold (For example, Focus Group A, Focus Group B, etc.). The settings of the member groups will make it so that members will only have access to their corresponding forum discussion thread. For example, members of

the member group titled "Focus Group A" will only have access to the "Focus Group A" discussion board and will not be able to see the "Focus Group B" discussion board or any others. Participants from two different focus groups will never be able to interact with each other.

Any users visiting the forum page who are not logged in will not be able to see any of the discussion in the member groups.

Identifiable Information

We will ask for the minimal personal information about participants, including their name, contact information (phone number, email address, web access information); location (i.e. city or town); and the number and ages of their children (See Appendix 2 for details on the Screening Survey) For those participants completing the focus groups, we will also ask for their mailing address so we can mail the Chapter's Gift Card to them at the end of the focus group. All information will be kept confidential, but not anonymous, until after the study is complete and the data retention period of five years has expired. The master code list will be kept by the research staff in a separate file and the researchers will not have access to the master code list. By using electronic data collection for both recruitment and for the Internet forum focus groups, there is a risk that the data could be linked to an individual, although every effort will be used to ensure this does not happen, including having separate forms for screening, using SSL level encryption for the screening survey and then assigning a code (or allowing the participant to choose a nickname for the Internet forum or teleconference focus group). Only the research staff will have access to the identity of the participants and this information will be kept on a secure server located at the Bruyère Research Institute or in a paper file kept in a secure office behind locked doors.

Data Retention

Once the survey is closed, the data will be downloaded from the FluidSurveys site and kept on password protected servers at the Bruyère Research Institute or Public Health Ontario. The study records will be kept for five years after termination of the study. Paper documents will be shredded and electronic files deleted

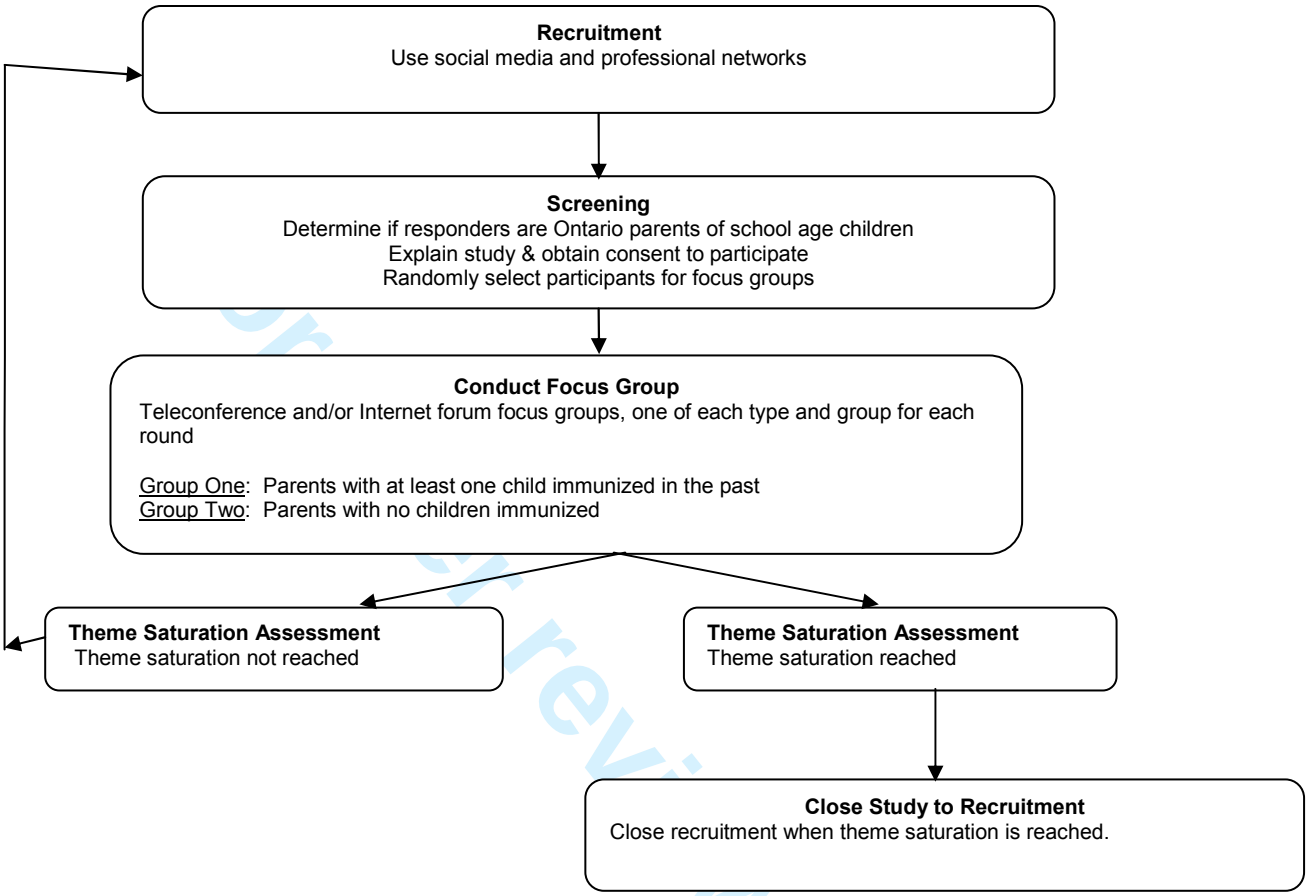
Audits

The organizations that may audit study records include the Bruyère Continuing Care Research Ethics Board, the University of Toronto Health Sciences Research Ethics Board, the Public Health Agency of Canada, the Canadian Institutes of Health Research or the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

Dissemination

A scientific synthesis report and extended executive summary will be distributed to funders as well as to other relevant agencies with an interest in this issue. Articles will be submitted for publication in peer-reviewed journals. The research will also be disseminated through academic and professional forums such as conferences on immunization, school health or public policy. A summary report suitable for lay review will be prepared. Participants will be contacted and informed on the ways to access the report, which will be made available using the on-line resources developed throughout the study.

Appendix 1
Study Design Flow Chart



Appendix 2
Web-based Screening Survey, FAQs and Participant Correspondence

First Eligibility Screen

Participants will be asked the first six questions as step one of the screening process, to determine eligibility. No incentive will be offered for this portion.

Welcome to the "**School Flu Shots Study"** screening survey.

A team of researchers would like to find out what Ontario parents think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

The purpose of this screening survey is to determine if you are eligible to participate in the focus groups (held at a later date) where we will discuss these issues in detail. We are conducting this study to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most or jointly responsible for making health decisions for the children
- are able to speak or write in English

For this study, we are asking Ontario parents for their opinions. It does not matter if you have had your child immunized or not. It is important that you are interested in sharing your thoughts about the advantages and disadvantages of adding influenza immunization (flu shots) to existing immunization programs in Ontario schools.

There are two parts to this screening survey:

1. Part one has six questions that will help us determine if you are eligible. This will take 1 to 2 minutes to complete.

2. Part two has additional questions to see if you qualify to take part in a group discussion (by teleconference or on-line) at a later date. This will take about 5 to 10 minutes to complete. If you complete both parts one and two, you will receive a $5 amazon.ca gift card as a thank you for your time.

From the completed screening surveys, about 60 people will be invited to take part in different group discussions (focus groups) involving three to five people at a time. The discussions will take place by teleconference or online, and are described in more detail at the end of the survey.

Participation in this study is voluntary. If you choose to complete the screening survey you may skip questions or stop participating at any time. If you are invited to be in the focus group you may choose not to participate.

If you take part and change your mind you may ask us to remove your name at any time and we will not contact you any further. We will continue to keep and use the information you provided. This information is not linked to any personal information you may provide.

Only the researchers directly involved in managing the study will see your personal information. All information will be kept confidential. Any data will be reported only on a group basis. You give your consent to participate by completing this survey.

If you have questions about your rights as a research participant you may contact the University of Toronto's Health Sciences Research Ethics Board (ethics.review@utoronto.ca, 416-946-3273) or the Bruyère Continuing Care Research Ethics Board (613-562-6262, Ext. 1370). This study is sponsored by Public Health Ontario (www.oahpp.ca) and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (www.pcirn.ca).

It is important that you take the time to learn about what is involved in the study and to ask any questions you might have. Click here (*link to the 'About the Study' page'*) for more information about this study.

If you have trouble accessing the survey or for more information, you can email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

Do you agree to continue?

- ☐ Yes
- ☐ No

Part One

1. Do you live in Ontario?

   - ☐ Yes
   - ☐ No

2. Do you have a child who attends school in Ontario (kindergarten or Grades 1 to 12)?

   - ☐ Yes
   - ☐ No

3. Are you the person who usually makes the immunization decisions for your children?

   - ☐ Yes
   - ☐ No
   - ☐ It's usually a joint decision

4. How did you first hear about this study (please check one)?

- ☐ Facebook
- ☐ Twitter
- ☐ Craigslist
- ☐ Kijiji
- ☐ RedFlagDeals
- ☐ Smart Canucks
- ☐ Website (please specify)
- ☐ Email list (please specify)
- ☐ Newsletter (please specify)
- ☐ Public health website or poster
- ☐ Community health centre (website or poster, please specify)
- ☐ Word of mouth
- ☐ Friend or family
- ☐ Other (please specify _____)
- ☐ Prefer not to answer

5. Are you comfortable speaking in English?

- ☐ Yes
- ☐ No

6. Are you comfortable writing in English?

- ☐ Yes
- ☐ No

If they answer no to these first questions, they will be directed to this screen:

> To participate in the study, you must live in Ontario, have at least one child in school, be mostly or jointly responsible for making the immunization decisions for their children and be comfortable speaking or writing in English.
>
> We thank you for your interest in our research study. You may contact us at info@schoolflushots.ca or toll-free at 1-855-561-6891 if you have any questions.

If they answer yes to the first six questions, they will be directed to part two of the screening survey:

Screening Survey

These first few paragraphs below will be on the welcome screen of the survey, which will be set up using FluidSurveys software. The FAQ section will be available as a downloadable PDF, as FluidSurveys does not have the capacity to embed hyperlinks.

Welcome Screen

By completing this part of the screening survey, we will be able to know if you are eligible for participation in study focus groups, which will be scheduled in the next month or so.

This section of the survey should take about 10 minutes to complete. Completion of this survey is voluntary and you may stop at any time without penalty.

To download a copy of the survey, click here. You may print this survey and email it to us at info@schoolflushots.ca or fax it to Lois Crowe at 613-562-4266.

For more information, you can email us anytime at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

Do you agree to continue?

- ☐ Yes
- ☐ No

1. How many children do you have:

   - ☐ In kindergarten _____
   - ☐ In grades 1 to 6 _____
   - ☐ In grades 7 & 8 _____
   - ☐ In grades 9 to 12 _____

2. Have you ever had the flu shot?

   - ☐ Yes
   - ☐ No
   - ☐ Don't remember
   - ☐ Prefer not to answer

3. Have any of your children ever had the flu shot?

   - ☐ Yes
   - ☐ No
   - ☐ Don't remember
   - ☐ Prefer not to answer

We would now like to ask a few questions that will help us get to know you a bit better, which will help us to plan the focus group sessions.

4. In order to better plan the focus groups, we would like to know the first three digits of your postal code. This will let us know in which region of the province you live.

___ ___ ___

☐ Prefer not to answer

5. Are you

☐ Female
☐ Male
☐ Prefer not to answer

6. How old are you?

☐ Younger than 20 years
☐ 20 – 29 years
☐ 30 – 39 years
☐ 40 years or older
☐ Prefer not to answer

7. What is the highest level of schooling you completed (please check only one)?

☐ Some high school
☐ High school, including equivalencies like GED
☐ College
☐ University (please specify highest level reached_____)
☐ Other, please specify
☐ Prefer not to answer

8. Are you a single parent?

☐ Yes
☐ No
☐ Prefer not to answer

9. Do you consider yourself to be…(please check only one)

☐ White
☐ Aboriginal Peoples of North America (e.g., North American Indian, Métis, Inuit/Eskimo)
☐ Chinese
☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan)
☐ Black
☐ Filipino

- ☐ Latin American
- ☐ Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)
- ☐ Arab (e.g., Egyptian, Lebanese)
- ☐ West Asian (e.g., Afghani, Iranian)
- ☐ Japanese
- ☐ Korean
- ☐ Mixed
- ☐ Other (please specify) _____
- ☐ Prefer not to answer

We will be holding focus groups to discuss the advantages and disadvantages of adding flu shots to existing immunization programs in Ontario schools over the next few weeks. These will be done over the phone (a single 1-hour session) or through an Internet forum (about 15 minutes per day for five days in a row). Participants will receive a Chapters gift card as a thank you for participating.

10. Are you interested in participating in a focus group in a few weeks?

- ☐ Yes
- ☐ No

If no:

We thank you for taking the time to complete the screening survey. Please click here to receive your amazon.ca gift card.

If yes:

Thank you for agreeing to consider participating in a focus group. We need to ask for some personal information in order to contact you to arrange for your participation in a focus group, which will be held at a later date.

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey responses, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The databases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.

4. Once the survey is closed, the electronic information will be stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Participating in a focus group is voluntary and you can withdraw your permission at any time.

If you are able to participate in the focus group, which type of focus group would you prefer?

- ☐ Teleconference (will take one hour on the phone)
- ☐ Internet forum (on-line) (will take about 15 minutes a day for five days in a row)
- ☐ Either
- ☐ Would prefer not to participate *(redirect them to thank you screen and amazon.ca link*)

If they select teleconference

What is your name?

First: Last

What is the best phone number to use to contact you?

_____

What is the best email address to use to contact you?

_____

What day of the week is best? Please check as many as apply.

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday
- ☐ Sunday

What time of day is best to reach you by phone? Please check as many as apply.

- ☐ 7:00 a.m. – 9:00 a.m.
- ☐ 9:00 a.m. – 11:00 a.m.
- ☐ 11:00 a.m. – 1:00 p.m.
- ☐ 1:00 p.m. – 3:00 p.m.
- ☐ 3:00 p.m. – 5:00 p.m.

☐ 5:00 p.m. – 7:00 p.m.
☐ 7:00 p.m. – 9:00 p.m.
☐ 9:00 p.m. – 10:00 p.m.
☐ Other (please specify)

If they select Internet forum

What is the best way to contact you?

☐ By email (please provide email address)
☐ By phone (please provide number)
☐ Other (please provide details)

After the above sections are complete

Please click here to receive your amazon.ca gift certificate as a thank you for completing the screening survey.

We will be randomly selecting people (like picking names from a hat) who are eligible to participate in the focus group. We will contact you if you are selected to see if you are interested in continuing in the study. If you are not selected, your participation in the study is complete.

Everyone who participates in and completes a focus group will receive a Chapters gift card as a thank you.

Please feel free to contact us at info@schoolflushots.ca or toll-free at 1-855-561-6891 if you have any questions.

FAQ / Consent Info

(Note: the headers in blue in this section will be links that the participants can click on. This will avoid having a lot of text on the web page)

What is the purpose of this study?

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

Understanding what parents think about this issue is important.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

Who can participate?

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

For this study, we are asking all parents for your opinions. It does not matter if you have had your child immunized or not. It is important that you are interested in sharing your thoughts about the advantages and disadvantages of adding influenza immunization (flu shots) in Ontario schools.

Who is a parent?

In this study, we define "parent" as any person who has the legal responsibility for at least one child. This includes biological parents, adoptive parents, step-parents, or legal guardians of a child.

How will my personal information be protected?

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey data, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The databases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.
4. Once the survey is closed, the electronic information will be stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Are there things I can do to keep my information safe?

Definitely. While we do everything we can, protecting your information is a joint effort. Some basic online safety tips include never divulging your log-in password and shutting down your Internet browser after

completing the survey or updating your account information, especially if you are using a public computer. The following are some useful websites for learning more about online safety: Office of the Privacy Commissioner of Canada, Public Safety Canada, Microsoft, Apple and Stay Safe Online. *(NB: We will have embedded links to these websites)*

Will I be added to any other mailing lists if I choose to participate?

No. We are committed to protecting your privacy and confidentiality. We will not sell or give away your contact information, including your email address.

What are focus groups?

Focus groups are a way to gather people together in a carefully planned series of discussions designed to have conversations about a topic in a permissive, non-threatening environment. In this study, we are planning two types of focus groups, teleconference (one hour conversation over the phone) and Internet forum (about 15 minutes a day on-line for five days in a row).

Teleconference focus groups

In these focus groups, we will invite five parents to participate in a one-hour teleconference focus group. There will be a facilitator present to help make sure everyone has the chance to be heard. These conversations will be recorded and the anonymous transcripts will be used to analyze the conversations.

Internet forum focus groups

Internet forum focus groups are on-line forums. We will ask participants to check in every day for five days in a row and join the discussion on a question(s) posted each day. We expect that it will take about 15 minutes every day. This information will be collected and analyzed anonymously.

Who is paying for the study?

This research is funded by the Canadian Institutes of Health Research, the department of the federal government responsible for funding health-related research, and the Public Health Agency of Canada.

How do I withdraw from the study?

You may ask us to remove your name at any time and we will not contact you any further. We will continue to keep and use the information you provided. This information is not linked to any personal information you may provide.

If you have any questions, please contact us toll-free at 1-855-561-6891 or by email at info@schoolflushots.ca.

Who are the researchers?

This research is being conducted by researchers with the Public Health Agency of Canada / Canadian Institutes of Health Research Influenza Research Network (PCIRN), Program Delivery and Evaluation Group. We have not accepted any funds or in-kind services from any drug or pharmaceutical company. Please click here for information about PCIRN.

This study is being sponsored by Public Health Ontario. Public Health Ontario (PHO) is an arm's length government agency dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Please click here for more information about Public Health Ontario.

Researchers

The research is being led by Dr. Jeffrey Kwong, a family physician and public health researcher at the University of Toronto and Dr. Margaret Russell, a public health researcher at the University of Calgary, in Calgary, AB.

Other researcher team members are: *(people will be able to click on the name to get directed to the bio)*

Ms. Beth Halperin, nursing professor in Halifax, NS
Dr. Donna MacDougall, nursing professor in Antigonish, NS
Dr. Anne McCarthy, infectious disease physician in Ottawa, ON
Dr. Marina Salvadori, pediatrician in London, ON
Dr. Doug Sider, public health physician in Toronto, ON
Dr. Anne Wormsbecker, pediatrician in Toronto, ON

Team Members

Lois Crowe, research manager in Ottawa, ON
Jennifer Pereira, research associate in Toronto, ON
Susan Quach, research associate in Toronto, ON
Sherman Quan, research associate in Toronto, ON
Hilary Ramsay, research assistant in Ottawa, ON

What steps have been taken to ensure that the School Flu Shots Study is performed ethically?

The School Flu Shots Study was granted approval by the Research Ethics Board at the University of Toronto and Bruyère Continuing Care Research Ethics Board (Ottawa). This approval must be renewed on a yearly basis through a renewal application that is submitted by the study team. The Research Ethics Board approves all aspects of the research study and ensures that it meets the required ethical criteria. The Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

If you have questions about any ethical aspect of this study or your rights as a study participant, you may contact:

- Office of Research Ethics at the University of Toronto at ethics.review@utoronto.ca or (416) 946-3273.
- Chair, Bruyère Continuing Care Research Ethics Board, 613-562-6262, Ext. 1370.

Who do I contact if I have questions about the study?

For questions about the study, email info@schoolflushots.ca. You can also leave a phone message toll-free at 1-855-561-6891.

Facebook link
Twitter link

Who do I contact if I have questions about influenza or influenza immunization in schools?

If you have any concerns or questions about influenza immunization, please click on the links below:

Public Health Ontario
http://www.oahpp.ca/resources/flubulletin.html

Ontario Ministry of Health and Long-Term Care
http://www.health.gov.on.ca/en/public/programs/publichealth/flu/

Public Health Agency of Canada
http://www.phac-aspc.gc.ca/im/index-eng.php

Immunize Canada
http://immunize.ca/en/diseases-vaccines/influenza.aspx

Will I be paid?

- To participate in the study, you must live in Ontario, have at least one child in school, be the primary or joint decision maker for your child's health and be comfortable speaking or writing in English. If you are eligible and complete the screening survey, you will receive a $5 amazon.ca gift card.
- Parents who choose to participate in a focus group will receive a Chapters gift card.

How long will the screening survey take?

There are two parts to this screening survey:

1) Part one has six questions that will help us determine if you are eligible. This will take 1 to 2 minutes to complete.

2) Part two has additional questions to see if you qualify to take part in a group discussion (by teleconference or on-line) at a later date. This will take about 5 to 10 minutes to complete. If you complete parts one and two, you will receive a $5 amazon.ca gift card as a thank you for your time.

From the completed full surveys, about 60 people will be invited to take part in different group discussions (focus groups) involving three to five people at a time. The discussions will take place by teleconference or online, and are described in more detail at the end of the survey.

Internet Forum Focus Group Invitation Email (sent from info@schoolflushots.ca)

Recently, you completed an online screening survey to determine if you were eligible to participate in a focus group about the advantages and disadvantages of adding flu shots to immunization programs in Ontario schools.

This email is to notify you that you have been selected to participate in an online focus group that will be held from (insert date) to (insert date).

If you choose to participate, you will be asked to spend about 15 minutes each day for 5 days in a row to respond to questions posted on the Internet forum and discuss with other participants. As a thank you for completing the five days on the forum, we will send you a Chapters gift card.

If you are still interested in participating, we would like to invite you to click on the link below to create an account for the online forum.

Click here to register.

You will be asked to create a username and password. (We recommend choosing a username that does not reveal any personal information). You will also be required to agree to the forum rules. Once your account has been approved by an administrator, you will receive an email confirming your account details.

A list of the questions we'll be asking during the focus group will be emailed to you shortly, as well as more information about the forum.

If you are no longer interested in participating or are unable to participate, please let us know by responding to this email. If we have not heard back from you by (insert date) we will assume you are not interested and will not contact you again.

For more information about the study click here (*link to study website*). If you have any questions please email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

We thank you for your interest in this study

Lois Crowe,
Research Manager.

Welcome Email after registering for the Internet forum (invite sent from info@schoolflushots.ca)

Thank you for agreeing to participate in the forum.

As a reminder, by joining the Internet forum, you are agreeing to spend about 15 minutes each day for five days in a row answering questions and participating in group discussions.

Here are a few things to keep in mind before the focus group begins:

Everyone's opinion counts and everyone has the right to be heard, even if you don't agree with what others are saying. There are no right or wrong answers. You can share your own thoughts, agree or disagree with others, bring out a new point of view, or add onto or build upon each other's thoughts that come out in our discussion. You can answer the questions posed by the moderator, or engage in conversations with others on the forum. We want everyone to feel free to join the conversation.

In these discussions, it is important to consider that the discussions are not about whether or not influenza immunization is a good thing or a bad thing, whether kids should be immunized or about how vaccines are made. Our focus is on what you think are the advantages and disadvantages of having a yearly flu shot added to the other immunization programs already delivered in schools.

The team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school. Understanding what parents think about this issue is important.

