

## Editorial

# What else can we do for Children with Influenza?

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Seasonal and pandemic influenza continue to be important causes of mortality and morbidity in children, especially younger ones [1-3]. Nair and colleagues published in 2011 estimating 90 million new cases of influenza in children younger in 5 years and 20 million cases of influenza associated acute lower respiratory tract infections [3].

Clinical picture of influenza varies from mild upper respiratory symptoms to systemic inflammatory response leading to multi organ failure. Pandemic and seasonal influenza strains are described to increase superinfections that contribute to the higher morbidity and mortality. Influenza can be fatal in children with or without high-risk medical conditions like chronic medical conditions [4]. 2009 pandemic influenza had a higher morbidity in young children [5]. Children with preexisting neurologic conditions and immunological problems were at higher risk of mortality and critical illnesses [6].

Vaccination continues to be the best strategy to decrease the burden on the already strained health care systems [7]. Vaccination though the cheapest and most efficient way of preventing influenza, has various limitations. One of the biggest challenges is making it available to vast number of people who are at increased risk of morbidity and mortality: infants, children with chronic conditions, young children, elderly and individuals with co-morbidities. Unlike other vaccines, the influenza vaccine has to be produced every year with different strains depending on the circulating human strains. Even in countries with good resources, not all children receive vaccination. During states of panic, like the 2009 H1N1 pandemic, vaccine does not reach the at risk population in a timely manner. Most of the children live in developing countries where access to health care has abundant hindrances [3].

Given these limitations related to vaccination, treatment and management of children affected by influenza can reduce the morbidity and mortality. Only M2 inhibitors and neuraminidase inhibitors are shown to be effective but resistance against this class of drugs has been a new challenge. Use of these anti-viral therapies during pandemic for prophylaxis and treatment will remain woefully inadequate [8].

There is recent emphasis on exploring the host factors that determine the outcome of children with influenza, especially in critically ill children [9]. Children can mount an overwhelming production of pro- and anti-inflammatory mediators.

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Research areas in children that need attention are clinical outcomes in influenza, host inflammatory response, and use of immunomodulators in critically ill children. As we recognize with other critical illnesses, research needs to identify cohort of children that will benefit from immunomodulation when we encounter multiple organ dysfunction related to influenza. Statins and other agents with immunomodulatory effects have a potential of benefit in such a cohort of patients and studies evaluating their effect in children are warranted [10].

For pediatricians it should be a yearly exercise to identify children at higher risk for influenza related complications and prioritizing for vaccination. Center for Disease Control and Prevention (CDC) and American Academy of Pediatrics (AAP) are active and disseminate information about availability of vaccines. States and CDC display influenza activity, which can be used by pediatricians to make informed decisions about vaccination and treatment.

Google has become foremost in the usage of technology and algorithms based on "influenza" searches to estimate influenza activity [11]. Google has been trending flu activity and refining algorithms to trend flu activity in cities and states. Such technological advances can be used by pediatricians to educate families and should prompt vaccination. Nevertheless, it is important to emphasize that use of search and algorithms data will complement traditional surveillance methods and not be a replacement [12].

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