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Pandemic planning in pediatric care: A website policy review and national survey data

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ABSTRACT

Objectives: This study investigates current policies, key issues, and needs for pandemic planning in pediatrics in Canada.

Methods: Online pandemic plans from national, provincial and territorial government websites were reviewed to identify: plans for children and families, and psychosocial and ethical issues. A survey was administered to gather participants' perspectives on the needs in pediatric planning, as well as important elements of their organizations' and regions' pandemic plans. A thematic analysis was conducted on qualitative survey responses.

Results: The majority of existing plans did not adequately address the unique needs of pediatric populations, and mainly focused on medical and policy concerns. Several gaps in plans were identified, including the need for psychosocial supports and ethical decision-making frameworks for children and families. Similarly, survey respondents identified parallel gaps, in their organization's or region's plans.

Conclusions: Although many plans provide guidelines for medical and policy issues in pediatrics, much more work remains in psychosocial and ethical planning. A focus on children and families is needed for pandemic planning in pediatrics to ensure best outcomes for children and families.

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1. Introduction

The impact of pandemic H1N1 (2009) has raised public awareness of the threat of a severe influenza outbreak, as the Public Health Agency of Canada, provincial, and territorial bodies continue to bolster their contingency plans. In

2003, Severe Acute Respiratory Syndrome (SARS) revealed gaps in Ontario's emergency response capability, and highlighted the need to prepare for future epidemics. The effects of this outbreak resulted in a total of 251 probable cases and 43 deaths in Canada [1]. SARS heavily impacted the health care system in Ontario and in affected areas across the globe. Recent memories of this outbreak, coupled with the threat of pandemic H1N1 (2009) warn of the impacts of a major outbreak in Canada. Accordingly, planning has become a pressing issue for stakeholders in government, industry and community. While the exact timing, pattern and impact of a future pandemic is unknown [2,3], in

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Canada an influenza pandemic could result in as many as 10.6 million people (35%) who become clinically ill, 138,000 (0.5%) who require hospitalization, and up to 58,000 deaths (0.2%) [4]. Such concerns have become a high profile public health issue, and fears of a potential global pandemic continue to grow. Governments, policy makers, and health care providers (HCP), are planning for future pandemics, in part, based upon the lessons learned from SARS. Health Canada [5] has identified gaps in the response to SARS that should influence current policies and planning. For example, there is still a need to address ethical concerns during a pandemic, for instance, governments may be required to infringe upon civil liberties to ensure infection control, and policy makers need to establish frameworks for decision-making to allocate scarce health care resources [6]. A lack of coordination and communication, the poor management of resources, and the absence of a clear leadership structure within organizations and government also had a detrimental effect on the effort to control the SARS outbreak [6–8]. Outside of Canada, critical gaps have been identified in European Union (EU) plans. These concerns include a lack of cooperation among EU countries and poorly delineated roles and responsibilities of central and regional health authorities. In addition, gaps exist in preparation for the impact on health care systems, the maintenance of essential services, and public health interventions to curb the spread of an epidemic [9]. Similar issues have been highlighted by researchers and planners world wide [10,11]. Recently, pandemic H1N1 (2009) has reignited these concerns about preparedness.

In an effort to learn from SARS and to prepare for a future pandemic, the Government of Canada has released the “Canadian Pandemic Influenza Plan for the Health Sector” [4]. Similarly, the majority of provincial and territorial governments have also released their regional plans [12–26] (see Table 1 for selected features of pandemic plans in various jurisdictions). These documents guide health planning and responses at provincial and local levels. Government plans cover topics ranging from influenza surveillance, to the distribution of antiviral supplies, to communication and information dissemination. Although these plans are designed to protect all Canadian citizens, there continues to be a lack of dialogue or guidance to address the specialized needs of a pediatric population. Children may require specialized supplies, medications, and treatment. They also require additional supervision and family support [27]. Additionally, pandemic planning for children and families is often addressed locally, with little coordination among the various levels of planning [28]. This continued neglect of pediatrics, both by policy makers and researchers in pandemic planning, is problematic, as difficulties associated with psychosocial concerns or ethical decision-making are magnified for HCP, children and families [29]. In this paper, we present both provincial and territorial policy statements as they relate to pediatrics based on a website review of plans. We also present the qualitative results from a survey administered to pediatric pandemic planning practitioners and policy makers. The goal of the project is to assess the comprehensiveness of existing pandemic plans in Canada and to identify what professionals identified as important and needed in pediatric plans.