If you are not familiar with Internet forums or how to navigate them, please click here for a detailed explanation (*link to Help page on the forum*).

We encourage everyone to express their opinions, but please treat everyone on the forum with respect. Here are some "netiquette" guidelines.

- Avoid typing in all caps or all bold, as this is the equivalent to yelling on an Internet forum.
- Read all of the posts in the thread before posting. This will help forum participants avoid repeating points that have already been discussed in depth.
- Do not "hijack" the forum discussion. Stay on topic and avoid directing the discussion away from the current line of conversation.
- Avoid negative remarks about fellow forum participants
- Use emoticons and other symbols to indicate tone. When posting on an Internet forum, there is an absence of indicators that help one to decipher tone and the forum poster's intention. In the absence of valuable voice tone, body language, facial expressions and other social cues, emoticons and symbols (smiley face, or "*smile*") can help make tone and intention clear to other forum participants.
- Remember that what you learn in the forum, stays in the forum. The stories you hear and discussions you participate in should only be shared with the moderators and other forum members. To protect everyone's privacy, it is important that you remember that what you hear is confidential.

Please note that the moderator reserves the right to remove inappropriate or disturbing content.

The focus group will officially begin when the first question is posted on (insert date) at approximately (insert time).

Feel free to log in at any point during the day to share your thoughts. New questions will be posted in a new discussion thread around the same time each day, until the focus group ends at (insert time) on (insert date). If you're able, we recommend that you check back into the forum periodically throughout the day to read what other participants have posted and to continue the discussion. Although a new discussion thread will appear each day, feel free to continuing posting in the thread related to your topic as the discussion further develops.

To better prepare you for the focus group discussion, the list of the questions we will be posting is attached, as well as a list of frequently asked questions.

Only those people who have met all the eligibility criteria will be given access to the forum. Any users not registered or visiting the forum page who are not logged in will not be able to see any of the discussion in the member group.

The forum is being moderated by Lois Crowe, the research manager of the study and a trained facilitator. The researchers (click link to bio page) and Hilary Ramsay, the research assistant, will also have access to the forum and may join the discussion if needed. However, only the staff members (Lois and Hilary) will have access to your personal information, such as your email address or phone number.

If you have any questions or would like more information about the Internet forum or the study itself, please email us at info@schoolflushots.ca or call us at 1-855-561-6891

Thank you for your interest. Welcome to the forum!

Lois Crowe
Research Manager

Internet Forum Focus Group FAQ

NB: The FAQ will only visible once someone has registered to the forum.

What is an Internet forum?

An Internet forum is an online discussion group where users can discuss a topic by posting messages. The different discussion topics of a forum are called "threads". Forum participants can read and reply to postings on these threads.

How will the focus group work?

Each day the focus group facilitator will create a new thread on the forum and post a few questions. Each focus group participant will be asked to log in to the forum at some point during the day and share their thoughts on the questions and respond to what other participants' have posted. This will continue for five days.

Where can I find out more information about how the forum works?

Click here (*link to forum Help page*) to access the forum navigation guide. If you cannot find an answer to your question or would like more information, email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

How do I access the forum?

Go to www.chiin.ca/forum. If you have not created a forum account, click on "register" and follow the instructions. Your account will need to be approved by a forum administrator before you can participate in the forum. If you already have an account, type in your username and password in the 'Login' section at the bottom of the screen.

How much time should I spend participating in the forum?

We ask that you spend about 15 minutes on the forum each day to read what other participants have written and to post your own thoughts. You are welcome to spend more time if you are able to.

Do I have to login to the forum every day?

We recommend logging in to the forum each day because new questions will be posted. If you miss a day, please read through the posts you may have missed and post your thoughts in the previous day's thread.

Can I respond to another participant's comment?

Yes, interaction between participants is an important part of the focus group.

When will the focus group begin?

The focus group will begin on (*Insert date*) at approximately (*insert time*) when the first thread questions will be posted.

When will the focus group end?

The focus group will end and the forum will close on (*insert date*) at (*insert time*)

Can I continue a discussion from yesterday's thread?

Yes. Although a new discussion thread will appear each day, feel free to contribute to a discussion in a previous thread.

I'm having trouble navigating the forum (logging in / reading posts / commenting). What should I do?

If you encounter any difficulties or have any questions about the forum please email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891

How will my personal information be protected?

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone number is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey data, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The data bases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.
4. Once the forum is closed to commenting, the electronic information will be taken off the Internet and stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Are there things I can do to keep my information safe?

Definitely. While we do everything we can, protecting your information is a joint effort. Some basic online safety tips include never divulging your log-in password and shutting down your Internet browser after completing the survey or updating your account information, especially if you are using a public computer. You can also choose to register using a nickname, rather than your own name, to protect your identify. The following are some useful websites for learning more about online safety: Office of the Privacy Commissioner of Canada, Public Safety Canada, Microsoft, Apple and Stay Safe Online. *(NB: We will have hot links to these websites)*

Only those people who have met all the eligibility will be given access to the forum. Any users not registered or visiting the forum page who are not logged in will not be able to see any of the discussion in the member group.

The forum is being moderated by Lois Crowe, the research manager of the study and a trained facilitator. The senior researchers and Hilary Ramsay, the research assistant, will also have access to the forum and may join the discussion if needed. However, only the staff members (Lois & Hilary) will have access to your personal information, such as your email address or phone number.

When will I receive my gift card?

Gift cards will be mailed to participants after the focus group is finished. We will contact you once the forum is completed to ask for your mailing address.

What are the questions we will be discussing?

Here are the questions we will discuss over the five day period:

1. Can you tell me if you have had experience with immunization programs in schools?

2. Can you tell me your thoughts about having public health offer influenza immunizations each year to children in Ontario schools?

    a. Where (for example, at what type of location) would you prefer your school-aged children (between the ages of 4 and 18) be immunized against influenza?

    b. Under what circumstances would you use a school-based influenza immunization program? What would make you want to use it? What factors are involved in making these decisions?

3. What are the advantages of school-based influenza immunization?

4. What are the disadvantages of a school-based influenza immunization program?

5. What would stop you from having your child immunized against influenza at their school?

6. What problems or issues might happen if annual influenza immunization is added to the immunization programs already available in your school?

7. How do you think those problems or issues could be handled?

8. What features should a school-based influenza immunization program include, or what should the program look like?

9. Of all the things we talked about, what to you is the most important thing that was said?

10. We are conducting several focus groups like this one. This is one of the first. What advice do you have for us as we listen to others?

Email Requesting Address Information for Participants in Both Focus Groups

Once the focus group has ended, we will send a thank you email to participants. It will read:

Thank you for your recent participation in the focus group on (insert dates). As a small thank you for your time, we would like to send you a Chapters gift card. Please let us know your full name and mailing address so we can mail this to you. This information will be kept separately from the study information and will be kept for six months to ensure everyone receives their gift card. Please let us know if you haven't received your gift card two weeks after you send us your information.

Once again, we thank you for you participation.

Warm regards,

Lois

Teleconference Focus Group Consent Form

(This will be emailed or faxed ahead of time. We will ask everyone at the beginning of the session if they consent, to avoid having people have to fax or email back consent forms, which can be problematic for some participants).

Thank you for agreeing to participate in the teleconference focus group. We are sending this information ahead of time so you have time to think about the discussion topics. If you have any questions, please do not hesitate to contact us (info@schoolflushots.ca or toll-free 1-855-561-6891).

I will be the moderator for the teleconference. Also joining us from the research team will be Hilary Ramsay, Research Assistant who will be taking notes and Dr. Donna MacDougall, a senior researcher from St. Francis Xavier University in Nova Scotia, who will be helping make sure we answer all the research questions. *(insert name on any researcher attending the call)*

Please note that we will be recording the session. After the focus group is over, we will transcribe the session so the conversations can be analyzed using a special software package (NVivo version 9 or 10). The recordings will be destroyed once the analysis has been completed. Your name will not appear on the transcript. The recording will be stored on the secure server at Bruyère Continuing Care, a hospital in Ottawa. Only the research staff and the transcriptionist will have access to the recording.

For the focus group, there are a few ground rules. We know that it is challenging having a conversation when everyone is on the phone, but if we all agree on these rules, we should have a productive meeting.

- If you have a mute button, please use it when you are not speaking. If you don't have a mute button, try and keep any background noise (like shuffling paper) to a minimum. Background noise can make it difficult for people to be heard.
- If you get disconnected, call Toll-Free 1-866-261-6767, Toronto: (416) 850-2050 and use participant pass Code: 3067762# to reconnect.
- If you have to leave unexpectedly, it's okay to interrupt and let me know.

- The teleconference will last one hour. We will stop at xxx o'clock. It is important that we start and end on time, so please be prompt.
- You should have the list of the questions and the times in front of you.
- I will be asking a limited number of questions. I don't expect everyone to answer every question, but I do want to make sure everyone has an opportunity to be heard. If I don't hear from you on a question, I may call on you but you are free to say you have no comments.
- We are recording our conversation so we don't miss any of the comments. No names will be attached in any report that is prepared.
- Please remember that what happens in the focus group, stays in the focus group. Please introduce yourself only with your first name. Please remember that the stories and conversations are private, and we trust that you will not share any information that could identify any other participant.
- It is helpful if you would say your name before you speak. For example. It's Lois and I want to say…

Our conversation will be about the advantages and disadvantages parents see when considering whether a yearly flu shot should be added to the current immunization programs in Ontario schools.

Everyone's opinion counts and everyone has the right to be heard, even if you don't agree with what others are saying. There are no right or wrong answers. You can share your own thoughts, agree or disagree with others, bring out a new point of view, or add onto or build upon each other's thoughts that come out in our discussion today. Although we have prepared a few questions to lead the discussion, we'd like to have an open, informal process so we can follow up on different directions the conversation might take. We want everyone to feel free to join the conversation.

We are doing this study because a team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We wanted to clarify that the discussion will be about whether or not influenza immunization is a good thing or a bad thing, whether kids should be immunized or about how vaccines are made. Our focus is on what you think are the advantages and disadvantages of having a yearly flu shot added to the other vaccination programs already delivered in schools.

Understanding what parents like everyone on this call thinks about this issue is important.

We want to hear about your experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

Please let me know if you have any questions about the research before we begin the discussion.

Group Interview Questions:

1. Can you tell me if you have had experience with immunization programs in schools?

2. Can you tell me your thoughts about having public health offer influenza immunizations each year to children in Ontario schools?

c. Where (for example, at what type of location) would you prefer your school-aged children (between the ages of 4 and 18) be immunized against influenza?

d. Under what circumstances would you use a school-based influenza immunization program? What would make you want to use it? What factors are involved in making these decisions?

3. What are the advantages of school-based influenza immunization?

4. What are the disadvantages of a school-based influenza immunization program?

5. What would stop you from having your child immunized against influenza at their school?

6. What problems or issues might happen if annual influenza immunization is added to the immunization programs already available in your school?

7. How do you think those problems or issues could be handled?

8. What features should a school-based influenza immunization program include, or what should the program look like?

9. Of all the things we talked about, what to you is the most important thing that was said?

10. We are conducting several focus groups like this one. This is one of the first. What advice do you have for us as we listen to others? (round table)

Just a reminder:

Date:
Teleconference Call-in Time: (insert time)
Focus Group Start Time: (insert time)

Call-in Numbers:

Toll-Free: 1-866-261-6767
Toronto: (416) 850-2050

Participant Pass Code: 3067762

If you have trouble logging in, please contact my cell phone at 613-868-7627.

Thank you all.

Regards,

Lois Crowe

Moderator

Appendix 3
Focus Group Facilitator Interview Guide
Question Probes

Question probes (for use as required):

- Are there any other points of view?
- Could you tell me more about that?
- What was involved in that?
- Could you give me an example of what you mean?
- How did it begin?
- Then what happened?
- How did it feel?
- What was the effect on the people involved, effect on others?
- About advantages/disadvantages – for whom – parents, other people or organizations?
- Route of vaccine administration (e.g. injection vs. nose drops)?
- Type of school (elementary, junior high or high school)?

NB: Approximately two questions per day will be posted on the Internet forum, with the moderator guiding the discussion and blocking inappropriate content.

Appendix 4
Pilot Testing Protocols

Online testing protocol – Screening Survey

Ask 10-20 individuals to complete the survey on their own. Once they have completed the survey, ask them to note any issues or problems they had with the process. Use this testing survey as an interview guide to obtain feedback about the user's experience after they complete the survey on their own.

Testing Survey

1. Name of respondent:

   ☐ Location _____

Section A: Survey Platform

2. Which Web browser did you use to complete the survey?

   ☐ Internet explorer (please specify version)
   ☐ Mozilla Firefox (please specify version)
   ☐ Netscape (please specify version)
   ☐ Other (please specify)

3. Which operating system did you use to complete the survey?

   ☐ Microsoft Windows (Please specify the version)
   ☐ Apple
   ☐ Other (please specify):

4. What device did you use to complete the survey?

   ☐ Laptop
   ☐ Smart phones (ex. Blackberry, iPhone etc.)
   ☐ Tablet
   ☐ Desktop computer
   ☐ Other (please specify): _____

Section B: Survey Navigation

1. Did you find the instructions to the survey easy to follow?

   If no, what instructions did you have trouble with and why?

2. Did the survey link work?

3. Did you find the survey easy to log onto?

   If not, what happened?

4. Did you complete the survey at one time or did you partially complete the survey and return later?

   If you returned later, were you able to log back in without any problems?

   Were all of your answers still there?

5. Was it easy to navigate back to earlier pages?

6. Did the survey website ever crash while you were navigating through it?

7. Were there any problems with connection speeds or time to load any of the pages?

8. What did you think about the visual layout of the survey (font sizes, colours, format, etc,)? Was it easy to read?

9. How long did it take you to do the entire survey?

Section C: Survey Questions

Run preliminary analyses on pilot data to identify any issues (e.g., choose not to answer, N/A, etc. on consistent questions). Obtain feedback from respondents on difficult questions, in order to identify if any revisions need to be made.

1. Were there any questions that you did not feel comfortable about responding to?

   If so, which ones and why?

2. Were there any questions that you think would be difficult for others to respond to?

   If so, which ones and why?

Section D: Additional questions

1. Is the $5 amazon.ca gift card useful?

   If no, what would be?

2. Were you uncomfortable about providing your personal information at the end of the survey?

Online testing protocol – Internet forum

We will run a pilot Internet forum focus group with five or six people (similar size to the planned focus groups)

Online Testing Survey

1. Name of respondent:

Section A: Survey Platform

2. Which Web browser did you use to log in to the Internet forum?

- ☐ Internet Explorer (please specify version)
- ☐ Mozilla Firefox (please specify version)
- ☐ Netscape (please specify version)
- ☐ Other (please specify)

5. Which operating system did you use?

- ☐ Microsoft Windows (Please specify the version)
- ☐ Apple
- ☐ Other (please specify):

6. What device did you use?

- ☐ Laptop
- ☐ Smart phone (ex. Blackberry, iPhone etc.)
- ☐ Tablet
- ☐ Desktop computer
- ☐ Other (please specify): _____

Section B: Setting up an account

1. Did you find the instructions easy to follow?

   If no, what instructions did you have trouble with and why?

2. Did you have any problems setting up the account?

   If yes, what were they?

3. Did you receive the confirmation in a reasonable time frame?

   If no, how long did it take?

Section C: Participating in the Discussion

1. Were the rules clear and easy to understand?

   If no, what should be changed?

2. Did you feel the session was moderated successfully?

   If no, what should be changed?

3. Was it easy to follow the discussion threads?

4. Did you feel comfortable in sharing your opinions?

   If no, what could be done to make it more comfortable?

5. Is there anything you think we could do to make it a better experience for you as a participant?

Appendix 5
Social Media Recruitment Strategy Details

1) Facebook: Facebook is the most popular social media website in Canada with more than 18 million users. According to Socialbakers (a global social media and digital analytics company), Facebook penetration in Canada is 53% with 79% of its users between the ages of 18 to 54 years and 54% female. To develop an online presence, we will create a Facebook page (e.g., Ontario School Flu Shot Study) that has information about the study such as the purpose, our research team and link to the study's main website. To engage with the Facebook community, we will identify and join potential groups ("friends") that are popular among our target population (e.g., Parenting in Peel, Ontario Health Study, public health units, Savvy Mom, Canadian Living). Before the recruitment campaign starts, we will engage with these communities by posting messages and clicking "like" on their Facebook posts to establish a relationship that can help us with support and communication during the recruitment period. To establish credibility, we will post content that is visually appealing, interesting and presented in a creative format (e.g., videos, images, etc.). When the study recruitment begins, we will post different messages about the study twice a week on our Facebook page, while participating in regular Facebook activities (e.g., clicking "like", responding to non-related study posts, etc.). To ensure that our content is advertised to a broader community, we will request permission to post study advertisements on our "friends" pages. Messages will be posted during peak Facebook weekday hours (1:00-4:00pm).

2) Twitter is a social networking service that allows users to send and re-send text messages within 140 character limit. It is the second largest social media network in Canada with over 5 million active users since 2012. (48) We will create a Twitter account using a unique name, @SchoolFluShots, related to the study group. A unique hashtag, #SchoolFluShots, will also be used to be track Twitter activity. We will research and identify groups to follow on Twitter among our target population. We also need to identify and "follow" individuals who are "key influencers" in Twitter that fit within our target population (active users with a large "follower" population (>200) consisting mostly of parents and a strong interest in parenting and family matters (e.g., shopping, day care, children etc.). For example, some popular parenting sites have key bloggers/representatives that write stories on the website's behalf (http://www.savvymom.ca/index.php/blogs); it will be important to follow and contact these individuals to help broadcast messages. Some interest groups may also hold Twitter "fireside" chats/party. These are online events identified by a hashtag where many users tweet about a given topic at the same time, similar to a chat room. By participating in these events, we can also broadcast our messages to a large number of Twitter using the same hashtag. The key is to identify events that will be attended by our target population. We will utilize Tweetdeck, a web-based application, to help us monitor the conversations on Twitter.

   Prior to the start of the campaign, we will engage with Twitter followers at least five times a week by re-tweeting messages and replying to messages in a positive manner. Once the recruitment period begins, we will post short messages twice a week (<140 characters) to advertise about the study with a link to the study site. Messages will be posted during peak Twitter weekday hours (1:00-3:00pm).

3) Kijiji and Craigslist are free classified advertisement websites that are used widely in Canada to advertise about goods and services. We will post messages under specific categories that are relevant to our target populations' interest (e.g., community- activities, groups, discussions, event, other; services- child care/nanny, cleaner). The message will contain a short description about the study and a link to the main website. These messages will be posted once a week under different categories for

each Ontario city. On highly active pages (e.g., large cities, popular categories), we will post two messages per week under the same category to ensure our messages are visible. There are 41 city-specific Kijiji pages and 20 city-specific Craiglist pages, which will result in at least 50 postings per week.

4) RedFlagDeals and Smart Canucks are popular deal forum websites that advertise about coupons, promotions, events and freebies. RedFlagDeals and Smart Canucks have discussion forums for specific topics (e.g., "Parenting", "off-topic", "contests", "Canadian parents") and forums for major cities in Ontario where users can post messages and receive responses about their inquiries. To advertise about the study, we can create a new "thread" and post a message once a week under different discussion forums. We can also contact the host administrator to post an advertisement about the study on the homepage. No direct costs are involved with posting threads.

5) Professional networks such as the Ontario Health Study, community health centre network, or pediatric hospital parenting groups, may have email lists of clients that use their services or have been involved in previous research studies. We can work with these organizations and networks to send out recruitment letters about the study containing background information, the website link and a request to share the email with other interested people. Two reminders will be sent following the letter. We will also ask them to consider acting as a referral site to connect to the main study website. The advertisements can be displayed on the childhood immunization section of these websites.

Appendix 6
FluidSurveys Privacy Policy

FluidSurveys is a product of Chide.it Inc.

Collected data

When you register to use FluidSurveys, we (Chide.it Inc.) collect very basic information including but not limited to: email and name. For the paid accounts, we ask for more information including but not limited to your address. This personal information is private, we will not share it.

After registering with the site, we use your email address to provide you with a series of 'Ongoing Communications and Product Updates' (see 'Communication from the Site'). These communications are used to give you a better understanding of the site, what it offers and how it is best utilized. As always, you have the option not to receive these types of communications (see 'Choice and Opt-out').

Collected data on Your Surveys

The data collected by your surveys is yours. We will not use it or share it in any way shape or form.

Note for European Visitors

Please note that FluidSurveys may transfer collected information outside the European Economic Area. By using our web site and providing us with your personal data, you consent to such transfer of your personal data.

Cookies

Cookies are required when using FluidSurveys. We use cookies to identify unique visitors, provider per-user customization and to make FluidSurveys easier to use. We don't share our cookies, nor do we use cookies to track your behavior on other sites.

How we use the Data Collected

We reserve the right to contact you, regarding your account or any other matter regarding your use of Chide.it. With your authorization, we may use some information collected from you to help diagnose technical problems and improve the quality and types of services delivered. We may use and share non-identifiable aggregated usage and statistical information. We may also share information with third parties in limited circumstances including when complying with legal processes, preventing fraud or imminent harm, ensuring security of network and services and due to violation of the terms of service.

Ongoing Communication and Product Updates

We will occasionally send you information on product enhancements, new services and additional instruction on utilizing our services. These communications are designed to educate our users on the services offered. Out of respect for your privacy, we present the option not to receive these types of communications. Please see the 'Choice and Opt-out'.

Service-related Announcements

We will send you strictly service-related announcements when it is necessary to do so. For instance, if our service is temporarily suspended for maintenance, we might send you an email. Service-related emails are also sent confirming billing transactions, account upgrades and account cancellations.
Generally, you may not opt-out of these communications, which are not promotional in nature. If you do not wish to receive them, you have the option to cancel your account.

Customer Service

Based upon the personally identifiable information you provide us, we will send you a welcoming email to verify your username and password as well an account manager contact information. We will also communicate with you in response to your inquiries, to provide the services you request and to manage your account.

Choice/Opt-out

If you no longer wish to receive our product updates, you may opt-out of receiving them by following the instructions included in each product update email.

Clear Gifs

We use clear gifs in our HTML-based emails to let us know which emails have been opened by recipients. This allows us to gauge the effectiveness of certain communications and the effectiveness of our marketing campaigns. If you would like to opt-out of these emails, please see 'Choice and Opt-out'.

What you can do

Your data is yours; you can delete or export it at anytime. If you'd like your account to be deleted, please do send us an email at info@chide.it. We may for a time, maintain a residual copy of your data in our backups.

Security

FluidSurveys.com servers are protected with generally available security technologies, including firewalls and data encryption. These technologies are designed to prevent unauthorized access, but no guarantee can be made that your information and data will be secure from intrusions and unauthorized released to third parties.

Contact

Any questions regarding this policy should be addressed to info@chide.it. If a question comes up not covered by this policy, we will answer it remembering that your data belongs to you. If you'd like to send us snail mail, please visit our contact page for the best address to send to.

These policies are effective as of July 27, 2008. Chide.it Inc. reserves the right to change this policy at any time by notifying it's users of the existence of a new policy. The policies outlined in this document are not intended to and do not create any contractual or other legal rights in or on behalf of any party.

