

## **Pandemic Influenza Planning for Children and Youth: *Who's Looking Out for Our Kids?***

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### **Abstract:**

Recent worldwide attention on influenza pandemics has focused considerable attention on planning and preparation. Some published plans appear to have missed some unique considerations relevant to children and youth, leaving a serious and potentially devastating gap in our pandemic response. This paper will highlight those unique considerations and encourage health administrators and policy makers to rise to the challenge and demonstrate leadership by ensuring that all institutions consider children and youth in their pandemic planning.

## **Introduction**

In the last century the world experienced three influenza pandemics each resulting in considerable morbidity and mortality among high risk and otherwise healthy children and adults. As each year passes, threat of the next pandemic looms ominously closer urging us to focus on planning and preparation. Health leaders have responded to this call by taking an active role in pandemic planning at the local, provincial and national level. Despite their best efforts however, some published plans appear to have partially or completely overlooked the unique considerations related to children and youth, leaving a serious and potentially devastating gap in our pandemic response. Closing this gap requires the attention of all health leaders-not just those interested in paediatric planning since pandemic influenza will have a far reaching impact on all aspects of our society including children and youth. Concerned about the enormous challenges ahead, the Canadian Association of Paediatric Health Centres (CAPHC) spotlighted the impact of pandemic influenza on children and youth at its annual meeting in October 2006, and urged a call to action. The purpose of this paper is to echo the call by highlighting those unique considerations pertaining to children and youth and to encourage health leaders to include this perspective in their pandemic planning.

## **Seasonal Influenza**

Each year, Canada experiences an annual winter influenza epidemic that greatly impacts children and youth <sup>1</sup>. Common symptoms include headache, malaise, muscle pains and a dry cough, which tend to evolve into a predominantly respiratory illness <sup>2</sup>. Young children may present with only a fever while infants or the immunocompromised may present with a sepsis

like syndrome. Although uncommon, children may have gastrointestinal symptoms, whereas adults rarely do. There are several but rare additional complications from influenza including myocarditis.

Children often serve as the ongoing source of infection within our communities since they have higher viral titres and tend to shed the virus for longer periods of time. Children less than 5 years of age and those with underlying medical illnesses are at greatest risk of hospitalization and significant morbidity and mortality. During these annual influenza epidemics, health care centers see large numbers of children and youth with influenza in the emergency, ambulatory and in-patient settings, putting considerable stress on resources<sup>3,4</sup>. Influenza also contributes to school absenteeism which can in turn trigger work absences for parents and caregivers of sick children.

### **Pandemic Influenza**

The influenza virus can mutate to create new subtypes and cause new disease. Frequent minor changes, termed antigenic drift, are responsible for annual local influenza activity, commonly referred to as “seasonal” or “epidemic” influenza. Less frequently, major change, termed antigenic shift, creates a completely new form of the virus which has not previously circulated in humans and against which the global population has no pre-existing immunity. Consequently, there is widespread susceptibility to infection. If this new form of the virus develops the ability to spread efficiently from person to person, a worldwide pandemic will occur.

Exactly when and to what extent this will truly manifest itself remains difficult to predict. Epidemiological forecasts suggest however, that another influenza pandemic is likely and will

bring significant public health risks, societal disruptions and an overpowering burden on our health care system. The World Health Organization (WHO) has called upon all countries to prepare for the next imminent influenza pandemic so that an attempt can be made to mitigate some of the impact and ensure that there is some capacity to respond.

Canada, under the leadership of the Public Health Agency of Canada (PHAC) and the Provinces/Territories has started to develop a comprehensive plan outlining responses to a moderate level pandemic where 35% of the population will be affected <sup>5</sup>. Every health care facility across the country has been urged to do the same. While Canada is seen as a global leader with regards to influenza pandemic preparedness, there has been very little focus given to the impact it will have on the physical, social and psychological well being of our children and youth.

### **Children and Youth**

Although it is difficult to predict the age distribution of clinical illness in the next pandemic, recent reports may be harbingers of the potential impact on children and youth. During the 2003-04 season, the rate of influenza related mortality in the United States represented the highest mortality rate for a vaccine preventable illness in recent years. Of the 153 influenza-associated paediatric deaths reported, 47% were in previously healthy children <sup>6,7</sup>.