Table 1
Participant demographic data.

	n	%
Province or territory of residence		
British Columbia	13	4.5
Prairies	53	18.3
Ontario	99	34.1
Quebec	62	21.4
Maritimes	48	16.6
North	15	5.2
Field of Employment ^a		
Government	64	19.8
Direct Care Institutional	133	41
Community	37	11.4
Non-Governmental Organization	8	2.5
Other	82	25.3
Employment Setting (Health Care Workers Only)		
Pediatric/adult care setting	85	35.7
Pediatric setting	69	29
Other	84	35.3
Role ^a		
Direct health care provider	112	24.7
Administrator/Manager	130	28.6
Federal policy analyst/Developer	6	1.3
Provincial policy analyst/Developer	28	6.2
Municipal policy analyst/Developer	2	0.4
First nations policy analyst/Developer	8	1.8
Academic/Researcher	18	4
Educator	32	7
Other	118	26
Member of Pandemic Planning Committee		
Family or Patient Advisory Committee	11	4.4
Canadian Pandemic Influenza Committee	18	7.3
Provincial Pandemic Influenza Committee	72	29
Organizational Pandemic Influenza Committee	147	59.3

^a Participants were permitted to select more than one response.

Ethical decision-making in pediatrics

There is little dialogue about ethical concerns in pandemic planning for pediatrics. As such, the literature about ethics in pandemic planning focuses primarily on adult care [30–32]. Thompson and colleagues have identified general values to guide care and policy for pandemic planning. These values include: the duty to provide care, equity, individual liberty, privacy, proportionality, protection of the public from harm, reciprocity, solidarity, stewardship, and trust [30]. Although these values are central to ethical planning and decision-making, many may be interpreted differently in pediatrics. For example, individual liberty does not apply to children in the same way as adults. Compared to adults, children lack autonomy and parents must advocate and make health care decisions on their child's behalf. Due to the lack of literature on this topic, policy makers must individually interpret the ethical issues in pediatric care. As such, policy makers who strive to maintain ethical care in pediatrics should be guided by ethical values, and stay aware of the needs of children and families. In this paper, participants identify situations where such ethical policy making must be implemented.

2. Methods

In this paper, we present a website review of provincial and territorial pandemic plans with respect to pediatric policies. Additionally, we present the qualitative results from a national survey on pandemic planning.

2.1. Website review

Websites of all Canadian provinces and territories, and the Public Health Agency of Canada were reviewed to identify online and publicly available pandemic plans. Each website was surveyed to identify the availability of a pandemic plan. Subsequently, these plans were reviewed to assess their comprehensiveness and to identify unique plans for children and families, and psychosocial and ethical issues. The review was completed in June 2009 by a reviewer with a background in health policy. The reviewer used content analysis to record all references to pediatrics in a database. To verify this information, the plans were read by a second reviewer, and a search function was used to ensure that available pediatric plan information was included in the review.

2.2. Online survey

The web-based survey included open-ended questions that asked participants' opinions on the processes of planning, comprehensiveness and essential elements of pandemic plans in their organization or region.

The survey was hosted by Survey Monkey (<http://www.surveymonkey.com/>), an online application that administers questionnaires to participants. This method was chosen to increase the response rate from participants across Canada, particularly in more remote regions. An email with a link to the online survey was sent to potential participants between May and June 2008. Participants received a reminder email at 1 and 3 months after the initial request. The survey was available online in English and French.

2.3. Sample

Survey participants included individuals with expertise in pediatric care and pandemic planning, including: (1) members of national, provincial and territorial pandemic influenza committees; (2) professionals working in infection control and pandemic planning; and (3) professionals working with children, youth and families in crisis. The participants were recruited using snowball sampling.

2.4. Analysis

Email invitations to complete the survey were sent to 1964 individuals, with $n = 290$ participants, with a response rate of 14.8%. Given this low response rate, the survey data presented is not intended to be representative. The demographic data, however, show that there are participants from all areas of pediatric care and pandemic planning. In addition, respondents from all provinces and territories participated in the survey (see Table 1). As such, the data

identifies issues that are salient for participants who are interested and involved in the area, which may be important to consider in pandemic planning for children and families.