Appendix 7
Social Media Recruitment Messaging

With social media sites, we will need to post regularly and change the posting to generate ongoing interest. For the purpose of this research study, we will be using the following materials as our guideline for the various postings. If we need to change the messaging in any major way, we will submit new materials to the research ethics boards for approval.

1. Social Media Site: Facebook.com

What is it?

Facebook is the most popular social networking service in Canada. Facebook users create profiles and update them regularly to stay in touch with family and friends. Facebook also allows businesses and organizations to create profiles ("pages") which users can "like" to receive updates on that organization's latest news and activities.

Creating an organization page

We will create an organization page, rather than an individual page. This allows us to represent our project as a non-profit organization (type of page we have selected) and allows people to "Like" our page. By "Liking" our page, the individual will get any update we post on their page, and they can share the links with their friends, or create a link to our page, creating a community.

Here is a picture of our Facebook page:

Messaging

On the main page, we will use the following description of the study:

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to hear from Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

Eligible participants who complete the full survey will receive a $5 gift certificate to amazon.ca.

Please click here to access the online survey.

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board (Ottawa). This study is sponsored by Public Health Ontario and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

Study website: www.schoolflushots.ca

Email address: info@schoolflushots.ca

Twitter link: @schoolflushots; #SchoolFluShots

We reviewed similar organizations and research studies Facebook pages. We will build our Facebook presence using the same approaches. We will have two types of postings:

- Updates on our recruiting progress (Number of completed surveys, number of Facebook "likes")
  For example: 300 people have completed our online survey! A huge thank you to everyone who has taken the time to participate!

- Facebook Polls (these will be integrated into the Timeline)

We will also be actively "liking" related content on other organization's pages.

All of the content about the study will be drawn from the FAQ and consent documents. Adjustments may be made to keep the content current, but these will be primarily stylistic changes. If we change the messaging in any substantial ways, we will submit the changes to the research ethics boards for approval before posting.

Privacy concerns: On our Facebook page, we will not request any personal information. Any links individuals make to our page will be managed by them and their privacy settings. We do not anticipate any privacy concerns using Facebook, as any personal information will only be collected through the online survey, which has strict privacy rules (see Appendix 6).

Guidelines for School Flu Shots Facebook Page

The goal of the School Flu Shots Study is to in find out what parents in Ontario think about the advantages or disadvantages of adding yearly influenza immunization (flu shot) to the immunizations that children get at school.

The researchers appreciate your participation in our online community and welcome varying points of view that are appropriate for publication on a social media platform, relevant to the discussion and respectful of others in the community.

However, we reserve the right to remove comments that we find inappropriate including, but not limited to, comments that are abusive, insulting, inaccurate, irrelevant, defamatory, threatening, slanderous or false.

We welcome you to our community and look forward to engaging and productive discussions!

2. Social Media Site: Twitter

What is it?

Twitter is a social networking service that allows users to send and re-send text messages ("tweets") within a 140 character limit. These messages can then be shared ("re-tweeted") by other users. Twitter is the second largest social media network in Canada with over five million active users since 2012. Our Twitter page will be used to spread the word about the study and find out what others Twitter users are saying about it.

Creating our Twitter page

Twitter users create a "handle" or username that other Twitter users will use to send tweets. The Twitter handle for our project will be @SchoolFluShots.

An important element of Twitter is the use of hashtags, which are short words or phrases preceded by a hash symbol (#) and usually placed at the end of a tweet. Hashtags are used to track what other Twitter users are saying about a specific topic. We will use the hashtag #SchoolFluShots to track what other users are saying about our study.

Here is a picture of our Twitter page:

Bio

Users are allowed to create a brief bio of 160 characters or less. Here is our proposed bio:

Researchers launch study to find out what parents think about the advantages or disadvantages of adding flu shots to yearly immunization programs in Ontario schools.

Messaging

We reviewed the Twitter pages of similar organizations and research studies and determined that we will primarily have five types of tweets. These include:

- Recruitment updates
  For example: We just reached 200 twitter followers! Welcome @_____!
- Reminders about the study
  For example: Ontario parents: Earn a $5 amazon.ca gift card simply by completing our 10-minute online survey #SchoolFluShots
- Re-tweeting related posts from other Twitter users
- Thanking Twitter users who re-tweet us

- Responding to comments and questions from our followers

3. Social Media Site: Kijiji.ca

What is it?

Kijiji is a free classifieds website to advertise about goods and services. There are several city-specific listings pages.

When to post

Every week or as needed (if a busy page twice a week, if a slow page possibly only once during the recruitment phase)

Where to post

- Community>volunteers
- Jobs>other

The two listings above are the key listing choices of other researchers who have posted links to research studies.

41 individual cities in Ontario have their own unique Kijiji listings site. We anticipate posting at least once a week in each of these cities' listing.

Sample Posting

Are you an Ontario parent? If so, we'd like to hear from you!

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

If you are eligible and complete the survey, you will receive a $5 amazon.ca gift card.

Please click here to access the online survey.

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board (Ottawa). This study is sponsored by Public Health Ontario and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

4. Social Media Site: Craigslist.ca

What is it?

Craigslist is a free classifieds website used primarily to advertise goods and services. There are 20 Ontario city-specific listings pages, in addition to the general listings.

Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Community>Volunteers
- Jobs>Et Cetera

We will post the ad in each of the 20 Ontario cities that have a specific Craigslist listings page.

5. Social Media Site: RedFlagDeals.com

What is it?

RedFlagDeals is a website that advertises freebies, coupons and promotions from retailers in Canada. The website also includes a forum where individuals can share promotions and discuss other topics.

Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Forum>Parenting
- Forum>Freebies

6. Social Media Site: SmartCanucks.ca

What is it?

SmartCanucks is a deal listing website similar to RedFlagDeals.ca, with 26 Ontario city-specific sites. They also have a web forum where individuals can post deals and chat about general topics.

Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Forums>Paid Surveys and Mystery Shopping
- Forums>Ontario> sub forums for 26 Ontario cities

7. Recruitment Poster

Are you an Ontario parent? If so, we'd like to hear from you!

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most or jointly responsible for making health decisions for the children
- are able to speak or write in English

People who complete the screening survey will receive a $5 amazon.ca gift card.

To sign up, go to:
www.schoolflushots.ca

Email us at: info@schoolflushots.ca

Call us toll-free:
1-855-561-6891

Follow us on Twitter:
@SchoolFluShots or #schoolflushots

Follow us on Facebook at School Flu Shots – Ontario Study

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board, Ottawa. This study is sponsored by Public Health Ontario (www.oahpp.ca) and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (www.pcirn.ca).

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Parental Perceptions of School-based Influenza Immunization in Ontario Protocol

Introduction

Children are believed to be important drivers of influenza epidemics (1) and recent studies suggest that immunizing school-aged children also indirectly protects families and communities.(2-7) School-based influenza immunization (SBII) is an attractive strategy to attain high rates of immunization coverage among children, but to date, Ontario is the only Canadian province where this has been implemented and only in some public health units (PHUs). Ontario's public health services are administered by 36 PHUs. In 2010, SBII programs were offered in 4 PHUs and were previously offered but discontinued in 17 PHUs. 15 PHUs have never implemented SBII programs. Although some PHUs were not able to sustain SBII, those that implemented SBII attained higher vaccine coverage than those that did not.(8)

For the purposes of this study, we define SBII as influenza immunization delivered in schools by Ontario public health units.

Key stakeholders for the development and implementation of any school-based immunization program come from three sectors: the healthcare system; education (e.g. school boards' school administrators); and the parents of children who are targeted for program participation. If the perspectives of stakeholders are not considered in the design and implementation of a program, or in program decision making, the program may fail. The focus of this study is parental perceptions of school-based influenza immunization. Further work needs to be done to examine the perspectives of the public health and education sectors. There are no published Canadian studies of parental perceptions of SBII and only two from the United States.(9,10)

A study of parental perceptions of SBII has been funded and is in progress in Alberta, a province that does not currently employ SBII. In Alberta, unlike in Ontario, the majority of influenza immunizations are provided by public health in public health mass immunization clinics rather than by doctors in physician offices. These differences in the healthcare delivery context merit an examination of the Ontario situation. The findings of this study will inform public health policy and program managers about the potential acceptability of SBII programs and how they need to be structured for success from the perspectives of parents. Study findings will also be foundational for the development of survey instrumentation that can be used in the future to evaluate SBII programs and possibly school-based programs for delivering other vaccines designed and implemented by the public health sector.

Determinants of Immunization Acceptance

Numerous studies have examined factors associated with the acceptance of vaccines and the population coverage attained by immunization programs in developed countries, particularly focusing on the acceptance of childhood immunizations (but programs predominantly target infants and pre-school children and do not generally include influenza vaccines). Immunization acceptance can be viewed as planned behaviour, therefore the Theory of Planned Behaviour (widely used in health studies), has been used to organize the literature for this proposal. According to the theory, behavioural intention is the strongest predictor of behaviour, moderated by barriers that arise between intention and behaviour. Intention is predicted by beliefs/attitudes, social norms and perceived behavioural control.(11) This theory is particularly useful because it best predicts intention when the behaviour of interest is specified in terms of the action (i.e. behaviour may be vaccine specific) and is closely tied to context. Associations between demographic

characteristics and behavioural intentions or actual behaviour occur because those attributes are antecedent to one or more of beliefs/attitudes, social norms or perceived behavioural control, which in turn affect behavioural intention. Healthcare system attributes such as geographic or financial access to health programs mediate one or more of the relationships between intention and behaviour, or by directly influencing one or more of beliefs/attitudes, social norms or perceived behavioural control.

Immunization Decision Making

Social normative influences, including peer support, affect immunization decisions.(12) Even when parents believe that immunizations are risky, the recommendations of healthcare providers influence their decisions.(13,14) Important contextual factors include the nature of the vaccine (12,15) and the occurrence of a disease outbreak.(12) Beliefs that influence parental decision making include beliefs about vaccine safety and effectiveness, disease risk and disease severity and perceived superiority of immunity from contracting wild disease rather than from immunization.(12) Factors associated with vaccine behavior labeled as 'practicalities'(12) or as 'healthcare structural factors'(16) might be considered to be barriers or influences on perceived behavioral control as framed in the Theory of Planned Behavior. These include having a contraindication to immunization such as high fever on the planned day of immunization, direct and indirect financial costs, difficulties attending the immunization appointment due to time constraints or lack of child-care for other children, problems with transportation to the clinic or poor facilities within the clinic and finally, uncertainty about how or with whom to arrange an appointment. Barriers identified by Tickner and colleagues (17) include lack of time for working mothers, illness in the family, having other child-care commitments and inadequate healthcare professional availability to provide support. Demographic factors associated with lower vaccine uptake include lower parental income or education and higher birth order of the child (12,17) and rural versus urban residence.(16) Among adolescents (aged 11 – 18 years) in the United States, immunization barriers included: direct costs of immunizations and indirect costs (such as time lost from work or school), lack of health insurance, lack of knowledge of the need for immunizations and fear of the pain of injectable vaccines.(18) Consent and confidentiality are relatively unique barriers for youths in this age group, particularly for older adolescents. Many use healthcare services but are not allowed to provide consent for immunizations. Healthcare system barriers include lack of system-wide tracking and lack of uniformity in laws for consent or laws requiring immunization for school attendance.

Influenza Immunization

In 2005, five years after the implementation of universal public funding for influenza immunization in Ontario, only 23% of Canadian youths aged 12 – 17 years had received influenza vaccine in the prior year.(19) Reasons for not being immunized included beliefs that it was not necessary, that doctors thought it not necessary and barriers to access such as cost, lack of transportation and personal and family responsibilities.(19) Misperceptions about influenza immunization among parents of healthy young children include beliefs that children are unlikely to contract influenza, that influenza vaccine causes rather than prevents influenza infection and that immunization is unsafe for young children.(20) In a Calgary study (conducted when only children aged less than 2 years were eligible for publicly funded influenza vaccine), parents' reasons for not having their children immunized against influenza included: the perceptions that it was not necessary (i.e., their child was not at risk, or that influenza was not a severe disease); that parents lacked sufficient information to make an immunization decision; that they perceived that the vaccine was not efficacious, or was not safe; inconvenience (including timing) and cost.(21) However, the immunization decisions of parents of school-aged children are also influenced by the impact of child illness on the

parents themselves.(22) Among parents of elementary school children in the United States, those whose children had missed school in the prior year because of respiratory illness were more likely than others to indicate an intent to have their children immunized for protection against wintertime respiratory illness than other parents (OR 1.6, 95% CI 1.1to 2.2). Vaccine acceptance was also higher if parents had experienced work absenteeism to care for their sick child (OR 1.6, 95% CI 1.2 to 2.2).

A systematic review of parental beliefs and attitudes to childhood immunization found that beliefs fell into four major themes: perceptions of harms from immunization, distrust, access issues and 'other'.(23) Perceived attributes (by parents, children or schools) as well as real attributes of vaccines may be associated with children being under-immunized and/or accessing public health immunization clinics.(24,25) Key factors that affect decision making include whether or not children have older siblings (26); having at least one other household member immunized (21); parental income (27); complexity of parental work schedules; lack of transportation and difficulties in arranging child-care (28); lone parent status and type of school (elementary vs. junior/senior high).(29) Some parents do not favour school-based immunization because of a desire to be present when the children are immunized (30) or because they do not perceive that schools are good places to immunize children.(31)

Purpose

The purpose of this qualitative study is to understand the perspectives of Ontario parents regarding the advantages and disadvantages of adding influenza immunization to school-based immunization programs.

Primary Research Question

- What are parents' perspectives of school-based influenza immunization programs in Ontario?

Methods

We will use focus groups to gather qualitative data about our topic. Focus groups are facilitated group discussions that provide opportunities for different perspectives to be elicited. They provide an environment in which parents may feel safe to share beliefs that may differ from those of health professionals. They can elicit information from the interactions among parents that parents may be hesitant to provide in individual interviews and they provide an opportunity for parents to interact with each other, build upon and clarify their opinions and elicit new ideas.(32,33) Focus groups are also considered to be particularly useful to gain lay perspectives on health service issues.(34)

To facilitate the participation of individuals from diverse geographic regions, these focus groups will be conducted in two ways:

1) Via teleconference, using a toll-free line. These will comprise three to five participants and will be approximately 60 minutes in length.(35)
2) Via web-based bulletin board (hereafter referred to as Internet forums). These will also be comprised of three to five participants, although we may invite additional participants if some drop out. Participants will be expected to participate for approximately 15 minutes each day for five consecutive days.(35)

Participants will be asked to identify their preferred method of engagement when they are invited to participate in the focus group. Please see Appendix 1 for the study design flow chart.

We will conduct a pilot test of the screening survey with 10-20 parents to assess: the ease of use of the web-based platform; any technical issues; and comfort level with the questions being asked. See Appendix 4 for details of the pilot testing protocol.

Teleconference and Internet forum focus groups were chosen because Ontario is a very large province and we hope to have broad geographic representation in our study sample. Teleconference and Internet forum formats allow us to access participants from all over the province in a cost-effective manner. Additionally, our target population is parents of school-aged children and this is a demographic with busy schedules that may deter them from attending in-person group sessions. These types of focus groups allow parents the flexibility of attending from home or other convenient locations, as well as in an asynchronous manner. Finally, qualitative research experts have studied the use of various formats for focus groups and have found that they can be as successful as traditional in-person sessions.(35, 36)

The facilitator for both types of focus groups will be the research manager who is a trained facilitator with extensive experience in facilitating different types of groups. Further, an investigator with extensive experience in facilitating qualitative focus groups will observe the first few sessions (with consent from participants) to ensure that qualitative research rigour is maintained. The trained interviewer will be either Dr. Donna MacDougall, Associate Professor at St. Francis Xavier University, Dr. Margaret Russell, Associate Professor at the University of Calgary, or Dr. Anne McCarthy, Full Professor at the University of Ottawa. Dr. MacDougall and Dr. McCarthy are experienced qualitative interviewers and researchers. Dr. Russell has experience with conducting focus groups and is the Co-Principal Investigator for a similar study being conducted in Alberta.

Population and Sampling

We will use stratified, purposeful sampling,(33) and will stratify by the following two groups:

1. Parents who have ever immunized at least one child in their family against influenza
2. Parents who have never immunized a child in their family against influenza

As outlined in the background section of this protocol, we also anticipate potentially finding differences in the three groups listed below. If we find in the initial focus groups that these differences are significant, we may expand the stratification to include three focus groups in each of the identified target groups:

a) Single parents. Single parent status is associated with larger family size, lower income and transportation challenges (25% of single parents do not have a car),(37) as well as with perceptions of the acceptability of school-based immunization programs.(29)

The organization and delivery of health services may differ between rural/urban areas and rural/urban differences in vaccine uptake (influenza and other vaccines) have been observed.(16,38)

b) Parents residing in urban areas.
c) Parents residing in rural areas

Once the survey is opened to the public for the first time, each person who completes the full screening survey will be given a $5 amazon.ca gift card. However, if the survey needs to be opened again for sample size purposes, we will not include mention or provision of gift certificates, in order to avoid an influx of responses; however, if after a reasonable amount of time, we still have not reached our sample size, we will include the incentive again. Each focus group participant will be provided with a $25 Chapter's Gift Card in recognition of their contribution.

The number of focus groups required to attain theme saturation – the point where no new information is obtained (39) may vary, but a minimum of three groups per stratum is recommended.(35,40) The recommended number of persons for inclusion in a teleconference focus group is five.(35) We will also invite five participants (more if some drop out) to participate in Internet forum focus groups. At the time of screening, we will ask participants about their preferred method of engagement; will conduct the two types of focus groups (Teleconference and Internet forum) concurrently, and will continue until theme saturation is reached. We anticipate having a minimum of three focus groups for each of the two populations (parents who have never had their child immunized and parents who have had at least one child immunized)

Recruitment

Recruitment will be based on several web-based methods and traditional approaches. Web-based methods include utilizing popular social media sites (Facebook, Twitter), classified advertisements websites (Kijiji, Craigslist), deal forum websites (RedFlagDeals, Smart Canucks), email lists (Ontario Health Study participants), website links on various healthcare organization's websites (Public Health Ontario, public health units). We will also reach out to parents using professional networks, including the community health centre and pediatric hospital networks. We may vary the approaches depending on the level of response and outcome achieved.

The first round of focus groups will consist of one teleconference and Internet forum group for each of the two stratified groups (parents with at least one child immunized against influenza, parents with no children immunized against influenza). When we have sufficient eligible participants, we will randomize the participants. Randomization helps ensure a nonbiased cross-section, essentially giving everyone in the pool an equal chance of selection. Randomization is an effective strategy to minimize selection bias. A systematic random sampling strategy will be used to allocate participants to a stratified focus group.(35) We will inform all participants completing the screening survey that they will be randomly selected to participate in a focus group, from among all eligible participants. Once the analysis for this round of focus groups is complete, we will then continue to recruit and randomize until theme saturation is reached. Please see Appendix 7 for additional details of the recruitment strategies.

Systematic Random Sampling

We will be randomly selecting participants for the four types of focus groups at least three times. We will conduct one round of focus groups, do the analysis, make changes and then go on to the next round of focus groups.

We anticipate having more parents complete the screening survey than are needed for the focus group. The size for each focus group is five.

The four types of focus groups are:

Group 1: Parents with at least one child immunized in the past – teleconference focus group
Group 2: Parents with at least one child immunized in the past – Internet forum focus group
Group 3: Parents with no child immunized in the past – teleconference focus group
Group 4: Parents with no child immunized in the past – Internet forum focus group

Step One

We will separate the respondents into their respective groups sorted by the date they completed the survey, starting with the earliest, who will become participant number one. We will then use a systemic random sampling method to select the focus group members. **If we do not have sufficient sample size for one of the focus group methods (teleconference or internet forum), we will contact those respondents who wished to participate using the more popular method and ask if they would consider the alternate format instead.. We will contact the respondents by their preferred mode of contact (telephone or email), and will only ask once; if they do not wish to switch formats, we will keep them in their preferred group.**

For the teleconference focus groups, we will further stratify by time of day they selected to complete the teleconference focus group.

Step Two

The N (sample size) needed for each focus group is five. If we assume 100 participants are available to be sampled, the want sample size (n) =5. The sampling fraction would be f = 5/100 = 5%. In this example, the interval size (k) is equal to N/n = 100/20 = 5.

We would then select a random integer from 1 to 20. As an example, we would choose 4. So, we would go down the list starting with participant number 1, and would take every 5th participant (choosing participant 4, 24, 44, etc.). We will end up with five randomly selected participants for the focus group.

The systematic random sampling method has been chosen as it allows for fluctuations in group size, while ensuring the participants chosen for the focus groups will be randomly selected.(41)

Evaluation of Recruitment Strategies

Depending on the type of recruitment method, we will use various criteria to evaluate the effectiveness of our recruitment strategies (see Table for measures/outcomes). See Appendix 5 for more information on the types of recruitment strategies being used.

Screening

Screening will be done using web-forms, although PDFs will be available for those who prefer providing information by email, fax or mail. Parents who contact the researchers will be screened for eligibility and for attributes permitting those eligible to be invited to participate in one of the two focus group types. Screening will be done to ensure the potential participants have at least one school-aged child and to ensure they have the attributes permitting allocation to specific focus groups (Appendix 2). Once participants are considered to be eligible, the study will be explained to them and they will provide implied consent by

continuing through the screening process. Once they give consent, we will collect the necessary demographic and contact information that will allow us to set up the focus group sessions to ensure maximum participation.

Data Collection –Teleconference Focus Groups

Two research staff will "attend" each focus group: a trained facilitator and a trained research assistant. With the permission of the participants in the teleconference focus groups, the discussions will be recorded for later transcription and the information they provide will be used for analysis. A senior qualitative researcher will attend the first few sessions to ensure qualitative research rigour is maintained.

An open-ended semi-structured interview guide will be used to provide structure to the discussion. Semi-structured guides provide a sequence of themes to be covered in an interview and suggested questions,(42) but are used with openness to change the form of the questions so the interviewer can follow-up on answers and stories being told by interviewees. Question probes are provided to help the interviewer probe deeper into an interviewee's stories (Appendix 3). Recordings will be transcribed immediately after each Teleconference interview and analysis will begin following receipt of each transcript, thus an iterative process of data collection and analysis will occur.

Data collection – Internet Forum Focus Groups

Data collection in the Internet forum focus groups will be done by participants agreeing in advance to participate in an asynchronous electronic discussion over the course of five consecutive days. Participants agree to sign in each day and check the Internet forum, read the question(s) for the day and check the comments of other participants to formulate their responses. We anticipate participants will spend approximately 15 minutes each day providing their comments and responses. We will not be monitoring the amount of time spent by participants on the Internet forum. They will be informed that the data collected in this manner will be used for analysis.(35) Again, a senior qualitative researcher as outlined above may monitor the first few sessions to ensure qualitative research rigour is maintained.