Since 2002, a novel avian form of the influenza virus, H5N1, has been confirmed as the cause of 202 symptomatic cases of human illness. Of these cases, 50% involved children and youth under the age of 19 years with half among children less than 10 years of age. The overall mortality rate for all cases was 56%. It climbed however, to 73% in patients between the ages

of 10 and 19 years of age <sup>8</sup>. Most of the infections occurred in individuals who had intimate contact with chickens and other avian species with death occurring due to respiratory failure.

### **Unique Considerations**

With recent worldwide attention on influenza pandemics, there has been considerable focus on planning and preparation. At the recent CAPHC annual meeting, a plenary session was held to share insights and strategies uniquely relevant to pandemic planning for children and youth <sup>9</sup>.

Based on annual influenza epidemiology as well as that of the currently circulating H5N1 virus, young children and those with underlying medical conditions, may be at particularly high risk. Children will likely present with non-specific symptoms making it hard to recognize, diagnose and differentiate influenza from other childhood febrile illnesses or concurrent diseases. This will profoundly challenge parenting skills and heighten anxiety amongst parents and caregivers as they try to decide whether to remain at home or seek medical attention and possibly risk exposure to infection for themselves or for other family members.

At present, the only anti-viral drugs that may play a role in the pandemic setting are not licensed for children less than one year of age. Access to antiviral agents may be a key determinant of outcome during a pandemic. The neuraminidase class of antiviral drugs, oseltamavir and zanamavir are the only options presently available that could have activity against pandemic influenza. Canadian guidelines have recently been issued for the use of antiviral drugs both to prevent and to treat influenza during interpandemic as well as pandemic periods <sup>10</sup>. During a pandemic, the drugs can be used as prophylaxis before an effective vaccine is available, for those individuals with contraindications to being vaccinated, and after

vaccination until the individual develops an antibody response. As treatment, the drugs must be given as early as possible after symptoms are evident, and within 48 hours<sup>11</sup>.

The actual use of antiviral drugs for chemoprophylaxis and treatment of influenza infection in children is more challenging than in adults. There are additional restrictions imposed by the pediatric toxicity profile and a dearth of available research data. As a result, younger children have very limited options for antiviral therapy, and those under one year of age have no approved options<sup>12</sup>. “Off label” use of the neuraminidase inhibitors for these infants would require consent for treatment by a parent or substitute decision maker (SDM).

Children often shed virus for longer periods of time. This, in combination with the fact that they are less likely to practice or understand appropriate respiratory etiquette and infection control practices, facilitates their roles as ongoing sources of the infection within the community. To minimize spread of the virus, it is quite likely that schools and daycares will be closed<sup>13</sup>. This will put additional pressure on working parents and caregivers who may be ill themselves or caring for ill family members. Communal gatherings may shift to other settings undermining public health measures as adolescents fight for independence and resist increased supervision or “social distancing” restrictions imposed upon them. With schools and daycare closed, access to routine activities restricted, and “normal” family function and quality of life upended, tensions in families isolated at home will run high.

Particular stress will be felt by health care and other essential service workers who may be preoccupied with their own personal concerns as they struggle to balance their duty to care with their duty to family. Those providers, who are able to report to work, will undoubtedly face extremely difficult, emotionally charged ethical decisions regarding which patient will

receive care and which patient will not-an even greater dilemma if the triage decision is between an adult and a child. As well, workload will likely increase substantially in response to increased health care demands and the need to accommodate surge capacity- all of which will serve to heighten stress and anxiety even further.

Planning must consider the fact that children and youth may be admitted to hospital or left in the community without a parent or guardian available either due to illness or care-giving issues. Being admitted without an accompanying caregiver is one challenge that will be intensified when attempting to discharge children and no one is home to receive the. Determining who will supervise and provide consent for treatment will become critical issues therefore it is not too early for parents to be asking relatives or friends to become SDMs, should they themselves be too sick or unavailable to perform guardian duties. Otherwise, children will be subjected to prolonged periods of isolation with the potential for significant psychosocial risks.