Open-ended survey responses were analyzed using qualitative data analysis software. A thematic analysis was conducted for each survey question using open coding. Qualitative rigor was ensured through the use of referential adequacy, negative case analysis, and peer debriefing.

3. Results

3.1. Website review

Government decision-makers have learned from SARS, using this knowledge to plan for future pandemics, evidenced by the release of detailed pandemic plans. Largely, however, the application of this knowledge to pediatrics has been lacking. Specific references to pediatrics are seen in a minority of pandemic plans [4,13,22], but a greater focus on pediatrics has been noted in some recently released plans [12,15]. Some plans do not acknowledge pediatrics as a need [18,21,26], while other plans suggest that the needs of this vulnerable population are being planned for, yet they do not articulate many concrete strategies to accomplish this task [16,17,19,23–25]. This omission of pediatric care in pandemic plans continues despite concerns of a potential outbreak, and the responsibility of governments to coordinate a pandemic influenza response for Canadian children and families (see Table 2).

3.2. Plans for children and families

Governments with pandemic plans that address needs in pediatrics have solid contingency plans for medical and policy issues, but less so for psychosocial and ethical issues. Medical components of plans focus on key issues such as: pediatric specific medical supplies; stockpiling of antivirals and vaccines; and differences in symptoms, triage, treatment and isolation [4,12–14,23].

Policy issues included in current plans address needs for coordination with other agencies as well as the public. These issues are often coupled with guidelines on school closures [4,13–17,19,22–25], and only Ontario's plan addresses child care provisions for HCP [22].

Chiefly, psychosocial and ethical concerns focus on communication [4,12–14,22]; potential stressors for children and families [4,12–15,17,22,24]; grief and bereavement counselling [4,13,22]; and family centred care [22]. Nevertheless, even these more thorough plans lack consideration of certain psychosocial and ethical issues, for example, 'how will decisions be made regarding children whose parents are unable to consent due to treatment?'. And 'how will children and families cope with these stressful events?'. Many such concerns, relevant to pediatric patients, families and HCP, are not documented in pediatric pandemic plans.

Notably, the above mentioned plans all contain a pediatric specific focus; in contrast, a majority of plans do not thoroughly consider these issues and tend to focus on medical and policy matters in pediatrics [16–21,23,24,26]. As a

Table 2

Summary of selected features of provincial, territorial and national pandemic plans.

Source	Plan publication date	Unique plans for children and families	Psychosocial issues addressed
Government of Alberta: Alberta Pandemic Influenza Plan for the Health System for Health Care Professionals	April 2008	<ul style="list-style-type: none"> • Priority of vaccines given to infants 6–23 months • Notes different symptoms, assessment, treatment, triage, isolation and comorbidity concerns in children • Portion of the stockpile of antivirals available for young children who cannot swallow capsules • Mentions need for communication to organizations, including daycares and school boards • Recommends school closures and acknowledges potential disruptions for health care workers with children 	<ul style="list-style-type: none"> • Mentions psychosocial impact of a pandemic on children and families and resulting concerns • Suggests parents communicate with children and youth about the pandemic and be watchful for signs of mental health concerns
Government of British Columbia: British Columbia Pandemic Influenza Preparedness Plan	October/August 2005	<ul style="list-style-type: none"> • Notes that pediatric specific supplies will be needed • Mentions different needs of children in terms of vaccinations, isolation, treatment • Children's/Pediatric Unit is one area in which the demand may increase markedly and continuing operation is crucial—health authority and facilities should consider these areas and determine which are critical to keep them operational • Need for coordinated planning with other ministries, including the Ministry of Children and Family Development • School closures for infection control 	<ul style="list-style-type: none"> • Agencies must “determine support needed for orphaned children and the need for grieving and counselling services” • Importance of supporting staff “through critical incident debriefing, grief counselling, child care support, etc.” • No mention of psychosocial care of children and families in hospital
Government of Manitoba: Preparing for Pandemic Influenza in Manitoba	March 2006	<ul style="list-style-type: none"> • Encourages families to plan ahead for school closings, absenteeism, and support within communities—asks parents to have back up plan should they get sick if schools/day care centres are closed • Identifies that children experience different symptoms than adults, and that young children are a high risk group 	Not mentioned
Government of Manitoba: Preparedness Guidelines for Manitoba School Divisions and Schools (K-12)	October 2007	<ul style="list-style-type: none"> • Preparation of school divisions for a potential pandemic • Focus on internal and external communication • Notes different symptoms and infectiousness of children 	<ul style="list-style-type: none"> • Notes the importance of providing psychosocial support services for staff, students and families during and after a pandemic
Government of New Brunswick: New Brunswick Pandemic Influenza Plan for the Health Sector	December 2005	<ul style="list-style-type: none"> • Social distance mentioned with regards to closing schools • School reporting part of the plan—when more than 10% of children are absent 	Not mentioned