The questions will follow the same approach outlined above for the teleconference focus groups. The facilitator will post a question or series of questions each day and will ensure the participants follow a structured sequence or path of inquiry.(35) Analysis will be done immediately after each focus group, allowing the desired iterative process of data collection and analysis.

Analysis

Focus group data will be analyzed using Grounded Theory as the theoretical framework, utilizing a constant comparative process. We will conduct a quantitative analysis of the social media strategies used for recruitment. The Teleconference interview, Internet forum and field note text will be imported into NVivo™ software to aid in data organization, review, coding and analysis and to facilitate an exploration of trends and themes that emerge from the data. Data will be analyzed and themes elicited within and across Teleconference interviews and Internet forum discussions. The thematic approach to analysis involves a process of initially reading each transcript to get an overall sense of the data; then reading and re-reading the data (in this case using NVivo™ as a coding tool) to identify major topics or issues in the data. This process of identifying topics will initially be done by at least two team members. Once a Teleconference interview or Internet forum discussion has been coded, the working group will review the results to ensure

that both clinical and methodological perspectives are brought to the analysis. The process of coding will also involve discussions of the issues identified in the data and is iterative, adding new Teleconference interview/Internet forum discussion data as it is received.

Should questions arise around the issues identified during this process we will probe the issues further in subsequent focus groups for elaboration or clarification. As the data analysis moves to the analytic level relationships among the themes and issues will be identified and tested in a process that documents these contexts and contingencies. Coding is a procedure that disaggregates data to manageable segments, provides identifiers for those segments and following segment-comparing, allows researchers to sort data into useful categories.(43) Consensus decision-making will be used when needed to arrive at mutually agreed-upon coding.

Both direct interpretation of unique instances and "aggregation of instances until something can be said about them as a class" (categorical aggregation)(44) will be employed in the analysis. Themes are "common threads that run though the data"(45) and are identified as the relationships among categories become clear in the analysis. Themes will be identified by looking for patterns within the data, but also in an iterative process by going back and forth between looking at the data as a whole and returning to parts within the data. The expected outcomes will be an understanding of parental perspectives (advantages and potential barriers) on adding annual influenza immunization to currently offered school-based immunization programs. These outcomes will provide important information to inform policy and program action as we anticipate we will understand how best to position school-based influenza immunizations programs to be successful, from the perspective of parents.

The research team will meet regularly to discuss and agree upon the evolving data coding and analysis. We will use a structured codebook approach (46) to document codebook development and thematic prevalence monitored through the use of 'saturation tables' (39) to provide an audit trail for the establishment of data redundancy.

In addition to the above, we will use the NCapture feature of NVivo 10 (the qualitative software package being used to analyze the results) to capture public information from Facebook and twitter feeds. If there is sufficient interesting data that might be linked to geographic location, particularly in considering urban/rural split, we would use the public profile information to ask the person if they would share their location with us. This will assist in the analysis of this information.

Evaluation of Recruitment Strategies

On the screening survey, we will have a question to determine how participants first heard about the survey. Options include 1) Facebook, 2), Twitter, 3) Craigslist, 4) Kijiji, 5) RedFlagDeals, 6), Smart Canucks, 7) Website (please specify), 8) Email list (please specify), 9) Newsletter 10) Public health website or poster; 11) Community health centre (website or poster, please specify) 12) Word of mouth; 13) Friend or family, 14) Other (please specify) and 15) Prefer not to answer. Participants cannot provide more than one answer to this question. From these responses, we will track the proportion of participants by recruitment method that met the criteria for the screening survey and completed the entire screening survey. We will also compare the total cost per participant by each method for a completed survey (i.e., cost effectiveness). This will be calculated by totaling all the recruitment costs before and during the campaign for a specific method and dividing by the number of participants who completed the survey, attributable to that method. We will also compare the total time per participant by each method for a

completed survey (i.e., efficiency). This will be calculated by totaling all the times involved in labour before and during the campaign for a specific method and dividing by the number of participants who completed the survey, attributable to that method. Lastly, we will compare the demographic characteristics and immunization behaviours of participants who completed the survey by each recruitment method.

Rigour

Qualitative methodological rigour will be assessed through trustworthiness (47); criteria include assessments of credibility, transferability (see below); dependability and confirmability. Credibility (similar to internal validity) refers to the fit between the respondents' (i.e., interviewees') views and the researchers' interpretations and representation of same. Dependability refers to the researchers' responsibility for ensuring the research process was logical, traceable and documented. Confirmability establishes rigour through linking findings and interpretations across data sources in readily discernible ways.(43) Triangulation using multiple sources of data (including Teleconference interviews, Internet forum discussion data, survey data, field notes and local documents) and multiple researchers to clarify meanings and verify team members' interpretations of data (48) contributes to the trustworthiness of the findings.

The purpose of this study is to gain insight into parents' perspectives on school-based influenza immunization (SBII) programs in Ontario. To do this we must successfully recruit focus group participants and attain data redundancy in the analysis of data obtained from the Teleconference interviews or Internet forum discussions. To achieve transferability of findings we must describe Ontario immunization programs as well as the study participants so that research users can assess the usefulness of study findings for their contexts. Thus the indicators of achievement of project purpose will be the number of Teleconference interviews/Internet forums held compared to those planned (according to the criteria presented in the sample size section above); the mean number of participants per interview or discussion thread; and assessment of attainment of data redundancy (in the tables themes generated from participants). Finally it will include the reporting of data on the attributes of persons who respond to our invitations to participate compared to those who actually participate in the interviews (i.e. rural/urban residence, age group, sex, educational attainment, lone parent status, ethnicity, number and grade distribution of their children and influenza immunization status of the children in the participant families).

Strengths and Limitations

The strengths of this study include the use of rigorous qualitative methods, the multidisciplinary team and the use of multiple types of data (Teleconference interview transcripts, Internet forum discussions and field notes). The investigators include experts in qualitative methodology, team members from different health disciplines and medicine.

It is possible that data redundancy may not be attained within each stratum.(35) However, even in the absence of data redundancy, the information gathered will be useful to immunization program planners who may be able to transfer some of the insights to school-based immunization programs for vaccines other than for influenza, or to include information from identified themes that were not captured in the published literature in any future surveys that might be done as part of evaluations of immunization programs.

Confidentiality

Participants will be informed that the data collected will be kept confidential. Further, participants in the teleconference focus groups will be informed that the interviews will be recorded and the transcripts of the conversations will be used for analysis, although the participants will not be identified by name in the transcript. Participants in the Internet forum groups will be informed that the data collected will be identifiable by a name they choose at screening. They will have the choice of using their own first name or a nickname. All the information they provide electronically will be collected and used for analysis. Identifying information will be stripped from the electronic data once the focus group is completed and the data is downloaded onto the researchers secure servers.

Security

The data collected will be kept on password protected, secure servers at the Bruyère Research Institute. Only the research team members involved in conducting the Teleconference interviews will have access to participant names. Only research team members involved in the analysis will have access to the anonymized data. Paper copies of the transcripts, forms and master code list with participant names will be kept in secure file cabinets in locked offices.

The survey software used for the screening survey is FluidSurveys, a Canadian company with the servers located in Canada. See Appendix 6 for the FluidSurveys privacy policy. The survey data will use SSL encryption, which is the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.

The Internet forum program used to facilitate the Internet forum discussions will be selected for its i) level of data protection; and ii) secure data storage. The Internet forum data will not be encrypted, because we could not find forum software that has this level of security. However, we have chosen a software package (Simple Machines Forum software) that has the most secure system available. It should be noted that we will not ask for any personal information, other than a nickname, for the Internet forum. In addition, the forum software selected includes several security features:

1. Users who click on the link to register to the forum will be asked to provide a username, email address and password. They will also be asked to complete a visual verification test (this prevents spam in the forum). Visual verification is when a user is asked to type in text that is distorted slightly so robot machines cannot spam the registration process. Users will then be asked to read and agree to the forum's rules (see below). Users must click "I agree" before they can register.

2. Once the user has completed the registration fields and clicks on the "register" button, they will receive an automatic email notification to the email address they provided. This email will confirm their username and password, and notify them that their account will need to be approved by an administrator (study staff) before being activated.

3. The administrator will receive a notification that a new member would like to join the forum and that they require approval. The approval process has two steps:

    a. The administrator will first check that the email address of the prospective member appears on the list of users who have been invited to participate in a focus group. Only users who have been invited will be granted access to the forum. Users who have not been invited to participate in a focus group will be rejected.
    b. Once the user has been confirmed as an invited focus group participant, the administrator will assign the user to a "member group". The user will receive an email notifying them that their account has been activated. The user will then be able to log in to the forum and participate in their assigned member group.

The term "member groups" refers to groups of members that have similar permission settings and access rights on the forum. A unique member group will be assigned for each online focus group we hold (For example, Focus Group A, Focus Group B, etc.). The settings of the member groups will make it so that members will only have access to their corresponding forum discussion thread. For example, members of

the member group titled “Focus Group A” will only have access to the “Focus Group A” discussion board and will not be able to see the “Focus Group B” discussion board or any others. Participants from two different focus groups will never be able to interact with each other.

Any users visiting the forum page who are not logged in will not be able to see any of the discussion in the member groups.

Identifiable Information

We will ask for the minimal personal information about participants, including their name, contact information (phone number, email address, web access information); location (i.e. city or town); and the number and ages of their children (See Appendix 2 for details on the Screening Survey) For those participants completing the focus groups, we will also ask for their mailing address so we can mail the Chapter’s Gift Card to them at the end of the focus group. All information will be kept confidential, but not anonymous, until after the study is complete and the data retention period of five years has expired. The master code list will be kept by the research staff in a separate file and the researchers will not have access to the master code list. By using electronic data collection for both recruitment and for the Internet forum focus groups, there is a risk that the data could be linked to an individual, although every effort will be used to ensure this does not happen, including having separate forms for screening, using SSL level encryption for the screening survey and then assigning a code (or allowing the participant to choose a nickname for the Internet forum or teleconference focus group). Only the research staff will have access to the identity of the participants and this information will be kept on a secure server located at the Bruyère Research Institute or in a paper file kept in a secure office behind locked doors.

Data Retention

Once the survey is closed, the data will be downloaded from the FluidSurveys site and kept on password protected servers at the Bruyère Research Institute or Public Health Ontario. The study records will be kept for five years after termination of the study. Paper documents will be shredded and electronic files deleted

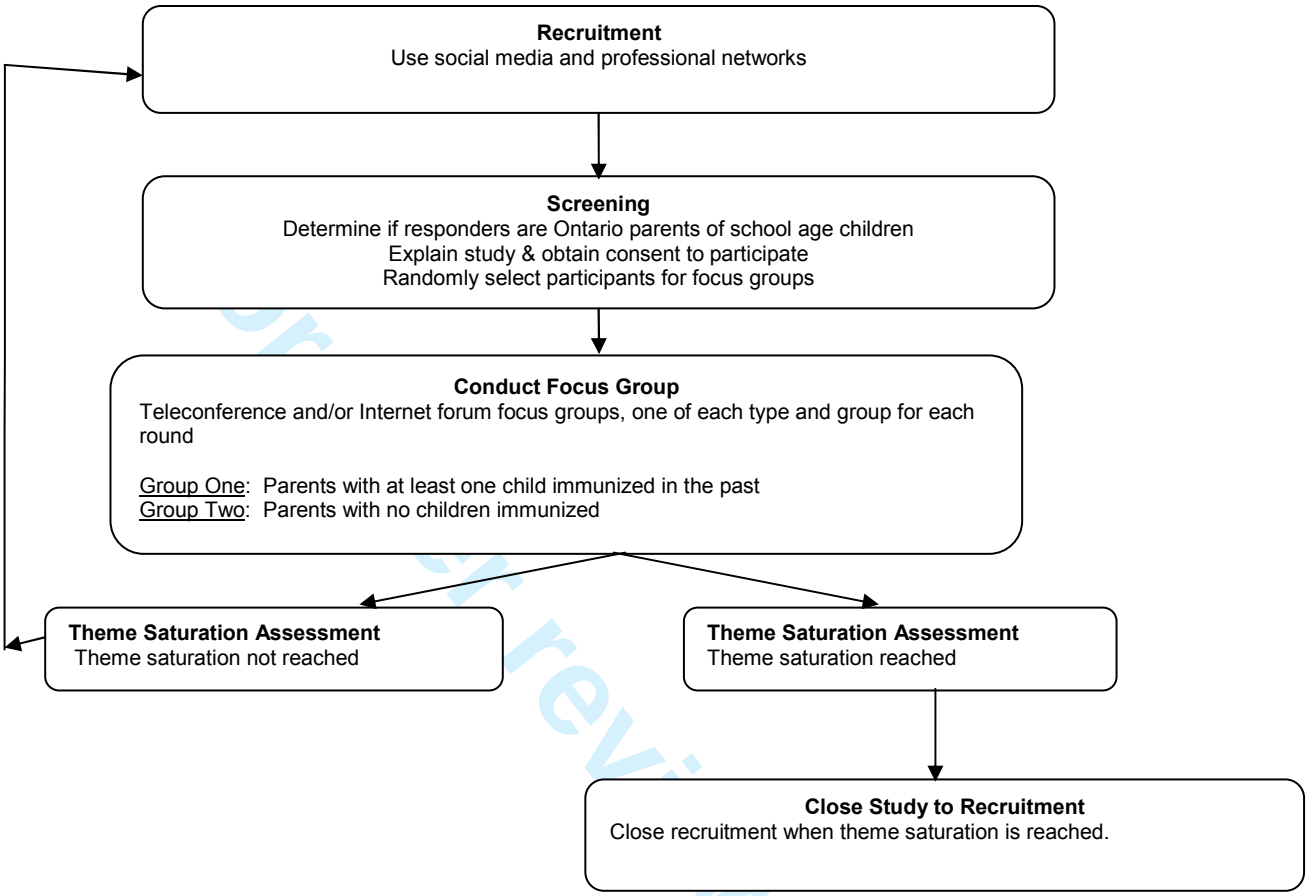
Audits

The organizations that may audit study records include the Bruyère Continuing Care Research Ethics Board, the University of Toronto Health Sciences Research Ethics Board, the Public Health Agency of Canada, the Canadian Institutes of Health Research or the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

Dissemination

A scientific synthesis report and extended executive summary will be distributed to funders as well as to other relevant agencies with an interest in this issue. Articles will be submitted for publication in peer-reviewed journals. The research will also be disseminated through academic and professional forums such as conferences on immunization, school health or public policy. A summary report suitable for lay review will be prepared. Participants will be contacted and informed on the ways to access the report, which will be made available using the on-line resources developed throughout the study.

Appendix 1
Study Design Flow Chart



Appendix 2
Web-based Screening Survey, FAQs and Participant Correspondence

First Eligibility Screen

Participants will be asked the first six questions as step one of the screening process, to determine eligibility. No incentive will be offered for this portion.

Welcome to the "**School Flu Shots Study"** screening survey.

A team of researchers would like to find out what Ontario parents think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

The purpose of this screening survey is to determine if you are eligible to participate in the focus groups (held at a later date) where we will discuss these issues in detail. We are conducting this study to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most or jointly responsible for making health decisions for the children
- are able to speak or write in English

For this study, we are asking Ontario parents for their opinions. It does not matter if you have had your child immunized or not. It is important that you are interested in sharing your thoughts about the advantages and disadvantages of adding influenza immunization (flu shots) to existing immunization programs in Ontario schools.

There are two parts to this screening survey:

1. Part one has six questions that will help us determine if you are eligible. This will take 1 to 2 minutes to complete.

2. Part two has additional questions to see if you qualify to take part in a group discussion (by teleconference or on-line) at a later date. This will take about 5 to 10 minutes to complete. If you complete both parts one and two, you will receive a $5 amazon.ca gift card as a thank you for your time. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

From the completed screening surveys, about 60 people will be invited to take part in different group discussions (focus groups) involving three to five people at a time. The discussions will take place by teleconference or online, and are described in more detail at the end of the survey.

Participation in this study is voluntary. If you choose to complete the screening survey you may skip questions or stop participating at any time. If you are invited to be in the focus group you may choose not to participate.

If you take part and change your mind you may ask us to remove your name at any time and we will not contact you any further. We will continue to keep and use the information you provided. This information is not linked to any personal information you may provide.

Only the researchers directly involved in managing the study will see your personal information. All information will be kept confidential. Any data will be reported only on a group basis. You give your consent to participate by completing this survey.

If you have questions about your rights as a research participant you may contact the University of Toronto's Health Sciences Research Ethics Board (ethics.review@utoronto.ca, 416-946-3273) or the Bruyère Continuing Care Research Ethics Board (613-562-6262, Ext. 1370). This study is sponsored by Public Health Ontario (www.oahpp.ca) and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (www.pcirn.ca).

It is important that you take the time to learn about what is involved in the study and to ask any questions you might have. Click here (*link to the 'About the Study' page'*) for more information about this study.

If you have trouble accessing the survey or for more information, you can email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

Do you agree to continue?

- ☐ Yes
- ☐ No

Part One

1. Do you live in Ontario?

   - ☐ Yes
   - ☐ No

2. Do you have a child who attends school in Ontario (kindergarten or Grades 1 to 12)?

   - ☐ Yes
   - ☐ No

3. Are you the person who usually makes the immunization decisions for your children?

   - ☐ Yes
   - ☐ No
   - ☐ It's usually a joint decision

4. How did you first hear about this study (please check one)?

- ☐ Facebook
- ☐ Twitter
- ☐ Craigslist
- ☐ Kijiji
- ☐ RedFlagDeals
- ☐ Smart Canucks
- ☐ Website (please specify)
- ☐ Email list (please specify)
- ☐ Newsletter (please specify)
- ☐ Public health website or poster
- ☐ Community health centre (website or poster, please specify)
- ☐ Word of mouth
- ☐ Friend or family
- ☐ Other (please specify _____)
- ☐ Prefer not to answer

5. Are you comfortable speaking in English?

- ☐ Yes
- ☐ No

6. Are you comfortable writing in English?

- ☐ Yes
- ☐ No

If they answer no to these first questions, they will be directed to this screen:

> To participate in the study, you must live in Ontario, have at least one child in school, be mostly or jointly responsible for making the immunization decisions for their children and be comfortable speaking or writing in English.
>
> We thank you for your interest in our research study. You may contact us at info@schoolflushots.ca or toll-free at 1-855-561-6891 if you have any questions.

If they answer yes to the first six questions, they will be directed to part two of the screening survey:

Screening Survey

These first few paragraphs below will be on the welcome screen of the survey, which will be set up using FluidSurveys software. The FAQ section will be available as a downloadable PDF, as FluidSurveys does not have the capacity to embed hyperlinks.

Welcome Screen

By completing this part of the screening survey, we will be able to know if you are eligible for participation in study focus groups, which will be scheduled in the next month or so.

This section of the survey should take about 10 minutes to complete. Completion of this survey is voluntary and you may stop at any time without penalty.

To download a copy of the survey, click here. You may print this survey and email it to us at info@schoolflushots.ca or fax it to Lois Crowe at 613-562-4266.

For more information, you can email us anytime at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

Do you agree to continue?

- ☐ Yes
- ☐ No

1. How many children do you have:

   - ☐ In kindergarten _____
   - ☐ In grades 1 to 6 _____
   - ☐ In grades 7 & 8 _____
   - ☐ In grades 9 to 12 _____

2. Have you ever had the flu shot?

   - ☐ Yes
   - ☐ No
   - ☐ Don't remember
   - ☐ Prefer not to answer

3. Have any of your children ever had the flu shot?

   - ☐ Yes
   - ☐ No
   - ☐ Don't remember
   - ☐ Prefer not to answer

We would now like to ask a few questions that will help us get to know you a bit better, which will help us to plan the focus group sessions.

4. In order to better plan the focus groups, we would like to know the first three digits of your postal code. This will let us know in which region of the province you live.

___ ___ ___

☐ Prefer not to answer

5. Are you

☐ Female
☐ Male
☐ Prefer not to answer

6. How old are you?

☐ Younger than 20 years
☐ 20 – 29 years
☐ 30 – 39 years
☐ 40 years or older
☐ Prefer not to answer

7. What is the highest level of schooling you completed (please check only one)?

☐ Some high school
☐ High school, including equivalencies like GED
☐ College
☐ University (please specify highest level reached_____)
☐ Other, please specify
☐ Prefer not to answer

8. Are you a single parent?

☐ Yes
☐ No
☐ Prefer not to answer

9. Do you consider yourself to be…(please check only one)

☐ White
☐ Aboriginal Peoples of North America (e.g., North American Indian, Métis, Inuit/Eskimo)
☐ Chinese
☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan)
☐ Black
☐ Filipino

- ☐ Latin American
- ☐ Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)
- ☐ Arab (e.g., Egyptian, Lebanese)
- ☐ West Asian (e.g., Afghani, Iranian)
- ☐ Japanese
- ☐ Korean
- ☐ Mixed
- ☐ Other (please specify) _____
- ☐ Prefer not to answer

We will be holding focus groups to discuss the advantages and disadvantages of adding flu shots to existing immunization programs in Ontario schools over the next few weeks. These will be done over the phone (a single 1-hour session) or through an Internet forum (about 15 minutes per day for five days in a row). Participants will receive a Chapters gift card as a thank you for participating.

10. Are you interested in participating in a focus group in a few weeks?

- ☐ Yes
- ☐ No

If no:

We thank you for taking the time to complete the screening survey. Please click here to receive your amazon.ca gift card. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

If yes:

Thank you for agreeing to consider participating in a focus group. We need to ask for some personal information in order to contact you to arrange for your participation in a focus group, which will be held at a later date.

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey responses, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The databases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.

4. Once the survey is closed, the electronic information will be stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Participating in a focus group is voluntary and you can withdraw your permission at any time.

If you are able to participate in the focus group, which type of focus group would you prefer?

- ☐ Teleconference (will take one hour on the phone)
- ☐ Internet forum (on-line) (will take about 15 minutes a day for five days in a row)
- ☐ Either
- ☐ Would prefer not to participate *(redirect them to thank you screen and amazon.ca link*) **(We will remove the amazon.ca link if we open the survey a second time but may include it again if we deem it necessary to offer gift cards again, depending on response rate).**

If they select teleconference

What is your name?

First: Last _____

What is the best phone number to use to contact you?

_____

What is the best email address to use to contact you?

_____

What day of the week is best? Please check as many as apply.

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday
- ☐ Sunday

What time of day is best to reach you by phone? Please check as many as apply.

- ☐ 7:00 a.m. – 9:00 a.m.
- ☐ 9:00 a.m. – 11:00 a.m.
- ☐ 11:00 a.m. – 1:00 p.m.

- ☐ 1:00 p.m. – 3:00 p.m.
- ☐ 3:00 p.m. – 5:00 p.m.
- ☐ 5:00 p.m. – 7:00 p.m.
- ☐ 7:00 p.m. – 9:00 p.m.
- ☐ 9:00 p.m. – 10:00 p.m.
- ☐ Other (please specify)

If they select Internet forum

What is the best way to contact you?