### **Psychosocial Impact**

No amount of planning prior to a pandemic can fully prevent the uncertainty, loss and grief that a pandemic will wreak. Indeed the social, psychological and financial disarray attendant upon a pandemic will far exceed the physical impact. In the face of such a complex emergency, dominant conceptual frameworks prefer to emphasize and build upon the resilience of the individual and community rather than to focus solely on the potential for psychopathology<sup>14, 15</sup>. Such an approach involves exploring both the particular vulnerabilities and protective mechanisms that might emerge in the face of a pandemic. Nonetheless, each disaster has its particular features, some of which will render the population susceptible to psychological trauma.

Childhood mortality rates from influenza are well documented and during a pandemic, parents will likely lose children and children will lose parents, brothers, sisters, grandparents and friends. Although grief is no longer viewed as a uniform process common to all those who lose loved ones, some bereavement experiences and certain outcomes of a pandemic have a potential for traumatic grief and depression. Often for parents and children, it is not the loss per se but doubt and guilt and anguish over circumstances surrounding the loss that can exacerbate the pain and contribute to negative long-term effects. Parents and children may rehearse the circumstances endlessly and reproach themselves for the choice taken. Moreover, deaths will occur but traditional or customary funeral and mourning rituals will not always be possible.

### **Strategies**

Planning for the physical, social and psychological needs of children and youth in the face of the formidable challenges associated with a pandemic requires adoption of a resilience model. Resilience for a paediatric hospital during a pandemic would specifically include preparedness to take over the care of children until they can be restored to their families<sup>16</sup>. The absence of a familiar caregiver radically changes the hospitalization experience of the ill child. Hospitals should consider how they can ensure that each child will be accompanied by a responsible adult from admission to discharge so that no child undergoes hospitalization frightened and alone.

From a resilience perspective, hospitals must explore their resources as well as their strengths. Such an examination will likely reveal that existing personnel have many of the skills and

competencies that, with some additional training, will enable them to respond to specific psychosocial needs of hospitalized “flu-stricken” children. Such health care professionals include physiotherapists, occupational therapists, speech therapists, dieticians, child life workers and teachers, all of whom are sensitized to and experienced with hospitalized children’s distress. The preparation of relevant exercises including scenarios and vignettes for a paediatric population would contribute greatly to the provision of psychosocial support and training for all hospital staff <sup>17</sup>.

Those who are trained or have experience in palliative care or in pastoral services can begin to think of the different scenarios of loss that will be present at the hospital and draw on their experience to build or preserve for both child patient and family members memories or experiences that can be cherished. The experience of separation at the hospital door, followed by death of either parent or child without a surrounding narrative should at all cost be avoided. Long-term negative effects can be diminished if we identify children at high risk for psychological trauma, (e.g. loss of parents, siblings) for follow-up and ensure that we have the latest of tracking methods to determine where relevant family members are and thus facilitate reunion.

Developmentally and culturally appropriate communication with children, youth and families as well as personal preparedness training is essential to effective planning. Public education regarding the need for parents and caregivers to make alternate child care arrangements well in advance of school and day care closures or personal illness is imperative <sup>18</sup>. Tools can be developed to help parents maintain their children and adolescents at home, and to recognize and manage distress in their children and themselves. Particular attention must be paid to the

needs of health care providers regarding child care services in order to help preserve workforce capacity. This may require actual provision of service or assistance in searching for relevant care arrangements. It will also require development of employment guidelines and expectations for workers with ill children or other family members.

It is important for us to take stock not just of our health care service capacity, but also to reinforce and strengthen our social networks. This will allow an optimal response to the threats and impacts that a pandemic will impose. Health leaders must play a key role in strengthening the social fabric of their hospitals and fortifying the resilience of the surrounding community.

### **Conclusion**

Children and youth are part of a complex social network that supports them as they grow, learn and develop. Ramifications of a pandemic are significant for this vulnerable population hence appropriate preparations for the next influenza pandemic must address the physical, psychological and sociological impact the disease will have on children, youth and their caregivers. Optimal planning will have to be collaborative in nature, include innovative solutions to create paediatric and adult surge capacity within the healthcare system and identify strategies to proactively minimize the societal disruptions on children, youth and their families.

Planning for a pandemic affords health care leaders with some rare opportunities to proactively build supports that will strengthen resilience and serve as a foundation for other critical events in the future. Health administrators and policy makers are well positioned to rise to this challenge and demonstrate leadership by ensuring that all institutions consider children and youth in their pandemic planning.

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