Table 2 (Continued)

Source	Plan publication date	Unique plans for children and families	Psychosocial issues addressed
Government of Newfoundland and Labrador: Pandemic Influenza: Planning Guidelines, Roles and Responsibilities for the Health Sector	November 2007	<ul style="list-style-type: none"> Measures to increase social distance, such as school closures 	<ul style="list-style-type: none"> Mentions need for psychosocial support, but no specific mention of children
Government of Nova Scotia—Pandemic Influenza	January 2008	<ul style="list-style-type: none"> Flu surveillance in child care settings Notes different symptoms, isolation periods and vaccination requirements Parents, children and youth will be provided with education, self-care and service access information School closures which may be disruptive to students and parents Communication with school boards 	<ul style="list-style-type: none"> Social and mental health supports for health care workers, but no mention of children or families
Government of Nunavut Territories: Nunavut Press Release—Part of National Pandemic Preparedness Effort	Press Release, May 2006	Not mentioned	Not mentioned
Government of Nunavut Territories: Developing healthy communities: a public health strategy for Nunavut	November 2005	Not mentioned	Not mentioned
Government of Ontario: Ontario Health Plan for Influenza Pandemic—Chapter 18 Pediatric Services	August 2008	<ul style="list-style-type: none"> School closings and day care centres closings will impact parents Recognizes that children may have different risk factors, symptoms and treatments than adults Family physicians may require more support because of increased demand during pandemic since families rely on family physicians for treatment of child Discussed strategies for meeting needs of children and families: communication, education utilizing age-appropriate information, infection control to reduce spread among children, child care services for workers critical for infrastructure, treatment for children with influenza, treatment considerations for obstetric and neonatal care, treatment based on values specific to caring for children, e.g. family-centred care 	<ul style="list-style-type: none"> Psychosocial support for children treated for influenza and their families mentioned Need for grief and bereavement counselling for children and families mentioned
Government of Prince Edward Island: Pandemic Influenza Contingency Plan for the Health Sector	December 2006	<ul style="list-style-type: none"> Notes school closures and potential disruptions to parents and children Notes different symptoms, increased transmission, vaccine requirements of children Young children are at higher risk of complications arising from influenza infection Children not specifically mentioned 	<ul style="list-style-type: none"> Notes importance of psychosocial well-being, but no mention of children and families
Government of Quebec: Quebec Pandemic Influenza Plan—Health Mission	2006	<ul style="list-style-type: none"> Need for school closures as a means of infection control 	<ul style="list-style-type: none"> Psychosocial services mentioned—identification of vulnerable patient group (families are mentioned here) Role of psychosocial worker Tailoring services to situation Providing advice for partners and the population
Government of Saskatchewan: Saskatchewan Health: Public Pandemic Influenza Plan	March 2006	<ul style="list-style-type: none"> Vaccines provided to children 2–18 years of age—a priority group Close schools and other public functions to increase social distance 	Not mentioned