- ☐ By email (please provide email address)
- ☐ By phone (please provide number)
- ☐ Other (please provide details)

After the above sections are complete

Please click here to receive your amazon.ca gift certificate as a thank you for completing the screening survey. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

We will be randomly selecting people (like picking names from a hat) who are eligible to participate in the focus group. We will contact you if you are selected to see if you are interested in continuing in the study. If you are not selected, your participation in the study is complete.

Everyone who participates in and completes a focus group will receive a Chapters gift card as a thank you.

Please feel free to contact us at info@schoolflushots.ca or toll-free at 1-855-561-6891 if you have any questions.

FAQ / Consent Info

(Note: the headers in blue in this section will be links that the participants can click on. This will avoid having a lot of text on the web page)

What is the purpose of this study?

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

Understanding what parents think about this issue is important.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

Who can participate?

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

For this study, we are asking all parents for your opinions. It does not matter if you have had your child immunized or not. It is important that you are interested in sharing your thoughts about the advantages and disadvantages of adding influenza immunization (flu shots) in Ontario schools.

Who is a parent?

In this study, we define "parent" as any person who has the legal responsibility for at least one child. This includes biological parents, adoptive parents, step-parents, or legal guardians of a child.

How will my personal information be protected?

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey data, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The databases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.
4. Once the survey is closed, the electronic information will be stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Are there things I can do to keep my information safe?

Definitely. While we do everything we can, protecting your information is a joint effort. Some basic online safety tips include never divulging your log-in password and shutting down your Internet browser after

completing the survey or updating your account information, especially if you are using a public computer. The following are some useful websites for learning more about online safety: Office of the Privacy Commissioner of Canada, Public Safety Canada, Microsoft, Apple and Stay Safe Online. *(NB: We will have embedded links to these websites)*

Will I be added to any other mailing lists if I choose to participate?

No. We are committed to protecting your privacy and confidentiality. We will not sell or give away your contact information, including your email address.

What are focus groups?

Focus groups are a way to gather people together in a carefully planned series of discussions designed to have conversations about a topic in a permissive, non-threatening environment. In this study, we are planning two types of focus groups, teleconference (one hour conversation over the phone) and Internet forum (about 15 minutes a day on-line for five days in a row).

Teleconference focus groups

In these focus groups, we will invite five parents to participate in a one-hour teleconference focus group. There will be a facilitator present to help make sure everyone has the chance to be heard. These conversations will be recorded and the anonymous transcripts will be used to analyze the conversations.

Internet forum focus groups

Internet forum focus groups are on-line forums. We will ask participants to check in every day for five days in a row and join the discussion on a question(s) posted each day. We expect that it will take about 15 minutes every day. This information will be collected and analyzed anonymously.

Who is paying for the study?

This research is funded by the Canadian Institutes of Health Research, the department of the federal government responsible for funding health-related research, and the Public Health Agency of Canada.

How do I withdraw from the study?

You may ask us to remove your name at any time and we will not contact you any further. We will continue to keep and use the information you provided. This information is not linked to any personal information you may provide.

If you have any questions, please contact us toll-free at 1-855-561-6891 or by email at info@schoolflushots.ca.

Who are the researchers?

This research is being conducted by researchers with the Public Health Agency of Canada / Canadian Institutes of Health Research Influenza Research Network (PCIRN), Program Delivery and Evaluation Group. We have not accepted any funds or in-kind services from any drug or pharmaceutical company. Please click here for information about PCIRN.

This study is being sponsored by Public Health Ontario. Public Health Ontario (PHO) is an arm's length government agency dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Please click here for more information about Public Health Ontario.

Researchers

The research is being led by Dr. Jeffrey Kwong, a family physician and public health researcher at the University of Toronto and Dr. Margaret Russell, a public health researcher at the University of Calgary, in Calgary, AB.

Other researcher team members are: *(people will be able to click on the name to get directed to the bio)*

Ms. Beth Halperin, nursing professor in Halifax, NS
Dr. Donna MacDougall, nursing professor in Antigonish, NS
Dr. Anne McCarthy, infectious disease physician in Ottawa, ON
Dr. Marina Salvadori, pediatrician in London, ON
Dr. Doug Sider, public health physician in Toronto, ON
Dr. Anne Wormsbecker, pediatrician in Toronto, ON

Team Members

Lois Crowe, research manager in Ottawa, ON
Jennifer Pereira, research associate in Toronto, ON
Susan Quach, research associate in Toronto, ON
Sherman Quan, research associate in Toronto, ON
Hilary Ramsay, research assistant in Ottawa, ON

What steps have been taken to ensure that the School Flu Shots Study is performed ethically?

The School Flu Shots Study was granted approval by the Research Ethics Board at the University of Toronto and Bruyère Continuing Care Research Ethics Board (Ottawa). This approval must be renewed on a yearly basis through a renewal application that is submitted by the study team. The Research Ethics Board approves all aspects of the research study and ensures that it meets the required ethical criteria. The Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

If you have questions about any ethical aspect of this study or your rights as a study participant, you may contact:

- Office of Research Ethics at the University of Toronto at ethics.review@utoronto.ca or (416) 946-3273.
- Chair, Bruyère Continuing Care Research Ethics Board, 613-562-6262, Ext. 1370.

Who do I contact if I have questions about the study?

For questions about the study, email info@schoolflushots.ca. You can also leave a phone message toll-free at 1-855-561-6891.

Facebook link
Twitter link

Who do I contact if I have questions about influenza or influenza immunization in schools?

If you have any concerns or questions about influenza immunization, please click on the links below:

Public Health Ontario
http://www.oahpp.ca/resources/flubulletin.html

Ontario Ministry of Health and Long-Term Care
http://www.health.gov.on.ca/en/public/programs/publichealth/flu/

Public Health Agency of Canada
http://www.phac-aspc.gc.ca/im/index-eng.php

Immunize Canada
http://immunize.ca/en/diseases-vaccines/influenza.aspx

Will I be paid?

- To participate in the study, you must live in Ontario, have at least one child in school, be the primary or joint decision maker for your child's health and be comfortable speaking or writing in English. If you are eligible and complete the screening survey, you will receive a $5 amazon.ca gift card. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**
- Parents who choose to participate in a focus group will receive a Chapters gift card.

How long will the screening survey take?

There are two parts to this screening survey:

1) Part one has six questions that will help us determine if you are eligible. This will take 1 to 2 minutes to complete.

2) Part two has additional questions to see if you qualify to take part in a group discussion (by teleconference or on-line) at a later date. This will take about 5 to 10 minutes to complete. If you complete parts one and two, you will receive a $5 amazon.ca gift card as a thank you for your time. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

From the completed full surveys, about 60 people will be invited to take part in different group discussions (focus groups) involving three to five people at a time. The discussions will take place by teleconference or online, and are described in more detail at the end of the survey.

Email to Ask Those in Internet Forum Focus Group if They Would Like to Switch to Teleconference Focus Group (sent from info@schoolflushots.ca)

Recently, you completed an online screening survey to determine if you were eligible to participate in a focus group about the advantages and disadvantages of adding flu shots to immunization programs in Ontario schools.

This email is to ask whether you would be willing to participate in a focus group vial teleconference instead. I will be the moderator for the teleconference, and it will last approximately one hour. Please let me know whether this would be acceptable to you. If so, we will send you more information shortly, including the toll-free telephone number. If we don't hear back from you by (insert date), we will assume that you would like to participate by internet forum, as originally stated.

For more information about the study click here (*link to study website*). If you have any questions please email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

We thank you for your interest in this study.

Lois Crowe,
Research Manager.

Internet Forum Focus Group Invitation Email (sent from info@schoolflushots.ca)

Recently, you completed an online screening survey to determine if you were eligible to participate in a focus group about the advantages and disadvantages of adding flu shots to immunization programs in Ontario schools.

This email is to notify you that you have been selected to participate in an online focus group that will be held from (insert date) to (insert date).

If you choose to participate, you will be asked to spend about 15 minutes each day for 5 days in a row to respond to questions posted on the Internet forum and discuss with other participants. As a thank you for completing the five days on the forum, we will send you a Chapters gift card.

If you are still interested in participating, we would like to invite you to click on the link below to create an account for the online forum.

Click here to register.

You will be asked to create a username and password. (We recommend choosing a username that does not reveal any personal information). You will also be required to agree to the forum rules. Once your account has been approved by an administrator, you will receive an email confirming your account details.

A list of the questions we'll be asking during the focus group will be emailed to you shortly, as well as more information about the forum.

If you are no longer interested in participating or are unable to participate, please let us know by responding to this email. If we have not heard back from you by (insert date) we will assume you are not interested and will not contact you again.

For more information about the study click here (*link to study website*). If you have any questions please email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

We thank you for your interest in this study

Lois Crowe,
Research Manager.

Welcome Email after registering for the Internet forum (invite sent from info@schoolflushots.ca)

Thank you for agreeing to participate in the forum.

As a reminder, by joining the Internet forum, you are agreeing to spend about 15 minutes each day for five days in a row answering questions and participating in group discussions.

Here are a few things to keep in mind before the focus group begins:

Everyone's opinion counts and everyone has the right to be heard, even if you don't agree with what others are saying. There are no right or wrong answers. You can share your own thoughts, agree or disagree with others, bring out a new point of view, or add onto or build upon each other's thoughts that come out in our discussion. You can answer the questions posed by the moderator, or engage in conversations with others on the forum. We want everyone to feel free to join the conversation.

In these discussions, it is important to consider that the discussions are not about whether or not influenza immunization is a good thing or a bad thing, whether kids should be immunized or about how vaccines are made. Our focus is on what you think are the advantages and disadvantages of having a yearly flu shot added to the other immunization programs already delivered in schools.

The team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school. Understanding what parents think about this issue is important.

If you are not familiar with Internet forums or how to navigate them, please click here for a detailed explanation (*link to Help page on the forum*).

We encourage everyone to express their opinions, but please treat everyone on the forum with respect. Here are some "netiquette" guidelines.

- Avoid typing in all caps or all bold, as this is the equivalent to yelling on an Internet forum.
- Read all of the posts in the thread before posting. This will help forum participants avoid repeating points that have already been discussed in depth.
- Do not "hijack" the forum discussion. Stay on topic and avoid directing the discussion away from the current line of conversation.
- Avoid negative remarks about fellow forum participants
- Use emoticons and other symbols to indicate tone. When posting on an Internet forum, there is an absence of indicators that help one to decipher tone and the forum poster's intention. In the absence of valuable voice tone, body language, facial expressions and other social cues, emoticons and symbols (smiley face, or "*smile*") can help make tone and intention clear to other forum participants.
- Remember that what you learn in the forum, stays in the forum. The stories you hear and discussions you participate in should only be shared with the moderators and other forum members. To protect everyone's privacy, it is important that you remember that what you hear is confidential.

Please note that the moderator reserves the right to remove inappropriate or disturbing content.

The focus group will officially begin when the first question is posted on (insert date) at approximately (insert time).

Feel free to log in at any point during the day to share your thoughts. New questions will be posted in a new discussion thread around the same time each day, until the focus group ends at (insert time) on (insert date). If you're able, we recommend that you check back into the forum periodically throughout the day to read what other participants have posted and to continue the discussion. Although a new discussion thread will appear each day, feel free to continuing posting in the thread related to your topic as the discussion further develops.

To better prepare you for the focus group discussion, the list of the questions we will be posting is attached, as well as a list of frequently asked questions.

Only those people who have met all the eligibility criteria will be given access to the forum. Any users not registered or visiting the forum page who are not logged in will not be able to see any of the discussion in the member group.

The forum is being moderated by Lois Crowe, the research manager of the study and a trained facilitator. The researchers (click link to bio page) and Hilary Ramsay, the research assistant, will also have access to the forum and may join the discussion if needed. However, only the staff members (Lois and Hilary) will have access to your personal information, such as your email address or phone number.

If you have any questions or would like more information about the Internet forum or the study itself, please email us at info@schoolflushots.ca or call us at 1-855-561-6891

Thank you for your interest. Welcome to the forum!

Lois Crowe
Research Manager

Internet Forum Focus Group FAQ

NB: The FAQ will only visible once someone has registered to the forum.

What is an Internet forum?

An Internet forum is an online discussion group where users can discuss a topic by posting messages. The different discussion topics of a forum are called "threads". Forum participants can read and reply to postings on these threads.

How will the focus group work?

Each day the focus group facilitator will create a new thread on the forum and post a few questions. Each focus group participant will be asked to log in to the forum at some point during the day and share their thoughts on the questions and respond to what other participants' have posted. This will continue for five days.

Where can I find out more information about how the forum works?

Click here (*link to forum Help page*) to access the forum navigation guide. If you cannot find an answer to your question or would like more information, email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891.

How do I access the forum?

Go to www.chiin.ca/forum. If you have not created a forum account, click on "register" and follow the instructions. Your account will need to be approved by a forum administrator before you can participate in the forum. If you already have an account, type in your username and password in the 'Login' section at the bottom of the screen.

How much time should I spend participating in the forum?

We ask that you spend about 15 minutes on the forum each day to read what other participants have written and to post your own thoughts. You are welcome to spend more time if you are able to.

Do I have to login to the forum every day?

We recommend logging in to the forum each day because new questions will be posted. If you miss a day, please read through the posts you may have missed and post your thoughts in the previous day's thread.

Can I respond to another participant's comment?

Yes, interaction between participants is an important part of the focus group.

When will the focus group begin?

The focus group will begin on (*Insert date*) at approximately (*insert time*) when the first thread questions will be posted.

When will the focus group end?

The focus group will end and the forum will close on (*insert date*) at (*insert time*)

Can I continue a discussion from yesterday's thread?

Yes. Although a new discussion thread will appear each day, feel free to contribute to a discussion in a previous thread.

I'm having trouble navigating the forum (logging in / reading posts / commenting). What should I do?

If you encounter any difficulties or have any questions about the forum please email us at info@schoolflushots.ca or call us toll-free at 1-855-561-6891

How will my personal information be protected?

The security and confidentiality of your personal information is very important to us. We have put in place strict security measures, which include sophisticated computer controls and secure access systems. The main methods we use to protect your confidentiality are:

1. Your information is stored with all identifying information removed ("de-identified") – this means any information that can identify you, such as your name, email address or phone number is removed from your data and stored separately.
2. All information is password-protected and encrypted. In order to contact you and to link to your screening survey data, we need to be able to identify your information. We do this using a code. Only a limited number of School Flu Shots study staff with access to the code will be able to connect you with any of your information.
3. Access is kept to a minimum. Only a small number of staff members who have signed confidentiality agreements have access to the key code and they only access it for necessary operational purposes. The data bases that hold your information are protected by the same kind of encryption technology that is used by banks to protect their customers' online banking transactions.
4. Once the forum is closed to commenting, the electronic information will be taken off the Internet and stored on a secure data secure data server at Bruyère Continuing Care (a hospital in Ottawa). The information will be kept until the survey analysis is complete. Any personal information will be destroyed at that time. The research data will be kept for a period of five years. After that, all paper and electronic data will be destroyed.
5. The University of Toronto Health Sciences Research Ethics Board and Bruyère Continuing Care Research Ethics Boards have the right to review study data in order to ensure that the School Flu Shots Study is following proper procedures.

Are there things I can do to keep my information safe?

Definitely. While we do everything we can, protecting your information is a joint effort. Some basic online safety tips include never divulging your log-in password and shutting down your Internet browser after completing the survey or updating your account information, especially if you are using a public computer. You can also choose to register using a nickname, rather than your own name, to protect your identify. The following are some useful websites for learning more about online safety: Office of the Privacy Commissioner of Canada, Public Safety Canada, Microsoft, Apple and Stay Safe Online. *(NB: We will have hot links to these websites)*

Only those people who have met all the eligibility will be given access to the forum. Any users not registered or visiting the forum page who are not logged in will not be able to see any of the discussion in the member group.

The forum is being moderated by Lois Crowe, the research manager of the study and a trained facilitator. The senior researchers and Hilary Ramsay, the research assistant, will also have access to the forum and may join the discussion if needed. However, only the staff members (Lois & Hilary) will have access to your personal information, such as your email address or phone number.

When will I receive my gift card?

Gift cards will be mailed to participants after the focus group is finished. We will contact you once the forum is completed to ask for your mailing address.

What are the questions we will be discussing?

Here are the questions we will discuss over the five day period:

1. Can you tell me if you have had experience with immunization programs in schools?

2. Can you tell me your thoughts about having public health offer influenza immunizations each year to children in Ontario schools?

    a. Where (for example, at what type of location) would you prefer your school-aged children (between the ages of 4 and 18) be immunized against influenza?

    b. Under what circumstances would you use a school-based influenza immunization program? What would make you want to use it? What factors are involved in making these decisions?

3. What are the advantages of school-based influenza immunization?

4. What are the disadvantages of a school-based influenza immunization program?

5. What would stop you from having your child immunized against influenza at their school?

6. What problems or issues might happen if annual influenza immunization is added to the immunization programs already available in your school?

7. How do you think those problems or issues could be handled?

8. What features should a school-based influenza immunization program include, or what should the program look like?

9. Of all the things we talked about, what to you is the most important thing that was said?

10. We are conducting several focus groups like this one. This is one of the first. What advice do you have for us as we listen to others?

Email Requesting Address Information for Participants in Both Focus Groups

Once the focus group has ended, we will send a thank you email to participants. It will read:

Thank you for your recent participation in the focus group on (insert dates). As a small thank you for your time, we would like to send you a Chapters gift card. Please let us know your full name and mailing address so we can mail this to you. This information will be kept separately from the study information and will be kept for six months to ensure everyone receives their gift card. Please let us know if you haven't received your gift card two weeks after you send us your information.

Once again, we thank you for you participation.

Warm regards,

Lois

Teleconference Focus Group Consent Form

(This will be emailed or faxed ahead of time. We will ask everyone at the beginning of the session if they consent, to avoid having people have to fax or email back consent forms, which can be problematic for some participants).

Thank you for agreeing to participate in the teleconference focus group. We are sending this information ahead of time so you have time to think about the discussion topics. If you have any questions, please do not hesitate to contact us (info@schoolflushots.ca or toll-free 1-855-561-6891).

I will be the moderator for the teleconference. Also joining us from the research team will be Hilary Ramsay, Research Assistant who will be taking notes and Dr. Donna MacDougall, a senior researcher from St. Francis Xavier University in Nova Scotia, who will be helping make sure we answer all the research questions. *(insert name on any researcher attending the call)*

Please note that we will be recording the session. After the focus group is over, we will transcribe the session so the conversations can be analyzed using a special software package (NVivo version 9 or 10). The recordings will be destroyed once the analysis has been completed. Your name will not appear on the transcript. The recording will be stored on the secure server at Bruyère Continuing Care, a hospital in Ottawa. Only the research staff and the transcriptionist will have access to the recording.

For the focus group, there are a few ground rules. We know that it is challenging having a conversation when everyone is on the phone, but if we all agree on these rules, we should have a productive meeting.

- If you have a mute button, please use it when you are not speaking. If you don't have a mute button, try and keep any background noise (like shuffling paper) to a minimum. Background noise can make it difficult for people to be heard.
- If you get disconnected, call Toll-Free 1-866-261-6767, Toronto: (416) 850-2050 and use participant pass Code: 3067762# to reconnect.
- If you have to leave unexpectedly, it's okay to interrupt and let me know.

- The teleconference will last one hour. We will stop at xxx o'clock. It is important that we start and end on time, so please be prompt.
- You should have the list of the questions and the times in front of you.
- I will be asking a limited number of questions. I don't expect everyone to answer every question, but I do want to make sure everyone has an opportunity to be heard. If I don't hear from you on a question, I may call on you but you are free to say you have no comments.
- We are recording our conversation so we don't miss any of the comments. No names will be attached in any report that is prepared.
- Please remember that what happens in the focus group, stays in the focus group. Please introduce yourself only with your first name. Please remember that the stories and conversations are private, and we trust that you will not share any information that could identify any other participant.
- It is helpful if you would say your name before you speak. For example. It's Lois and I want to say…

Our conversation will be about the advantages and disadvantages parents see when considering whether a yearly flu shot should be added to the current immunization programs in Ontario schools.

Everyone's opinion counts and everyone has the right to be heard, even if you don't agree with what others are saying. There are no right or wrong answers. You can share your own thoughts, agree or disagree with others, bring out a new point of view, or add onto or build upon each other's thoughts that come out in our discussion today. Although we have prepared a few questions to lead the discussion, we'd like to have an open, informal process so we can follow up on different directions the conversation might take. We want everyone to feel free to join the conversation.

We are doing this study because a team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We wanted to clarify that the discussion will be about whether or not influenza immunization is a good thing or a bad thing, whether kids should be immunized or about how vaccines are made. Our focus is on what you think are the advantages and disadvantages of having a yearly flu shot added to the other vaccination programs already delivered in schools.

Understanding what parents like everyone on this call thinks about this issue is important.

We want to hear about your experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

Please let me know if you have any questions about the research before we begin the discussion.

<u>Group Interview Questions:</u>

1. Can you tell me if you have had experience with immunization programs in schools?

2. Can you tell me your thoughts about having public health offer influenza immunizations each year to children in Ontario schools?

c. Where (for example, at what type of location) would you prefer your school-aged children (between the ages of 4 and 18) be immunized against influenza?

d. Under what circumstances would you use a school-based influenza immunization program? What would make you want to use it? What factors are involved in making these decisions?

3. What are the advantages of school-based influenza immunization?

4. What are the disadvantages of a school-based influenza immunization program?

5. What would stop you from having your child immunized against influenza at their school?

6. What problems or issues might happen if annual influenza immunization is added to the immunization programs already available in your school?

7. How do you think those problems or issues could be handled?

8. What features should a school-based influenza immunization program include, or what should the program look like?

9. Of all the things we talked about, what to you is the most important thing that was said?

10. We are conducting several focus groups like this one. This is one of the first. What advice do you have for us as we listen to others? (round table)

Just a reminder:

Date:
Teleconference Call-in Time: (insert time)
Focus Group Start Time: (insert time)

Call-in Numbers:

Toll-Free: 1-866-261-6767
Toronto: (416) 850-2050

Participant Pass Code: 3067762

If you have trouble logging in, please contact my cell phone at 613-868-7627.

Thank you all.

Regards,

Lois Crowe

Moderator

Appendix 3
Focus Group Facilitator Interview Guide
Question Probes

Question probes (for use as required):

- Are there any other points of view?
- Could you tell me more about that?
- What was involved in that?
- Could you give me an example of what you mean?
- How did it begin?
- Then what happened?
- How did it feel?
- What was the effect on the people involved, effect on others?
- About advantages/disadvantages – for whom – parents, other people or organizations?
- Route of vaccine administration (e.g. injection vs. nose drops)?
- Type of school (elementary, junior high or high school)?

NB: Approximately two questions per day will be posted on the Internet forum, with the moderator guiding the discussion and blocking inappropriate content.

Appendix 4
Pilot Testing Protocols

Online testing protocol – Screening Survey

Ask 10-20 individuals to complete the survey on their own. Once they have completed the survey, ask them to note any issues or problems they had with the process. Use this testing survey as an interview guide to obtain feedback about the user's experience after they complete the survey on their own.