<p>Government of Yukon Territories: Yukon Press Release, July 23, 2009 (No plan available on website)</p>	<p>No plan available</p>	<p>News release notes issues surrounding H1N1 (nothing specific to children and families noted in the press release)</p>	<p>Not mentioned</p>
<p>Public Health Agency of Canada: The Canadian Pandemic Influenza Plan for the Health Sector</p>	<p>December 2006</p>	<p>School and daycare closures</p> <ul style="list-style-type: none"> • Longer isolation for young children (up to 7 days) compared to adults (3–5 days) • Children given priority for assessment and treatment • Highest rates of infection and clinical illness occur in children • Vaccination of children 6–23 months given priority • Children not priority for antiviral meds • Portion of the stockpile of antivirals available for young children who cannot swallow capsules • Management of Pandemic Flu guidelines in Annex F for child care and school settings • Annex G has specific guidelines on clinical care for children with influenza • Annex M focuses on the need for public education, especially for staff at day care centres, school boards 	<ul style="list-style-type: none"> • Recognized need for child care, emotional support and grief counselling to maintain staffing levels at health care facilities • Annex O identifies need for Emergency Social Services Planning, e.g. care for vulnerable populations such as unattended children

result, many provinces may be under prepared to deal with the increased demand for pediatric services, especially the need for psychosocial and ethical supports. Although many plans note differences in symptoms or treatment of children, and the need for school closures, still a number of these medical and policy needs are inadequately addressed and often psychosocial or ethical concerns are not touched upon at all. In fact, these issues present challenges often left unaddressed by government plans, resulting in a significant gap in pediatric pandemic planning.

3.3. Perspectives of stakeholders regarding needs and gaps

Stakeholders in pediatric services and pandemic planning participated in this cross-Canada survey and sharing written responses to open-ended survey questions, providing their suggestions for pediatric pandemic planning. Participants identified four overarching themes about important needs in pediatric planning. Main themes include: essential elements to a pediatric pandemic plan; importance of children and families in planning; importance of communication; and accounting for missing or rudimentary plans.

3.4. Essential elements of a pediatric pandemic plan

Participants identified plan elements they thought were central to any organization's pediatric pandemic plan. They identified concerns from resource allocation to ethical decision-making, illustrating the complexity and heterogeneity of these issues.

Participants provided a wide range of elements they thought should be included in a pediatric pandemic plan. Many expressed the importance of child care measures during a pandemic. A variety of concerns pertaining to child care were identified, such as how to manage school and day care closures for working parents. By the same token, participants felt plans should provide support for HCP, in managing child care, family and job responsibilities, in addition to providing for occupational health concerns, including the psychosocial and physical well-being of HCP.

Moreover, participants felt that ensuring the availability of psychosocial supports for various stakeholders was also an essential plan element. They suggested that plans should make provisions to provide psychosocial supports for children, families, and HCP and their families.

Providing education and information were important to participants, to promote understanding and preparation during a pandemic. Similarly, they identified communication with stakeholder groups as essential in a pediatric pandemic plan.

Participants felt that policies should provide guidance in infection control in pediatrics. Coupled with these concerns, clinical guidelines were also identified as a central and complex issue in a pediatric pandemic plan. Participants saw the need for treatment guidelines specific to pediatric populations, including guidelines for assessment and treatment, for children with an infected or absent parent or guardian, and for prevention, such as vaccination protocols. Guidelines for the treatment of routine

non-influenza health care cases were viewed as especially important to maintain care and to optimally treat the largest numbers of people. A participant stated, “we must have specific pre-set criteria on questions such as: when to stop performing elective surgeries, when to stop performing marrow and organ transplants, etc.”

Resource allocation plans were a major concern, particularly for pediatric care, to ensure that resources are available for children and families during an outbreak. Participants noted that community supports are required for stakeholder groups, for example, child care and psychosocial supports for children with an ill parent or guardian. Another key issue was coordinating plans to include home care for those who are infected if hospitals are over capacity.

A large portion of respondents also raised concerns about ethical decision-making during a pandemic, and the need for a framework for decision-making in pandemic plans. One respondent indicated the need for an ethical framework, specific to pediatrics:

Discussion/guidance [is needed] on ethical decision-making processes for the pediatric population. Are these different than they will be for the adult population? Will the philosophy of family centred care be impacted during a pandemic event?

In essence, participants identified a range of issues that must be considered in pediatric pandemic planning, in order to manage the heavy burden an outbreak will place on health care systems and resources (see Table 3).

Participants were asked to identify missing elements in their organization's pandemic plan, and many responded with similar issues as when questioned regarding the key elements of a pediatric plan. These missing elements include: child care plans; communication and information sharing; ethical guidelines; needs of HCP (psychosocial, medical, workforce); organizational coordination; pediatric focus; continued plan development; post-pandemic planning; psychosocial needs; and resource planning and allocation.

3.5. Importance of children and families in planning

Participants were asked to identify if their organization actively involved children and families in pandemic planning. Those who responded affirmatively provided a range of strategies to incorporate the voices of children and families in plan development. Such strategies include input from: family advisory committees, community organizations, family representatives, and research findings. Consultation with children and families ranged from extensive involvement in planning, where a “family representative was involved as a key stakeholder on the steering committee,” to minimal, such as consulting research studies on pediatric needs.

Conversely, participants who responded that children and families were not involved in planning provided a variety of explanations regarding why this occurred. These explanations include: pediatrics are not within the organization's mandate, the organization has a small pediatric population, plans are in development, and planners and

Table 3
Essential elements and needs in pediatric pandemic plans.

Essential elements	Needs for planning
Child care	<ul style="list-style-type: none"> • Manage child care during a pandemic • Minimize the impact of school and day care closures for working parents • Supports for HCP to manage child care, family responsibilities
Psychosocial supports	<ul style="list-style-type: none"> • Ensure psychosocial supports for children, families, and HCP and their families
Education and communication	<ul style="list-style-type: none"> • Education for the public and HCP about pandemic policies and interventions • Continued plan development that includes a post-pandemic plan • Ongoing education • Organizational coordination • Pediatric focus • Communication with stakeholder groups, e.g. families, community organizations
Infection control and clinical guidelines	<ul style="list-style-type: none"> • Specific infection control guidelines for children and families • Guidelines for prevention, assessment, and treatment in pediatrics • Guidelines for treatment of non-influenza cases
Resource allocation	<ul style="list-style-type: none"> • Ensure resources are available to children and families • Access to community supports, e.g. child care, psychosocial supports • Home care for infected individuals
Ethical decision-making	<ul style="list-style-type: none"> • Decision-making framework for pediatrics

staff are also parents. The most common response has that staff and planners are also parents, and that they can apply this experience to plan development. As an example, a participant stated,

[Children and families were] not [involved] to my knowledge, other than in the capacity that many of the people that have been involved in administrative or clinical care roles are also parents. They may have also been thinking in terms of being a parent.

Accordingly, based upon these survey responses, participants provided suggestions for, and noted barriers to, incorporating the voices of children and families in pandemic planning.

3.6. Importance of communication

Participants provided information on preferred sources and methods of information dissemination during a pandemic. These sources include: business and industry, community organizations, government, HCP, professional organizations, the media, pandemic planning organizations, public health networks, schools and daycares.

Government was seen as a major source of information during a pandemic. One respondent suggested that, “information on the flu would be put together by those responsible at the ministry of health.”

Methods of sharing information were varied, but largely web-based solutions were suggested by participants. Participants also identified media (e.g. television, radio, print) and interactive information sharing (e.g. town hall meetings) as key strategies.

3.7. Accounting for missing or rudimentary plans

Survey respondents belonging to organizations without, or lacking a well-developed plan, were asked to identify why their organization was wanting in the area of pediatric pandemic planning. Participants suggested that they were missing strong leadership in pediatrics and that this was a major factor contributing to a minimal or non-existent plan. They felt that they had little guidance in what was required for pediatric pandemic planning. Participants also expressed that they did not have access to resources for plan development, resulting in a “skeleton plan” focused on the adult population. Lastly, not having adequate pediatric services or facilities within the organization or region contributed to the lack of a pediatric pandemic plan, as pediatrics was not a priority.

While most respondents advocated pediatric planning, some participants were doubtful about the need for specific plans. These dissenting participants suggested that there are no unique pediatric issues to be addressed and that general plans are sufficient for pediatric care. Other participants suggested that a pediatric plan was unnecessary because of a minimal focus on pediatrics, or due to a small pediatric population in their organization or region. The respondents who did not see the need for a specific plan provided responses such as, “my belief is that it should not be a separate plan—I would need evidence or rationale why a separate pediatric pandemic plan is required.” On balance, the majority of respondents saw the need for a pediatric plan, but a substantial number of others did not see the implications or relevance of planning that is specific to children and families.