Testing Survey

1. Name of respondent:

   ☐ Location _____

Section A: Survey Platform

2. Which Web browser did you use to complete the survey?

   ☐ Internet explorer (please specify version)
   ☐ Mozilla Firefox (please specify version)
   ☐ Netscape (please specify version)
   ☐ Other (please specify)

3. Which operating system did you use to complete the survey?

   ☐ Microsoft Windows (Please specify the version)
   ☐ Apple
   ☐ Other (please specify):

4. What device did you use to complete the survey?

   ☐ Laptop
   ☐ Smart phones (ex. Blackberry, iPhone etc.)
   ☐ Tablet
   ☐ Desktop computer
   ☐ Other (please specify): _____

Section B: Survey Navigation

1. Did you find the instructions to the survey easy to follow?

   If no, what instructions did you have trouble with and why?

2. Did the survey link work?

3. Did you find the survey easy to log onto?

   If not, what happened?

4. Did you complete the survey at one time or did you partially complete the survey and return later?

   If you returned later, were you able to log back in without any problems?

   Were all of your answers still there?

5. Was it easy to navigate back to earlier pages?

6. Did the survey website ever crash while you were navigating through it?

7. Were there any problems with connection speeds or time to load any of the pages?

8. What did you think about the visual layout of the survey (font sizes, colours, format, etc,)? Was it easy to read?

9. How long did it take you to do the entire survey?

Section C: Survey Questions

Run preliminary analyses on pilot data to identify any issues (e.g., choose not to answer, N/A, etc. on consistent questions). Obtain feedback from respondents on difficult questions, in order to identify if any revisions need to be made.

1. Were there any questions that you did not feel comfortable about responding to?

   If so, which ones and why?

2. Were there any questions that you think would be difficult for others to respond to?

   If so, which ones and why?

Section D: Additional questions

1. Is the $5 amazon.ca gift card useful?

   If no, what would be?

2. Were you uncomfortable about providing your personal information at the end of the survey?

Online testing protocol – Internet forum

We will run a pilot Internet forum focus group with five or six people (similar size to the planned focus groups)

Online Testing Survey

1. Name of respondent:

Section A: Survey Platform

2. Which Web browser did you use to log in to the Internet forum?

- ☐ Internet Explorer (please specify version)
- ☐ Mozilla Firefox (please specify version)
- ☐ Netscape (please specify version)
- ☐ Other (please specify)

5. Which operating system did you use?

- ☐ Microsoft Windows (Please specify the version)
- ☐ Apple
- ☐ Other (please specify):

6. What device did you use?

- ☐ Laptop
- ☐ Smart phone (ex. Blackberry, iPhone etc.)
- ☐ Tablet
- ☐ Desktop computer
- ☐ Other (please specify): _____

Section B: Setting up an account

1. Did you find the instructions easy to follow?

   If no, what instructions did you have trouble with and why?

2. Did you have any problems setting up the account?

   If yes, what were they?

3. Did you receive the confirmation in a reasonable time frame?

   If no, how long did it take?

Section C: Participating in the Discussion

1. Were the rules clear and easy to understand?

   If no, what should be changed?

2. Did you feel the session was moderated successfully?

   If no, what should be changed?

3. Was it easy to follow the discussion threads?

4. Did you feel comfortable in sharing your opinions?

   If no, what could be done to make it more comfortable?

5. Is there anything you think we could do to make it a better experience for you as a participant?

Appendix 5
Social Media Recruitment Strategy Details

1) Facebook: Facebook is the most popular social media website in Canada with more than 18 million users. According to Socialbakers (a global social media and digital analytics company), Facebook penetration in Canada is 53% with 79% of its users between the ages of 18 to 54 years and 54% female. To develop an online presence, we will create a Facebook page (e.g., Ontario School Flu Shot Study) that has information about the study such as the purpose, our research team and link to the study's main website. To engage with the Facebook community, we will identify and join potential groups ("friends") that are popular among our target population (e.g., Parenting in Peel, Ontario Health Study, public health units, Savvy Mom, Canadian Living). Before the recruitment campaign starts, we will engage with these communities by posting messages and clicking "like" on their Facebook posts to establish a relationship that can help us with support and communication during the recruitment period. To establish credibility, we will post content that is visually appealing, interesting and presented in a creative format (e.g., videos, images, etc.). When the study recruitment begins, we will post different messages about the study twice a week on our Facebook page, while participating in regular Facebook activities (e.g., clicking "like", responding to non-related study posts, etc.). To ensure that our content is advertised to a broader community, we will request permission to post study advertisements on our "friends" pages. Messages will be posted during peak Facebook weekday hours (1:00-4:00pm).

2) Twitter is a social networking service that allows users to send and re-send text messages within 140 character limit. It is the second largest social media network in Canada with over 5 million active users since 2012. (48) We will create a Twitter account using a unique name, @SchoolFluShots, related to the study group. A unique hashtag, #SchoolFluShots, will also be used to be track Twitter activity. We will research and identify groups to follow on Twitter among our target population. We also need to identify and "follow" individuals who are "key influencers" in Twitter that fit within our target population (active users with a large "follower" population (>200) consisting mostly of parents and a strong interest in parenting and family matters (e.g., shopping, day care, children etc.). For example, some popular parenting sites have key bloggers/representatives that write stories on the website's behalf (http://www.savvymom.ca/index.php/blogs); it will be important to follow and contact these individuals to help broadcast messages. Some interest groups may also hold Twitter "fireside" chats/party. These are online events identified by a hashtag where many users tweet about a given topic at the same time, similar to a chat room. By participating in these events, we can also broadcast our messages to a large number of Twitter using the same hashtag. The key is to identify events that will be attended by our target population. We will utilize Tweetdeck, a web-based application, to help us monitor the conversations on Twitter.

   Prior to the start of the campaign, we will engage with Twitter followers at least five times a week by re-tweeting messages and replying to messages in a positive manner. Once the recruitment period begins, we will post short messages twice a week (<140 characters) to advertise about the study with a link to the study site. Messages will be posted during peak Twitter weekday hours (1:00-3:00pm).

3) Kijiji and Craigslist are free classified advertisement websites that are used widely in Canada to advertise about goods and services. We will post messages under specific categories that are relevant to our target populations' interest (e.g., community- activities, groups, discussions, event, other; services- child care/nanny, cleaner). The message will contain a short description about the study and a link to the main website. These messages will be posted once a week under different categories for

each Ontario city. On highly active pages (e.g., large cities, popular categories), we will post two messages per week under the same category to ensure our messages are visible. There are 41 city-specific Kijiji pages and 20 city-specific Craiglist pages, which will result in at least 50 postings per week.

4) RedFlagDeals and Smart Canucks are popular deal forum websites that advertise about coupons, promotions, events and freebies. RedFlagDeals and Smart Canucks have discussion forums for specific topics (e.g., "Parenting", "off-topic", "contests", "Canadian parents") and forums for major cities in Ontario where users can post messages and receive responses about their inquiries. To advertise about the study, we can create a new "thread" and post a message once a week under different discussion forums. We can also contact the host administrator to post an advertisement about the study on the homepage. No direct costs are involved with posting threads.

5) Professional networks such as the Ontario Health Study, community health centre network, or pediatric hospital parenting groups, may have email lists of clients that use their services or have been involved in previous research studies. We can work with these organizations and networks to send out recruitment letters about the study containing background information, the website link and a request to share the email with other interested people. Two reminders will be sent following the letter. We will also ask them to consider acting as a referral site to connect to the main study website. The advertisements can be displayed on the childhood immunization section of these websites.

Appendix 6
FluidSurveys Privacy Policy

FluidSurveys is a product of Chide.it Inc.

Collected data

When you register to use FluidSurveys, we (Chide.it Inc.) collect very basic information including but not limited to: email and name. For the paid accounts, we ask for more information including but not limited to your address. This personal information is private, we will not share it.

After registering with the site, we use your email address to provide you with a series of 'Ongoing Communications and Product Updates' (see 'Communication from the Site'). These communications are used to give you a better understanding of the site, what it offers and how it is best utilized. As always, you have the option not to receive these types of communications (see 'Choice and Opt-out').

Collected data on Your Surveys

The data collected by your surveys is yours. We will not use it or share it in any way shape or form.

Note for European Visitors

Please note that FluidSurveys may transfer collected information outside the European Economic Area. By using our web site and providing us with your personal data, you consent to such transfer of your personal data.

Cookies

Cookies are required when using FluidSurveys. We use cookies to identify unique visitors, provider per-user customization and to make FluidSurveys easier to use. We don't share our cookies, nor do we use cookies to track your behavior on other sites.

How we use the Data Collected

We reserve the right to contact you, regarding your account or any other matter regarding your use of Chide.it. With your authorization, we may use some information collected from you to help diagnose technical problems and improve the quality and types of services delivered. We may use and share non-identifiable aggregated usage and statistical information. We may also share information with third parties in limited circumstances including when complying with legal processes, preventing fraud or imminent harm, ensuring security of network and services and due to violation of the terms of service.

Ongoing Communication and Product Updates

We will occasionally send you information on product enhancements, new services and additional instruction on utilizing our services. These communications are designed to educate our users on the services offered. Out of respect for your privacy, we present the option not to receive these types of communications. Please see the 'Choice and Opt-out'.

Service-related Announcements

We will send you strictly service-related announcements when it is necessary to do so. For instance, if our service is temporarily suspended for maintenance, we might send you an email. Service-related emails are also sent confirming billing transactions, account upgrades and account cancellations.
Generally, you may not opt-out of these communications, which are not promotional in nature. If you do not wish to receive them, you have the option to cancel your account.

Customer Service

Based upon the personally identifiable information you provide us, we will send you a welcoming email to verify your username and password as well an account manager contact information. We will also communicate with you in response to your inquiries, to provide the services you request and to manage your account.

Choice/Opt-out

If you no longer wish to receive our product updates, you may opt-out of receiving them by following the instructions included in each product update email.

Clear Gifs

We use clear gifs in our HTML-based emails to let us know which emails have been opened by recipients. This allows us to gauge the effectiveness of certain communications and the effectiveness of our marketing campaigns. If you would like to opt-out of these emails, please see 'Choice and Opt-out'.

What you can do

Your data is yours; you can delete or export it at anytime. If you'd like your account to be deleted, please do send us an email at info@chide.it. We may for a time, maintain a residual copy of your data in our backups.

Security

FluidSurveys.com servers are protected with generally available security technologies, including firewalls and data encryption. These technologies are designed to prevent unauthorized access, but no guarantee can be made that your information and data will be secure from intrusions and unauthorized released to third parties.

Contact

Any questions regarding this policy should be addressed to info@chide.it. If a question comes up not covered by this policy, we will answer it remembering that your data belongs to you. If you'd like to send us snail mail, please visit our contact page for the best address to send to.

These policies are effective as of July 27, 2008. Chide.it Inc. reserves the right to change this policy at any time by notifying it's users of the existence of a new policy. The policies outlined in this document are not intended to and do not create any contractual or other legal rights in or on behalf of any party.

Appendix 7
Social Media Recruitment Messaging

With social media sites, we will need to post regularly and change the posting to generate ongoing interest. For the purpose of this research study, we will be using the following materials as our guideline for the various postings. If we need to change the messaging in any major way, we will submit new materials to the research ethics boards for approval.

1. Social Media Site: Facebook.com

What is it?

Facebook is the most popular social networking service in Canada. Facebook users create profiles and update them regularly to stay in touch with family and friends. Facebook also allows businesses and organizations to create profiles ("pages") which users can "like" to receive updates on that organization's latest news and activities.

Creating an organization page

We will create an organization page, rather than an individual page. This allows us to represent our project as a non-profit organization (type of page we have selected) and allows people to "Like" our page. By "Liking" our page, the individual will get any update we post on their page, and they can share the links with their friends, or create a link to our page, creating a community.

Here is a picture of our Facebook page:

Messaging

On the main page, we will use the following description of the study:

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to hear from Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

Eligible participants who complete the full survey will receive a $5 gift certificate to amazon.ca. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

Please click here to access the online survey.

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board (Ottawa). This study is sponsored by Public Health Ontario and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

Study website: www.schoolflushots.ca

Email address: info@schoolflushots.ca

Twitter link: @schoolflushots; #SchoolFluShots

We reviewed similar organizations and research studies Facebook pages. We will build our Facebook presence using the same approaches. We will have two types of postings:

- Updates on our recruiting progress (Number of completed surveys, number of Facebook "likes")
  For example: 300 people have completed our online survey! A huge thank you to everyone who has taken the time to participate!

- Facebook Polls (these will be integrated into the Timeline)

We will also be actively "liking" related content on other organization's pages.

All of the content about the study will be drawn from the FAQ and consent documents. Adjustments may be made to keep the content current, but these will be primarily stylistic changes. If we change the messaging in any substantial ways, we will submit the changes to the research ethics boards for approval before posting.

Privacy concerns: On our Facebook page, we will not request any personal information. Any links individuals make to our page will be managed by them and their privacy settings. We do not anticipate any privacy concerns using Facebook, as any personal information will only be collected through the online survey, which has strict privacy rules (see Appendix 6).

Guidelines for School Flu Shots Facebook Page

The goal of the School Flu Shots Study is to in find out what parents in Ontario think about the advantages or disadvantages of adding yearly influenza immunization (flu shot) to the immunizations that children get at school.

The researchers appreciate your participation in our online community and welcome varying points of view that are appropriate for publication on a social media platform, relevant to the discussion and respectful of others in the community.

However, we reserve the right to remove comments that we find inappropriate including, but not limited to, comments that are abusive, insulting, inaccurate, irrelevant, defamatory, threatening, slanderous or false.

We welcome you to our community and look forward to engaging and productive discussions!

2. Social Media Site: Twitter

What is it?

Twitter is a social networking service that allows users to send and re-send text messages ("tweets") within a 140 character limit. These messages can then be shared ("re-tweeted") by other users. Twitter is the second largest social media network in Canada with over five million active users since 2012. Our Twitter page will be used to spread the word about the study and find out what others Twitter users are saying about it.

Creating our Twitter page

Twitter users create a "handle" or username that other Twitter users will use to send tweets. The Twitter handle for our project will be @SchoolFluShots.

An important element of Twitter is the use of hashtags, which are short words or phrases preceded by a hash symbol (#) and usually placed at the end of a tweet. Hashtags are used to track what other Twitter users are saying about a specific topic. We will use the hashtag #SchoolFluShots to track what other users are saying about our study.

Here is a picture of our Twitter page:

Bio

Users are allowed to create a brief bio of 160 characters or less. Here is our proposed bio:

Researchers launch study to find out what parents think about the advantages or disadvantages of adding flu shots to yearly immunization programs in Ontario schools.

Messaging

We reviewed the Twitter pages of similar organizations and research studies and determined that we will primarily have five types of tweets. These include:

- Recruitment updates
  For example: We just reached 200 twitter followers! Welcome @_____!

- Reminders about the study
  For example: Ontario parents: Earn a $5 amazon.ca gift card simply by completing our 10-minute online survey #SchoolFluShots **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

- Re-tweeting related posts from other Twitter users

- Thanking Twitter users who re-tweet us

- Responding to comments and questions from our followers

3. Social Media Site: Kijiji.ca

What is it?

Kijiji is a free classifieds website to advertise about goods and services. There are several city-specific listings pages.

When to post

Every week or as needed (if a busy page twice a week, if a slow page possibly only once during the recruitment phase)

Where to post

- Community>volunteers
- Jobs>other

The two listings above are the key listing choices of other researchers who have posted links to research studies.

41 individual cities in Ontario have their own unique Kijiji listings site. We anticipate posting at least once a week in each of these cities' listing.

Sample Posting

Are you an Ontario parent? If so, we'd like to hear from you!

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most responsible for making health decisions for the children
- are able to speak or write in English

If you are eligible and complete the survey, you will receive a $5 amazon.ca gift card. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

Please click here to access the online survey.

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board (Ottawa). This study is sponsored by Public Health Ontario and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network.

4. Social Media Site: Craigslist.ca

What is it?

Craigslist is a free classifieds website used primarily to advertise goods and services. There are 20 Ontario city-specific listings pages, in addition to the general listings.

Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Community>Volunteers
- Jobs>Et Cetera

We will post the ad in each of the 20 Ontario cities that have a specific Craigslist listings page.

5. Social Media Site: RedFlagDeals.com

What is it?

RedFlagDeals is a website that advertises freebies, coupons and promotions from retailers in Canada. The website also includes a forum where individuals can share promotions and discuss other topics.

Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Forum>Parenting
- Forum>Freebies

6. Social Media Site: SmartCanucks.ca

What is it?

SmartCanucks is a deal listing website similar to RedFlagDeals.ca, with 26 Ontario city-specific sites. They also have a web forum where individuals can post deals and chat about general topics.

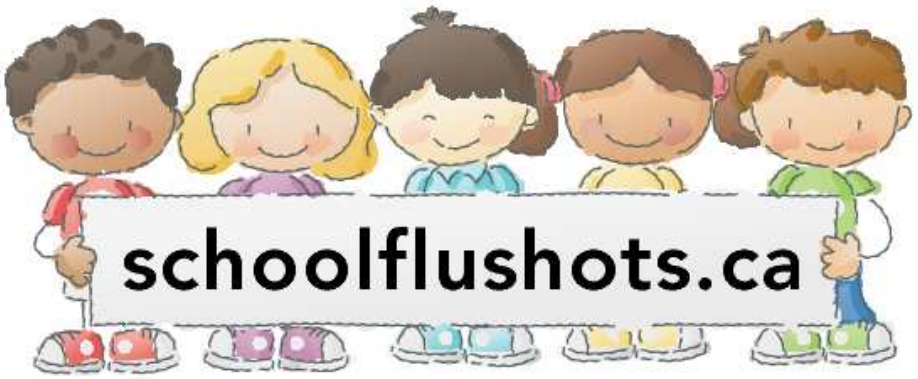
Posting approach and messaging

- Same as for Kijiji (see above)

Where to post

- Forums>Paid Surveys and Mystery Shopping
- Forums>Ontario> sub forums for 26 Ontario cities

7. Recruitment Poster



Are you an Ontario parent? If so, we'd like to hear from you!

A team of researchers would like to find out what parents in Ontario think about the advantages and disadvantages of adding yearly influenza immunization (flu shots) to the immunizations that children get at school.

We want to hear about parents' experiences, opinions, or stories. Study results will help us develop recommendations to public health agencies, school boards and the provincial government.

We would like to talk with Ontario parents who:

- have at least one child currently enrolled in elementary, junior high, or high school
- are most or jointly responsible for making health decisions for the children
- are able to speak or write in English

People who complete the screening survey will receive a $5 amazon.ca gift card. **(We will remove this line if we open the survey a second time but may include it again, depending on response rate).**

To sign up, go to:
www.schoolflushots.ca

Email us at: info@schoolflushots.ca

Call us toll-free:
1-855-561-6891

Follow us on Twitter:
@SchoolFluShots or #schoolflushots

Follow us on Facebook at School Flu Shots – Ontario Study

This study has been approved by the University of Toronto's Health Sciences Research Ethics Board and the Bruyère Continuing Care Research Ethics Board, Ottawa. This study is sponsored by Public Health Ontario (www.oahpp.ca) and the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (www.pcirn.ca).

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Secondary Subject Heading:	Qualitative research
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Title

Parental Perceptions of School-based Influenza Immunization in Ontario, Canada: a qualitative study.

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Abstract

Objective: To understand the perspectives of Ontario parents regarding the advantages and disadvantages of adding influenza immunization to the currently existing Ontario school-based immunization programs.

Design: Descriptive qualitative study

Participants Parents of school age children in Ontario, Canada who were recruited using a variety of electronic strategies (social media, emails, and media releases), and identified as eligible (Ontario resident, parent of one or more school age children, able to read/write English) on the basis of a screening questionnaire. We used stratified purposeful sampling to obtain maximum variation in two groups: parents who had ever immunized at least one child against influenza or who had never done so. We conducted focus groups (teleconference or Internet forum) and individual interviews to collect data. Thematic analysis was used to analyze the data.

Setting: Ontario, Canada

Results: Of the 55 participants, 16 took part in four teleconference focus groups, 35 in six Internet forum focus groups, and four in individual interviews conducted between October 2012 and February 2013. Participants who stated that a school-based influenza immunization program would be worthwhile for their child valued its convenience and its potential to reduce influenza transmission without interfering with the family routine. However, most thought that for a program to be acceptable, it would need to be well designed and voluntary, with adequate parental control and transparent communication between the key stakeholder groups of public health, schools, and parents.

Conclusions: These results will benefit decision-makers in the public health and education sectors as they consider the advantages and disadvantages of immunizing children in schools as part of a system-wide influenza prevention approach. Further research is needed to assess the perceptions of school board and public health stakeholders.

STRENGTHS AND LIMITIONS OF THIS STUDY

- Several qualitative studies from the United States have identified issues (from the perspective of parents) that are relevant to the design and implementation of programs to deliver immunizations (including influenza immunization) to school age children at school.
- However data from settings in which both healthcare and influenza immunization are universally publicly funded, and well established programs for delivering vaccines other than influenza vaccine at school have been lacking.
- The issues raised by parents in our study were similar to those found elsewhere, including parents in the United States
- Our data provide guidance for program planners to develop programs that are acceptable to parents for delivering influenza vaccines in schools.

Introduction

Children are important drivers of influenza transmission.[1-5] Immunizing school age children may provide direct benefits to the children as well as indirect benefits to high-risk groups.[6-11] Canada recommends vaccination of children aged 6-59 months and individuals ≥65 years, and also encourages vaccination of all healthy persons aged 5-64 years.[12] The province of Ontario has provided free influenza vaccines for all residents aged 6 months or older since 2000. However, coverage during the 2006-07 influenza season was only 31% among children aged 12-19 years, 28% among healthy children aged 2-11 years, and 37% among children aged 2-11 years with chronic health conditions.[13;14] Barriers to access are often cited as reasons for under-immunization.[15]

In Canada all provinces and territories vaccinate children at school, although there is variance in the vaccines administered using this strategy[16]. Ontario (population 13.4 million in 2012) is the only Canadian province to date where SBII is known to have been implemented, and it has been associated with an approximately 10% greater vaccine coverage in school age children (39% vs. 30% for children aged 12-19 years, 36% vs. 24% for children aged 4-11 years), and a corresponding 19-24% reduction in influenza-associated physician office visits.[14] School-based influenza immunization (SBII) is a strategy to increase influenza vaccine coverage in children particularly "where background rates are likely to be very low and improvements in coverage are needed."[17] SBII may also have the potential to reduce disparities in uptake that might exist, based upon the recent Alberta experience with school delivery of adolescent-targeted human papillomavirus (HPV) vaccine delivery[18]. However, the decision to implement

SBII is at the discretion of each of Ontario's 36 public health units (PHUs), and the number of PHUs offering SBII was only 4 in 2010.[14]

Key stakeholders for the development and implementation of any school-based immunization program include parents and guardians, the education sector (e.g. school administrators), and the health sector (e.g., public health). We conducted a qualitative study to examine and understand parents' perceptions of the advantages and disadvantages of SBII, as well as the programmatic characteristics that would contribute to the development of robust SBII programs that are acceptable to parents in Ontario, Canada.

Methods

We conducted a descriptive qualitative study using focus groups (FG) as our primary means of data collection[19], using key informant interviews to confirm findings with rural participants. Given Ontario's large geographical area, we chose teleconferences (maximum duration of one hour) and Internet forums (asynchronous participation, approximately 15 minutes per day for five days) to facilitate participation by parents from across the province. Teleconferences and Internet forums have been found to be as successful as face-to-face sessions for focus groups.[20;21]

Recruitment

Between October 2012 and February 2013, we used purposeful sampling to recruit parents of school age children living in Ontario using social media, deal forum websites, online classified ads, conventional mass media, and email lists.[22] Participants were eligible if they: 1) lived in Ontario; 2) had at least one child enrolled in school (kindergarten to grade 12); 3) were mostly or jointly responsible for making health decisions for their child; and 4) spoke and wrote in English.

If eligible, participants were then asked questions about their demographic characteristics and indicated their preference for a teleconference or an Internet forum FG. For each FG, we invited at least twice the number of individuals to participate as needed in anticipation that many of those invited would not participate, and we offered them two or three time slots as options. We conducted the teleconference FGs at the time when the maximum number of persons was available. Individuals who preferred Internet forums were provided with forum start and end dates, and asked to create an online account prior to the beginning of the first forum. We conducted recruitment in three rounds. Round 1 occurred in November 2012, Round 2 in December 2012, and Round 3 in February 2013. In Round 1, we offered a $5 Amazon.ca electronic gift certificate to eligible participants completing both parts of the web-based eligibility questionnaire. No incentive was offered in the subsequent two rounds of recruitment. After closing recruitment in each round, we stratified participants into two heterogeneous groups to ensure within group homogeneity: 1) Ever Group: parents who had ever immunized at least one child against influenza; and 2) Never Group: parents who had never immunized any of their children against influenza. To ensure maximum variation in each group on other attributes, we invited individuals based on additional criteria: single parent status, geographic location (urban vs. rural), gender, ethnicity, and age. The last round targeted parents from rural areas. We defined rural residents as being those who had a zero in the second position of their 6-digit postal code, indicating residence in an area that is not accessible by letter carriers.[23]

Study process

A trained facilitator (LC) moderated all FGs, with other team members (DM, JAP, SQ, HR) attending selected sessions. Researchers LC, DM, JAP, and SQ had experience and/or training in

qualitative methods. All members of the research team except JCK were female and all had public health experience as well as a vested interest in promoting immunization within the public domain. None of the researchers had relationships with any of the participants prior to the study. All participants were provided with a semi-structured interview guide in advance. This pilot-tested guide included a brief description of the study purpose, participant instructions, and the 11 core questions. During the FGs, the participants were encouraged to share their opinions, and to build on each other's thoughts and ideas about SBII. Repeat interviews were not conducted. One individual withdrew from an FG after being deemed ineligible to participate based upon disclosures made at the start of the FG. Following the FGs, we completed a round of individual interviews with rural parents as participation was low among this group. Teleconference FGs and telephone interviews were digitally recorded and transcribed verbatim by a qualified transcriptionist. Transcripts were not returned to the participants for comment. Field notes were written following each FG and interview including information about the process and personal observations. Internet forum and teleconference data were imported into NVivo 10 for analysis.

Analysis

Following each round of data collection, four research team members (LC, JAP, DM, SQ) individually coded the data using the process of thematic analysis.[19;24;25] Each person read all transcripts to generate an initial set of codes. The initial codes were then collated into potential themes, where all data were gathered relevant to each theme. The themes were then reviewed to ensure that they reflected the coded extracts as well as the entire data set. Through ongoing analysis, the themes were refined and linkages between them were identified. Team members met regularly to review the emergent themes and reach consensus. Because new themes were

still arising at the end of the first round of FGs, recruitment was re-opened and a second round of FGs continued until saturation was reached. Following analysis, the themes were compared to the existing literature to determine congruency of the findings.

Ethics and role of the funding source

The study was ethically approved by the Research Ethics Boards of the University of Toronto (University of Toronto Health Sciences Research Ethics Board, protocol # 28086) and Bruyère Continuing Care Research Ethics Board (protocol # M16 – 12 – 035). Participants gave informed consent prior to taking part in the study; the consenting process included information about the researchers and the purpose and rationale of the study. The study was funded by the Canadian Institutes of Health Research grant number PIR 124309. The funding source had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, or approval of the manuscript.

Results

Between November 2012 and February 2013, we conducted 10 FGs and four key informant interviews over three rounds. Fifty-five people participated. Round 1 comprised one teleconference (six parents) and two Internet forums (15 parents) FGs. Round 2 entailed three teleconference (10 parents) and four Internet forums (20 parents) FGs. Round 3 involved four key informant interviews (four parents, all rural). Of the 55 participants, 41 (75%) were female, 26 (47%) were 40 years or older, 34 (67%) had a university degree, 25 (45%) had more than one child, 50 (91%) were from urban areas, 10 (18%) identified themselves as single parents, and 30 (55%) had ever had a child immunized against influenza (Table 1).

Themes

Two major themes describing Ontario parents' perceptions of the advantages and disadvantages of influenza immunization in schools were identified: the effects of SBII at each stakeholder level and recommendations for an ideal program (Table 2). These themes mapped to the coding tree created during analysis as they had been derived directly from the data.

Theme 1: Perceived effects at the individual and system level

i) Impact on children and their families

Pressure to immunize: Parents expressed both support and concern for the fact that implementing SBII would increase pressure to have children immunized, and would force parents to make a decision. Those supportive of SBII thought that this added pressure could be beneficial, resulting in increased vaccine uptake in children.

> *"… there are people who don't immunize their children for a variety of things, but influenza in particular…so I think that having it [influenza immunization] in school would put some pressure on some of those people to immunize their children…that could be seen as an advantage because I think that it would increase uptake..." (P27)*

However, others thought that the decision to vaccinate one's child against influenza should be personal, and the implementation of SBII may lead to inappropriate external influence on the decision-making process. This was especially true for those who expressed overall

negative views about vaccination, or were uncertain about the merits of seasonal influenza vaccine.

"I think the one disadvantage that I could think of is because it's part of the school-based program, I think some parents who may not want to use it, may feel pressured, because it is offered at school, and they may feel pressured to use it." (P23)

Integration into family life/accessible: Most parents agreed that SBII would be time-saving and more convenient for families and less disruptive to the family routine than seeking immunization at conventional healthcare locations. This issue was mentioned repeatedly by parents from rural areas, for whom influenza immunization often required considerable travel and time due to limited access to immunization providers and a lack of public transit.

"If we miss that (clinic) then we must travel to one of the clinics in Ottawa (a 90-110 minute round trip plus time waiting in clinic) or make arrangements with our doctor. (However) in the past our GP has only been able to vaccinate the family once the clinics have finished, which is usually well past the optimal period for preventing infection." (P46)

"…If you don't have a primary care physician…you can't get it (flu shot) done at a walk-in clinic". (P54)

Immunization of non-student populations: A few parents expressed concern that SBII may affect adult immunization coverage. Since the practice of influenza immunization was commonly

done as a family and often for the benefit of the children, they thought that parents may be less inclined to get immunized themselves if their children were immunized at school.

ii) Impact on healthcare system

Vaccine uptake: Many parents thought that if SBII was well developed, timed appropriately during the school year, and safely implemented, it had the potential to increase influenza immunization coverage. These parents anticipated a positive impact on the healthcare system, with increased vaccine uptake leading to decreased disease spread and healthcare utilization.

Cost-effectiveness of SBII program: Some parents commented on the need to understand the costs of SBII before assessing its value. Several thought that if the program increased immunization coverage, the community-wide benefit of fewer cases of influenza would justify the increased program costs.

"I think the long term health care costs in reducing the risk of a flu epidemic, would be less than the short term costs of providing the vaccination free of charge." (P44)

However, others were unsure about who would be expected to fund the program. These participants were concerned about additional financial costs to schools and the healthcare system, and thought that they needed more information before supporting SBII.

"Perhaps the teachers would have to do more work? …Where does the budget for this come from? Would it affect school budgets at all?" (p46)

Opportunity for transmission: A few parents mentioned that SBII allowed their children to get vaccinated in a setting where individuals would tend to be relatively healthy, in contrast to the perceived risk of exposure to ill persons while waiting in physician offices or in line-ups for public health mass vaccination clinics. School clinics were thus viewed as being comparatively healthy environments, decreasing opportunities for transmission of influenza to children and their families.

Burden on non-SBII settings: A small number of parents thought that introducing SBII could ease strain on the healthcare system. These parents associated currently structured influenza immunization programs with long line-ups in mass vaccination clinics, and thought SBII could potentially decrease the burden influenza immunization places on family doctors and public health clinics.

iii) Impact on school system

Parents had conflicting views on the appropriateness of using schools to deliver a healthcare program like SBII. Some thought that schools were a suitable and convenient location to vaccinate children. Others were uncertain about the roles and responsibilities of schools compared to those of local public health. If schools were actively involved in SBII implementation, there was concern as to whether they were well-equipped to coordinate the program successfully, whether this might interfere with education, and whether school-based

immunizations would be recorded properly, with the mechanisms in place to track and transfer the data as needed.

"My biggest concern…is the logistics of it… Who is monitoring and how are we going to do that in terms of the schedules? And beyond the schedule, how that information is going to be passed on?" (P2)

There was also some apprehension as to whether SBII program implementation was an achievable goal given the amount of coordination that would be required from the various stakeholders. A few parents were concerned whether every aspect of the program would be considered, beyond the logistics, to reflect the best interests of children.

"… I'm worried about public health lining up hundreds of kids to be immunized and only having time for the logistics of getting that done and not having the time to care for emotional states. (P51)

Theme 2: Considerations and recommendations for a successful SBII program

Although there were parents who were firmly against seasonal influenza vaccines for their children, many expressed that there could be value to a SBII program, but identified several issues that would need to be addressed before they would feel comfortable using the program.

Parental control over child's health: All parents agreed that the program should be 100% voluntary but acknowledged that opinions were mixed on this. However, they said as long as there was a choice, they would not oppose it.

"As long as these programs are optional, I think they provide a good service. Parents decide what is best for their children and there should be no pressure to participate." (P48)

Many parents thought the use of rewards for children being immunized (e.g. stickers, candies) would be positive and would help increase the comfort level of the child being immunized. However, in one FG, a couple of parents expressed concerns that giving rewards only to immunized children would potentially stigmatize those who did not receive the vaccine.

Program coordination, implementation and management: Several parents stressed that the timing of the program was important. Planning the annual clinics at the same time of the year, in the right period for disease prevention, and adding clinic dates to school calendars at the beginning of the year would be essential.

In the absence of experience with SBII, and in many cases, any school-based immunization program, some parents were unaware that nurses from the local public health

agency deliver immunization programs (e.g., for HPV and meningococcal vaccines) in schools. These parents expressed concerns about who would be giving the vaccine: Would they be professionals? Would the location and process be hygienic? Others raised concerns about how side effects or allergic reactions would be managed.

"As long as it was being done in a safe clean environment and administered by trained professionals, then nothing would stop me from having my children given a flu shot at school." (P51)

"…my biggest fear has always been the reaction to the vaccine, whether or not they would get the right amount of attention if there was a negative reaction." (P11)

Shared stakeholder responsibility: The majority of parents spoke of the need for effective communication between all stakeholders (school/parents/public health), to ensure everyone is well informed with appropriate information to make decisions. Keeping lines of communication open, and being sensitive to the needs of the different parent groups (such as unique cultural or economic groups or those with differing opinions about influenza immunization) was considered essential. Parents also provided suggestions about effective communication channels.

"…having an information session for new parents every year…would be wonderful." (P26)

Educating parents about influenza and influenza vaccines: Participants thought that the ideal SBII program would include education for parents about both influenza illness and influenza

vaccine. Some parents perceived that influenza was not a serious disease. Others thought they needed more information about vaccine effectiveness and vaccine safety, particularly for children. Parents stressed the need for consistent messaging from sources perceived to be trustworthy. They strongly recommended that official communications be standardized to increase acceptance and decrease confusion.

The needs of the child: Some parents recommended that the programs be flexible and provide for the differing needs of children, such as creating different approaches depending on the age of the child, or for children with special needs.

> *"The first factor would be age. If he was young and uncomfortable with the idea then I'd pass just so I could be there with him. If he was old enough (5th grade and higher)…I'd have him immunized at school." (P47)*

Parents expressed the need to provide a safe environment for the children, and to make sure that those responsible for the program respect a child's dignity throughout the immunization process. This would include protecting their feelings and any potential insecurities (e.g., not being forced to partially disrobe in front of classmates; ensuring privacy for children afraid of needles). A couple of parents emphasized the importance of maintaining focus on the child, by describing their own past immunization experiences that did not do this, which they felt influenced their willingness to use an SBII program.

"I think a lot of times we don't give our kids enough dignity…When I was a kid we had these scoliosis tests done and I was a chubby kid. And, you know, we'd have to remove our shirt in front of all the other kids and…you get a lot of fun poked at you. It was very hard as a child. I think we should give them that dignity...They might be children but they're also human." (P26)

Discussion

As is the case for any program that delivers vaccines to schoolchildren, parents are key stakeholders, and their perspectives and recommendations are valuable for a program's success. In our study, parents noted several benefits of SBII, including the convenience of having their child vaccinated without disruption to the family routine, and the potential for higher vaccine uptake resulting in reductions in disease transmission (thus ultimately also in reductions in burden for acute care). However, our findings suggest that for such a program to succeed, parents must understand how it will be managed and coordinated, and perceive that they have sufficient information to make an informed and voluntary decision about their child's participation. Consistent messaging on these issues is essential.

Based on their concerns around school resources, it appears that some parents weren't aware that Ontario's current school-based vaccination program is actually offered and delivered by public health, albeit in school. In Ontario, the school–based immunizations are given in grades 7 (Meningococcal conjugate [Men-C-ACYW] vaccine, Hepatitis B vaccine) and 8 (Human Papillomavirus [HPV] vaccine, girls only) [26]. We note that many participants had children in kindergarten to grade 6 (K-6) and suspect that they had not yet had experience with these programs where they might have learned this. We propose that messaging that vaccination

in the school setting is a public health program must be part of any future SBII program, and that it might be appropriate regardless, to deliver this message to parents of children in K-6. Parental concerns about impacts of a future SBII program might also have arisen because of a lack of experience with the current school-based vaccination program. However, since the schools are themselves key stakeholders in an SBII program, future research needs to address the concerns of schools and messaging related to any future SBII program must make it clear that that this consultation has occurred.

Our results are similar to those found elsewhere. In the United States, focus groups and surveys of parents of children from all grade levels of school (elementary, middle school, and high school) have found that convenience is perceived to be an advantage of delivering influenza vaccine at schools; however, concerns about vaccine effectiveness, vaccine safety, trust issues, and the need for better information and effective communication have been common threads in studies of delivering influenza vaccine through schools.[27-29] Similarly, program coordination, implementation, and management issues were issues of importance to parents, including such issues as children being immunized in the absence of a parent, worries about the impacts of peer pressure on their children, and a need for reassurance that immunization would be done by qualified, credentialed professionals.[27] These concerns can be managed based upon American experience with school delivery of influenza vaccines[30] and Australian experiences with school delivery of HPV vaccines.[31;32] In Ontario where there is universal, publicly funded influenza immunization, although vaccine may be provided in pharmacies and mass public health immunization clinics, the vaccine is most frequently provided in physician offices.[13;14] Other publicly funded vaccines recommended for school age children are provided in schools by public health nurses as mentioned previously. As suggested elsewhere,[33] involving family physicians

and other healthcare providers in presenting unified support for school delivery of influenza vaccine may help to alleviate parents' concerns with delivery of influenza vaccine in an environment outside of their medical home.

Our study had some limitations. Participants of the Internet forums often provided very brief responses, with limited discussion. Future focus groups using this type of format should schedule a short time period of 30 minutes to an hour for all participants to join the online discussion simultaneously to encourage stronger engagement and richness of response. As with all qualitative research, it is unknown whether the opinions expressed by our participants are representative of Ontario parents. Study participants were not statistically representative of the Ontario population: a higher proportion had a university degree than the population generally (67% vs. 25.9%) [34]. We sought information solely from parents; future studies should include other important stakeholders such as school board officials and health unit management and staff.

Nonetheless, the findings of this study will inform public health officials and program managers about the potential acceptability of SBII programs from the parental perspective. These recommendations may also be useful for evaluators of any of the currently existing immunization programs delivered in schools in Ontario. Future research should focus on confirming our results through quantitative analysis, and also seek input from other stakeholders, such as public health and educators.

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Contributors and Guarantor

MLR and JCK conceptualized the study, monitored data collection, and drafted and revised the paper. DM developed the analysis plan, participated in the analysis, and drafted and revised the paper. DM is the guarantor. LC, JAP and SQ conducted the data collection and analysis, and drafted and revised the paper. AEW participated in the analysis and revised the paper. HR participated in the data collection. MIS contributed to the study design, specifically data acquisition. All authors reviewed and approved the manuscript as submitted. All authors had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Declaration of Competing Interests

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that : all authors had financial support from the Canadian Institutes for Health Research for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Data sharing

Data sharing: no additional data available.

Transparency

DM affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained

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Table 1: Description of Participants

Characteristics	Round 1 n=21 (%)	Round 2 n=30 (%)	Round 3 n=4 (%)	TOTAL N=55 (%)
Influenza vaccination Status				
Ever had a child vaccinated against influenza	12 (57)	14 (47)	4 (100)	30 (55)
Never had a child vaccinated against influenza	9 (43)	16 (53)	0 (0)	25 (45)
Urban vs. rural residence				
Urban	20 (95)	30 (100)	0 (0)	50 (91)
Rural	1 (5)	0 (0)	4 (100)	5 (9)
Single (lone) parent status				
Single parent	3 (14)	7 (23)	0 (0)	10 (18)
Other	17 (81)	23 (77)	4 (100)	44 (80)
Prefer not to answer	1 (5)	0 (0)	0 (0)	1 (2)
Sex				
Female	11 (52)	26 (87)	4 (100)	41 (75)
Male	10 (48)	4 (13)	0 (0)	14 (25)
Number of children				
1	13 (62)	15 (50)	2 (50)	30 (55)
2	6 (29)	9 (30)	1 (25)	16 (29)

3 or more	2 (9)	6 (20)	1 (25)	9 (16)
Number and proportion of parents with at least one child in level of school				
Kindergarten	8 (38)	13 (43)	0 (0)	21 (38)
Elementary school (Grades 1-6)	7 (33)	18 (60)	3 (75)	28 (51)
Middle school (Grades 7-8)	3 (14)	5 (17)	1 (25)	9 (16)
High school (Grades 9-12)	6 (29)	4 (13)	0 (0)	10 (18)
Age range (years)				
20-29	4 (19)	4 (13)	0 (0)	8 (16)
30-39	10 (48)	10 (33)	1 (25)	21 (38)
40 or older	7 (33)	16 (53)	3 (75)	26 (47)
Education				
High school	2 (10)	2 (7)	0 (0)	4 (8)
Some post secondary or college diploma	3 (14)	10 (33)	3 (75)	16 (29)
University degree	16 (76)	18 (60)	0 (0)	34 (67)
Other/no answer	0 (0)	0 (0)	1 (25)	1 (2)

Table 2: Themes arising from the data

Main Theme	Sub-themes (level 2 themes) within Main theme	Subthemes within level 2 themes
Perceived effects at the individual and system level		
	Impact on children and their families	
		Pressure to immunize
		Integration into family life/accessible
		Immunization of non-student populations
	Impact on healthcare system	
		Vaccine uptake
		Cost effectiveness of SBII program
		Opportunity for transmission
		Burden on non-SBII settings
	Impact on school system	
Considerations & recommendations for a successful SBII program		

	Parental control over child's health	
	Program coordination, implementation & management	
	Shared stakeholder responsibility	
	Educating parents about influenza and influenza vaccines	
	The needs of the child	

Title

Parental Perceptions of School-based Influenza Immunization in Ontario, Canada: a qualitative study.

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Key Words: influenza, Parents*, Immunization Programs*, Schools, Canada, Ontario, Qualitative Research

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Abstract

Objective: To understand the perspectives of Ontario parents regarding the advantages and disadvantages of adding influenza immunization to the currently existing Ontario school-based immunization programs.

Design: Descriptive qualitative study

Participants Parents of school age children in Ontario, Canada who were recruited using a variety of electronic strategies (social media, emails, and media releases), and identified as eligible (Ontario resident, parent of one or more school age children, able to read/write English) on the basis of a screening questionnaire. We used stratified purposeful sampling to obtain maximum variation in two groups: parents who had ever immunized at least one child against influenza or who had never done so. We conducted focus groups (teleconference or Internet forum) and individual interviews to collect data. Thematic analysis was used to analyze the data.

Setting: Ontario, Canada

Results: Of the 55 participants, 16 took part in four teleconference focus groups, 35 in six Internet forum focus groups, and four in individual interviews conducted between October 2012 and February 2013. Participants who stated that a school-based influenza immunization program would be worthwhile for their child valued its convenience and its potential to reduce influenza transmission without interfering with the family routine. However, most thought that for a program to be acceptable, it would need to be well designed and voluntary, with adequate parental control and transparent communication between the key stakeholder groups of public health, schools, and parents.

Conclusions: These results will benefit decision-makers in the public health and education sectors as they consider the advantages and disadvantages of immunizing children in schools as part of a system-wide influenza prevention approach. Further research is needed to assess the perceptions of school board and public health stakeholders.

STRENGTHS AND LIMITIONS OF THIS STUDY

- Several qualitative studies from the United States have identified issues (from the perspective of parents) that are relevant to the design and implementation of programs to deliver immunizations (including influenza immunization) to school age children at school.
- However data from settings in which both healthcare and influenza immunization are universally publicly funded ~~there is universal publicly funded healthcare, universal publicly funded influenza immunization~~, and well established programs for delivering vaccines other than influenza vaccine at school have been lacking.
- The issues raised by parents in our study were similar to those found elsewhere, including parents in the United States
- Our data provide guidance for program planners to develop programs that are acceptable to parents for delivering influenza vaccines in schools.