4. Discussion

Participant responses indicate that pediatric pandemic planning is an important and salient issue across Canada. Based upon qualitative analyses of survey data, participants have provided important and useful feedback on the needs and essential elements in a pediatric pandemic plan, the importance of listening to children and families, the need for communication with stakeholder groups, and factors resulting in under-developed or missing plans. Unfortunately, however, not all recommendations from participants are currently being implemented in provincial and territorial plans. This is exemplified in the congruence between what respondents felt were essential plan elements and the elements they identified as missing from their organizational or regional plans. There are clear and notable gaps in pediatric planning, both in terms of elements reported as missing by participants in their

organizations’ or regions’ pandemic plans and in the parallel gaps in the provincial, territorial and national policy documents that were reviewed. For example, a lack of psychosocial and ethical policies in planning for pediatric care were identified as major gaps by survey respondents, and confirmed by our policy review. These discontinuities in identified key elements, and existing policies, point to the need for consideration of children and families at all levels of the planning process. Moreover, this lack of pediatric specific considerations is noted in the perceptions of survey respondents who indicated that children do not have unique needs in the event of a pandemic and in the lack of policies across provinces and territories pertaining directly to the care of children and families. To address the needs of this population effectively, the authors suggest the incorporation of pediatric plans within broader provincial, territorial and national plans.

The international literature on needs in pandemic planning notes the importance of cooperation and the need to identify roles and responsibilities in plans [9,11]. Similarly, participants identified the importance of resource allocation, guidelines and communication in pediatric plans. It is clear that these issues are salient and must guide policy-makers as they develop or update plans.

Based upon the web-based policy review, provinces with a combination of factors are often substantially more prepared based upon an analysis of their provided policies. For instance, British Columbia’s (BC) [10] pediatric pandemic plan is a well-developed and readily available document which addresses the unique issues of children and families and touches upon some psychosocial concerns. Likewise, BC is an example of a province with relative wealth, and a high population density in urban areas, for instance, BC reported the third highest population growth among the provinces during 2007 (14.9 per 1000) to reach a population of 4,414,000, one of the more populated provinces in Canada [33]. BC’s major cities are easily accessible via commercial travel, and the province has well-developed health care and government infrastructure, all of which likely contribute to the resources available for the development of a pediatric pandemic plan.

In contrast, Northern communities appear to be at the greatest risk, given current rudimentary plans that are potentially influenced by a lower population density, few major cities, and a lack of reserve human, medical, supply, policy and financial resources. These disparities require greater consideration of factors influencing inequities in pediatric pandemic preparedness, including population density, socioeconomic status, relative isolation, and available resources. Regardless of the factors that may influence the lack of pediatric contingency plans, there remains the possibility of severe outcomes for children and families in the event of an outbreak. It appears that greater attention and resources must be allocated to Northern communities to ensure adequate preparation in the event of a pandemic.

Participants suggested that web based communication will be key in the event of a severe outbreak, allowing information to be distributed remotely [34]. Posting pandemic information on websites will be critical, as identified by survey respondents, to allow quick access to up-to-date information. The majority of provincial, territorial and

national pandemic planning bodies have responded to this method of information dissemination, in posting pandemic plans and information on their websites.

5. Conclusion

Public and political awareness of a potential pandemic has raised concerns over resource allocation and contingency planning, but in some jurisdictions, relatively little attention has been paid to planning in pediatrics. A review of the pandemic plans of the Public Health Agency of Canada, provincial and territorial governments has identified needs in pediatric planning. These issues and concerns were also supported by survey respondents, who are experts in pediatric care and pandemic planners, qualified to note such gaps in contingency plans. To overcome these gaps, a focus on the unique needs of children and families is required, while support and resource redistribution to less advantaged provinces and territories is needed to ensure the health and well-being of all Canadians. Consideration of the factors that influence pandemic preparedness (such as population density, affluence, relative isolation, and available resources) may be helpful to inform research and policy decisions. Finally, the dissemination of information online, especially via government websites, is essential to communicate with the public during a pandemic. In brief, the findings presented here provide important suggestions to guide pandemic planning in pediatrics, in the hope that a pandemic response can ensure the safety of Canadians.

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