Introduction

Children are important drivers of influenza transmission.[1-5] Immunizing school age children may provide direct benefits to the children as well as indirect benefits to high-risk groups.[6-11] Canada recommends vaccination of children aged 6-59 months and individuals ≥65 years, and also encourages vaccination of all healthy persons aged 5-64 years.[12] The province of Ontario has provided free influenza vaccines for all residents aged 6 months or older since 2000. However, coverage during the 2006-07 influenza season was only 31% among children aged 12-19 years, 28% among healthy children aged 2-11 years, and 37% among children aged 2-11 years with chronic health conditions.[13;14] Barriers to access are often cited as reasons for under-immunization.[15]

In Canada all provinces and territories vaccinate children at school, although there is variance in the vaccines administered using this strategy[16]. Ontario (population 13.4 million in 2012) is the only Canadian province to date where SBII is known to have been implemented, and it has been associated with an approximately 10% greater vaccine coverage in school age children (39% vs. 30% for children aged 12-19 years, 36% vs. 24% for children aged 4-11 years), and a corresponding 19-24% reduction in influenza-associated physician office visits.[14]

School-based influenza immunization (SBII) is a strategy to increase influenza vaccine coverage in children particularly "where background rates are likely to be very low and improvements in coverage are needed."[17] ~~Ontario (population 13.4 million in 2012) is the only Canadian province to date where SBII is known to have been implemented, and it has been associated with an approximately 10% greater vaccine coverage in school age children (39% vs. 30% for children aged 12-19 years, 36% vs. 24% for children aged 4-11 years), and a corresponding 19-24%~~

~~reduction in influenza-associated physician office visits.~~[14] SBII may also have the potential to reduce disparities in uptake that might exist, based upon the recent Alberta experience with school delivery of adolescent-targeted human papillomavirus (HPV) vaccine delivery[18]. However, the decision to implement SBII is at the discretion of each of Ontario's 36 public health units (PHUs), and the number of PHUs offering SBII ~~declined from a peak of 13 in 2001 to~~ was only 4 ~~by~~ in 2010.[14]

Key stakeholders for the development and implementation of any school-based immunization program include parents and guardians, the education sector (e.g. school administrators), and the health sector (e.g., public health). We conducted a qualitative study to examine and understand parents' perceptions of the advantages and disadvantages of SBII, as well as the programmatic characteristics that would contribute to the development of robust SBII programs that are acceptable to parents in Ontario, Canada.

Methods

We conducted a descriptive qualitative study using focus groups (FG) as our primary means of data collection[19], using key informant interviews to confirm findings with rural participants. Given Ontario's large geographical area, we chose teleconferences (maximum duration of one hour) and Internet forums (asynchronous participation, approximately 15 minutes per day for five days) to facilitate participation by parents from across the province. Teleconferences and Internet forums have been found to be as successful as face-to-face sessions for focus groups.[20;21]

Recruitment

Between October 2012 and February 2013, we used purposeful sampling to recruit parents of school age children living in Ontario using social media, deal forum websites, online classified ads, conventional mass media, and email lists.[22] Participants were eligible if they: 1) lived in Ontario; 2) had at least one child enrolled in school (kindergarten to grade 12); 3) were mostly or jointly responsible for making health decisions for their child; and 4) spoke and wrote in English. If eligible, participants were then asked questions about their demographic characteristics and indicated their preference for a teleconference or an Internet forum FG. For each FG, we invited at least twice the number of individuals to participate as needed in anticipation that many of those invited would not participate, and we offered them two or three time slots as options. We conducted the teleconference FGs at the time when the maximum number of persons was available. Individuals who preferred Internet forums were provided with forum start and end dates, and asked to create an online account prior to the beginning of the first forum. We conducted recruitment in three rounds. Round 1 occurred in November 2012, Round 2 in December 2012, and Round 3 in February 2013. In Round 1, we offered a $5 Amazon.ca electronic gift certificate to eligible participants completing both parts of the web-based eligibility questionnaire. No incentive was offered in the subsequent two rounds of recruitment. After closing recruitment in each round, we stratified participants into two heterogeneous groups to ensure within group homogeneity: 1) Ever Group: parents who had ever immunized at least one child against influenza; and 2) Never Group: parents who had never immunized any of their children against influenza. To ensure maximum variation in each group on other attributes, we invited individuals based on additional criteria: single parent status, geographic location (urban vs. rural), gender, ethnicity, and age. The last round targeted parents from rural areas. We

defined rural residents as being those who had a zero in the second position of their 6-digit postal code, indicating residence in an area that is not accessible by letter carriers.[23]

Study process

A trained facilitator (LC) moderated all FGs, with other team members (DM, JAP, SQ, HR) attending selected sessions. Researchers LC, DM, JAP, and SQ had experience and/or training in qualitative methods. All members of the research team except JCK were female and all had public health experience as well as a vested interest in promoting immunization within the public domain. None of the researchers had relationships with any of the participants prior to the study. All participants were provided with a semi-structured interview guide in advance. This pilot-tested guide included a brief description of the study purpose, participant instructions, and the 11 core questions. During the FGs, the participants were encouraged to share their opinions, and to build on each other's thoughts and ideas about SBII. Repeat interviews were not conducted. One individual withdrew from an FG after being deemed ineligible to participate based upon disclosures made at the start of the FG. Following the FGs, we completed a round of individual interviews with rural parents as participation was low among this group. Teleconference FGs and telephone interviews were digitally recorded and transcribed verbatim by a qualified transcriptionist. Transcripts were not returned to the participants for comment. Field notes were written following each FG and interview including information about the process and personal observations. Internet forum and teleconference data were imported into NVivo 10 for analysis.

Analysis

Following each round of data collection, four research team members (LC, JAP, DM, SQ) individually coded the data using the process of thematic analysis.[19;24;25] Each person read all transcripts to generate an initial set of codes. The initial codes were then collated into potential themes, where all data were gathered relevant to each theme. The themes were then reviewed to ensure that they reflected the coded extracts as well as the entire data set. Through ongoing analysis, the themes were refined and linkages between them were identified. Team members met regularly to review the emergent themes and reach consensus. Because new themes were still arising at the end of the first round of FGs, recruitment was re-opened and a second round of FGs continued until saturation was reached. Following analysis, the themes were compared to the existing literature to determine congruency of the findings.

Ethics and role of the funding source

The study was ethically approved by the Research Ethics Boards of the University of Toronto (University of Toronto Health Sciences Research Ethics Board, protocol # 28086) and Bruyère Continuing Care Research Ethics Board (protocol # M16 – 12 – 035). Participants gave informed consent prior to taking part in the study; the consenting process included information about the researchers and the purpose and rationale of the study. The study was funded by the Canadian Institutes of Health Research grant number PIR 124309. The funding source had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, or approval of the manuscript.

Results

Between November 2012 and February 2013, we conducted 10 FGs and four key informant interviews over three rounds. Fifty-five people participated. Round 1 comprised one teleconference (six parents) and two Internet forums (15 parents) FGs. Round 2 entailed three teleconference (10 parents) and four Internet forums (20 parents) FGs. Round 3 involved four key informant interviews (four parents, all rural). Of the 55 participants, 41 (75%) were female, 26 (47%) were 40 years or older, 34 (67%) had a university degree, 25 (45%) had more than one child, 50 (91%) were from urban areas, 10 (18%) identified themselves as single parents, and 30 (55%) had ever had a child immunized against influenza (Table 1).

Themes

Two major themes describing Ontario parents' perceptions of the advantages and disadvantages of influenza immunization in schools were identified: the effects of SBII at each stakeholder level and recommendations for an ideal program (Table 2). These themes mapped to the coding tree created during analysis as they had been derived directly from the data.

Theme 1: Perceived effects at the individual and system level

i) Impact on children and their families

Pressure to immunize: Parents expressed both support and concern for the fact that implementing SBII would increase pressure to have children immunized, and would force parents to make a decision. Those supportive of SBII thought that this added pressure could be beneficial, resulting in increased vaccine uptake in children.

"… there are people who don't immunize their children for a variety of things, but influenza in particular…so I think that having it [influenza immunization] in school would put some pressure on some of those people to immunize their children…that could be seen as an advantage because I think that it would increase uptake..." (P27)

However, others thought that the decision to vaccinate one's child against influenza should be personal, and the implementation of SBII may lead to inappropriate external influence on the decision-making process. This was especially true for those who expressed overall negative views about vaccination, or were uncertain about the merits of seasonal influenza vaccine.

"I think the one disadvantage that I could think of is because it's part of the school-based program, I think some parents who may not want to use it, may feel pressured, because it is offered at school, and they may feel pressured to use it." (P23)

Integration into family life/accessible: Most parents agreed that SBII would be time-saving and more convenient for families and less disruptive to the family routine than seeking immunization at conventional healthcare locations. This issue was mentioned repeatedly by parents from rural areas, for whom influenza immunization often required considerable travel and time due to limited access to immunization providers and a lack of public transit.

"If we miss that (clinic) then we must travel to one of the clinics in Ottawa (a 90-110 minute round trip plus time waiting in clinic) or make arrangements with our doctor. (However) in

the past our GP has only been able to vaccinate the family once the clinics have finished, which is usually well past the optimal period for preventing infection." (P46)

"…If you don't have a primary care physician…you can't get it (flu shot) done at a walk-in clinic". (P54)

Immunization of non-student populations: A few parents expressed concern that SBII may affect adult immunization coverage. Since the practice of influenza immunization was commonly done as a family and often for the benefit of the children, they thought that parents may be less inclined to get immunized themselves if their children were immunized at school.

ii) Impact on healthcare system

Vaccine uptake: Many parents thought that if SBII was well developed, timed appropriately during the school year, and safely implemented, it had the potential to increase influenza immunization coverage. These parents anticipated a positive impact on the healthcare system, with increased vaccine uptake leading to decreased disease spread and healthcare utilization.

Cost-effectiveness of SBII program: Some parents commented on the need to understand the costs of SBII before assessing its value. Several thought that if the program increased immunization coverage, the community-wide benefit of fewer cases of influenza would justify the increased program costs.

"I think the long term health care costs in reducing the risk of a flu epidemic, would be less than the short term costs of providing the vaccination free of charge." (P44)

However, others were unsure about who would be expected to fund the program. These participants were concerned about additional financial costs to schools and the healthcare system, and thought that they needed more information before supporting SBII.

"Perhaps the teachers would have to do more work? …Where does the budget for this come from? Would it affect school budgets at all?" (p46)

Opportunity for transmission: A few parents mentioned that SBII allowed their children to get vaccinated in a setting where individuals would tend to be relatively healthy, in contrast to the perceived risk of exposure to ill persons while waiting in physician offices or in line-ups for public health mass vaccination clinics. School clinics were thus viewed as being comparatively healthy environments, decreasing opportunities for transmission of influenza to children and their families.

Burden on non-SBII settings: A small number of parents thought that introducing SBII could ease strain on the healthcare system. These parents associated currently structured influenza immunization programs with long line-ups in mass vaccination clinics, and thought SBII could potentially decrease the burden influenza immunization places on family doctors and public health clinics.

iii) Impact on school system

Parents had conflicting views on the appropriateness of using schools to deliver a healthcare program like SBII. Some thought that schools were a suitable and convenient location to vaccinate children. Others were uncertain about the roles and responsibilities of schools compared to those of local public health. If schools were actively involved in SBII implementation, there was concern as to whether they were well-equipped to coordinate the program successfully, whether this might interfere with education, and whether school-based immunizations would be recorded properly, with the mechanisms in place to track and transfer the data as needed.

"My biggest concern…is the logistics of it… Who is monitoring and how are we going to do that in terms of the schedules? And beyond the schedule, how that information is going to be passed on?" (P2)

There was also some apprehension as to whether SBII program implementation was an achievable goal given the amount of coordination that would be required from the various stakeholders. A few parents were concerned whether every aspect of the program would be considered, beyond the logistics, to reflect the best interests of children.

"… I'm worried about public health lining up hundreds of kids to be immunized and only having time for the logistics of getting that done and not having the time to care for emotional states. (P51)

Theme 2: Considerations and recommendations for a successful SBII program

Although there were parents who were firmly against seasonal influenza vaccines for their children, many expressed that there could be value to a SBII program, but identified several issues that would need to be addressed before they would feel comfortable using the program.

Parental control over child's health: All parents agreed that the program should be 100% voluntary but acknowledged that opinions were mixed on this. However, they said as long as there was a choice, they would not oppose it.

"As long as these programs are optional, I think they provide a good service. Parents decide what is best for their children and there should be no pressure to participate." (P48)

Many parents thought the use of rewards for children being immunized (e.g. stickers, candies) would be positive and would help increase the comfort level of the child being immunized. However, in one FG, a couple of parents expressed concerns that giving rewards only to immunized children would potentially stigmatize those who did not receive the vaccine.

Program coordination, implementation and management: Several parents stressed that the timing of the program was important. Planning the annual clinics at the same time of the year, in the right period for disease prevention, and adding clinic dates to school calendars at the beginning of the year would be essential.

In the absence of experience with SBII, and in many cases, any school-based immunization program, some parents were unaware that nurses from the local public health

agency deliver immunization programs (e.g., for HPV and meningococcal vaccines) in schools. These parents expressed concerns about who would be giving the vaccine: Would they be professionals? Would the location and process be hygienic? Others raised concerns about how side effects or allergic reactions would be managed.

> *"As long as it was being done in a safe clean environment and administered by trained professionals, then nothing would stop me from having my children given a flu shot at school." (P51)*

> *"…my biggest fear has always been the reaction to the vaccine, whether or not they would get the right amount of attention if there was a negative reaction." (P11)*

Shared stakeholder responsibility: The majority of parents spoke of the need for effective communication between all stakeholders (school/parents/public health), to ensure everyone is well informed with appropriate information to make decisions. Keeping lines of communication open, and being sensitive to the needs of the different parent groups (such as unique cultural or economic groups or those with differing opinions about influenza immunization) was considered essential. Parents also provided suggestions about effective communication channels.

> *"…having an information session for new parents every year…would be wonderful." (P26)*

Educating parents about influenza and influenza vaccines: Participants thought that the ideal SBII program would include education for parents about both influenza illness and influenza

vaccine. Some parents perceived that influenza was not a serious disease. Others thought they needed more information about vaccine effectiveness and vaccine safety, particularly for children. Parents stressed the need for consistent messaging from sources perceived to be trustworthy. They strongly recommended that official communications be standardized to increase acceptance and decrease confusion.

The needs of the child: Some parents recommended that the programs be flexible and provide for the differing needs of children, such as creating different approaches depending on the age of the child, or for children with special needs.

> *"The first factor would be age. If he was young and uncomfortable with the idea then I'd pass just so I could be there with him. If he was old enough (5th grade and higher)…I'd have him immunized at school." (P47)*

Parents expressed the need to provide a safe environment for the children, and to make sure that those responsible for the program respect a child's dignity throughout the immunization process. This would include protecting their feelings and any potential insecurities (e.g., not being forced to partially disrobe in front of classmates; ensuring privacy for children afraid of needles). A couple of parents emphasized the importance of maintaining focus on the child, by describing their own past immunization experiences that did not do this, which they felt influenced their willingness to use an SBII program.

"I think a lot of times we don't give our kids enough dignity…When I was a kid we had these scoliosis tests done and I was a chubby kid. And, you know, we'd have to remove our shirt in front of all the other kids and…you get a lot of fun poked at you. It was very hard as a child. I think we should give them that dignity...They might be children but they're also human." (P26)

Discussion

As is the case for any program that delivers vaccines to schoolchildren, parents are key stakeholders, and their perspectives and recommendations are valuable for a program's success. In our study, parents noted several benefits of SBII, including the convenience of having their child vaccinated without disruption to the family routine, and the potential for higher vaccine uptake resulting in reductions in disease transmission (thus ultimately also in reductions in burden for acute care). However, our findings suggest that for such a program to succeed, parents must understand how it will be managed and coordinated, and perceive that they have sufficient information to make an informed and voluntary decision about their child's participation. Consistent messaging on these issues is essential.

Based on their concerns around school resources, it appears that some parents weren't aware that Ontario's current school-based vaccination program is actually offered and delivered by public health, albeit in school. In Ontario, the school–based immunizations are given in grades 7 (Meningococcal conjugate [Men-C-ACYW] vaccine, Hepatitis B vaccine) and 8 (Human Papillomavirus [HPV] vaccine, girls only) [26]. We note that many participants had children in kindergarten to grade 6 (K-6) and suspect that they had not yet had experience with these programs where they might have learned this. We propose that messaging that vaccination

in the school setting is a public health program must be part of any future SBII program, and that it might be appropriate regardless, to deliver this message to parents of children in K-6. Parental concerns about impacts of a future SBII program might also have arisen because of a lack of experience with the current school-based vaccination program. However, since the schools are themselves key stakeholders in an SBII program, future research needs to address the concerns of schools and messaging related to any future SBII program must make it clear that that this consultation has occurred.

Our results are similar to those found elsewhere. In the United States, focus groups and surveys of parents of children from all grade levels of school (elementary, middle school, and high school) have found that convenience is perceived to be an advantage of delivering influenza vaccine at schools; however, concerns about vaccine effectiveness, vaccine safety, trust issues, and the need for better information and effective communication have been common threads in studies of delivering influenza vaccine through schools.[27-29] Similarly, program coordination, implementation, and management issues were issues of importance to parents, including such issues as children being immunized in the absence of a parent, worries about the impacts of peer pressure on their children, and a need for reassurance that immunization would be done by qualified, credentialed professionals.[27] These concerns can be managed based upon American experience with school delivery of influenza vaccines[30] and Australian experiences with school delivery of HPV vaccines.[31;32] In Ontario where there is universal, publicly funded influenza immunization, although vaccine may be provided in pharmacies and mass public health immunization clinics, the vaccine is most frequently provided in physician offices.[13;14] Other publicly funded vaccines recommended for school age children are provided in schools by public health nurses as mentioned previously. As suggested elsewhere,[33] involving family physicians

and other healthcare providers in presenting unified support for school delivery of influenza vaccine may help to alleviate parents' concerns with delivery of influenza vaccine in an environment outside of their medical home.

Our study had some limitations. Participants of the Internet forums often provided very brief responses, with limited discussion. Future focus groups using this type of format should schedule a short time period of 30 minutes to an hour for all participants to join the online discussion simultaneously to encourage stronger engagement and richness of response. As with all qualitative research, it is unknown whether the opinions expressed by our participants are representative of Ontario parents. Study participants were not statistically representative of the Ontario population: a higher proportion had a university degree than the population generally (67% vs. 25.9%) [34]. We sought information solely from parents; future studies should include other important stakeholders such as school board officials and health unit management and staff.

Nonetheless, the findings of this study will inform public health officials and program managers about the potential acceptability of SBII programs from the parental perspective. These recommendations may also be useful for evaluators of any of the currently existing immunization programs delivered in schools in Ontario. Future research should focus on confirming our results through quantitative analysis, and also seek input from other stakeholders, such as public health and educators.

Declaration of Competing Interests

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and

declare that : all authors had financial support from the Canadian Institutes for Health Research for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Data sharing

Data sharing: no additional data available.

Transparency

DM affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained

Contributors and Guarantor

MLR and JCK conceptualized the study, monitored data collection, and drafted and revised the paper. DM developed the analysis plan, participated in the analysis, and drafted and revised the paper. DM is the guarantor. LC, JAP and SQ conducted the data collection and analysis, and drafted and revised the paper. AEW participated in the analysis and revised the paper. HR participated in the data collection. MIS contributed to the study design, specifically data acquisition. All authors reviewed and approved the manuscript as submitted. All authors had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1: Description of Participants

Characteristics	Round 1 n=21 (%)	Round 2 n=30 (%)	Round 3 n=4 (%)	TOTAL N=55 (%)
Influenza vaccination Status				
Ever had a child vaccinated against influenza	12 (57)	14 (47)	4 (100)	30 (55)
Never had a child vaccinated against influenza	9 (43)	16 (53)	0 (0)	25 (45)
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~~Rural~~Urban	20 (95)	30 (100)	0 (0)	50 (91)
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3 or more	2 (9)	6 (20)	1 (25)	9 (16)
Number and proportion of parents with at least one child in level of school				
Kindergarten	8 (38)	13 (43)	0 (0)	21 (38)
Elementary school (Grades 1-6)	7 (33)	18 (60)	3 (75)	28 (51)
Middle school (Grades 7-8)	3 (14)	5 (17)	1 (25)	9 (16)
High school (Grades 9-12)	6 (29)	4 (13)	0 (0)	10 (18)
Age range (years)				
20-29	4 (19)	4 (13)	0 (0)	8 (16)
30-39	10 (48)	10 (33)	1 (25)	21 (38)
40 or older	7 (33)	16 (53)	3 (75)	26 (47)
Education				
High school	2 (10)	2 (7)	0 (0)	4 (8)
Some post secondary or college diploma	3 (14)	10 (33)	3 (75)	16 (29)
University degree	16 (76)	18 (60)	0 (0)	34 (67)
Other/no answer	0 (0)	0 (0)	1 (25)	1 (2)

Table 2: Themes arising from the data

~~Level 1~~ Main Theme	~~Level 2~~Sub-themes (level 2 themes) within Main theme ~~Theme~~	~~Level 3 Theme~~Subthemes within level 2 themes
Perceived effects at the individual and system level		
	Impact on children and their families	
		Pressure to immunize
		Integration into family life/accessible
		Immunization of non-student populations
	Impact on healthcare system	
		Vaccine uptake
		Cost effectiveness of SBII program
		Opportunity for transmission
		Burden on non-SBII settings
	Impact on school system	
Considerations & recommendations for a		

successful SBII program		
	Parental control over child's health	
	Program coordination, implementation & management	
	Shared stakeholder responsibility	
	Educating parents about influenza and influenza vaccines	
	The needs of the child	

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Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups

Table 1
Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	**Lines of Manuscript in which items are addressed**
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	Page 9 line 48-51
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	Title pages 1, lines 25-8, 32, 37,42, 46, 51, 56; p2 lines 4, 10-11
3.	Occupation	What was their occupation at the time of the study?	Title pages 1-2
4.	Gender	Was the researcher male or female?	P 9 line 53
5.	Experience and training	What experience or training did the researcher have?	P 9 line 51-56
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	P 10 line 3-4
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. *personal goals, reasons for doing the research*	P 11 lines 18-23
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	P 9 lines 53-56
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	P 10 line 39
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive,*	P 8 line 41

No	Item	Guide questions/description	Lines of Manuscript in which items are addressed
		convenience, consecutive, snowball	
11.	Method of approach	How were participants approached? e.*g. face-to-face, telephone, mail, email*	P 8 lines 41-46
12.	Sample size	How many participants were in the study?	P 11 line 37-39
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	P 10 line 13-16
Setting			
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	P 8 lines 27-30
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	P 9 lines 48-51
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	Table 1 on p 24
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	P 10 lines 6-11
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	P10 line 13
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	P 10 lines 20-22
20.	Field notes	Were field notes made during and/or after the interview or focus group?	P 10 line 25-27
21.	Duration	What was the duration of the interviews or focus group?	P 8 line 27-32
22.	Data saturation	Was data saturation discussed?	P 10 lines 51-54, p 11 line 3
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	P 10 line 25
Domain 3: analysis and findings			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	P 10 lines 36-38
25.	Description of the coding tree	Did authors provide a description of the coding tree?	P 26 Table 2
26.	Derivation of themes	Were themes identified in advance or derived from the data?	P 10 lines 39-49
27.	Software	What software, if applicable, was used to manage the data?	P 10 line 29-30

No	Item	Guide questions/description	**Lines of Manuscript in which items are addressed**
28.	Participant checking	Did participants provide feedback on the findings?	P 10 line 25
Reporting			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.*g. participant number*	Quotes and participant numbers on p 12, 13, 14, 16-20
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	Throughout results and discussion pp 12-22
	Clarity of major themes	Were major themes clearly presented in the findings?	P 26Table 2
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Discussion section of manuscript p 20 - 21