



Childhood Influenza  
Immunization Coalition  
The Power of One Strong Voice



## **Improving Childhood Influenza Immunization Rates to Protect Our Nation's Children**

### **A Report from the Childhood Influenza Immunization Coalition**

### **Sponsored by the National Foundation for Infectious Diseases**

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The mission of the National Foundation for Infectious Diseases' (NFID) *Childhood Influenza Immunization Coalition (CIIC)* is to protect infants, children, and adolescents from influenza by communicating with “one strong voice” the importance of making influenza immunization a national health priority. *CIIC* members (see page 4 for complete list) include public health, medical, patient, and parent organizations interested in reducing the burden of influenza in children by increasing immunization rates. Representatives of these groups met on May 23, 2007, in Washington, D.C. to discuss the importance of protecting children from the serious and potentially deadly influenza virus and its complications, and to outline ways to help health care professionals administer influenza vaccines to more infants, children, and adolescents and their close contacts annually. This Report summarizes key information supported by the *Coalition* and its members.

**Most children remain vulnerable to influenza infection every year.**

The Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics, and other organizations recommend annual influenza vaccination<sup>1</sup> of all children 6 months up to 5 years of age and any child at least 6 months of age with certain underlying medical conditions (e.g., asthma, diabetes, cardiovascular disease, immune deficiency) or undergoing certain immune modulating treatments (e.g., chemotherapy).<sup>\*</sup> Despite recommendations for routine influenza vaccination annually, vaccination rates in children are extremely low (Figure 1). Increased influenza immunization rates in children and their close contacts are needed to prevent influenza and its potentially serious complications.

Figure 1.

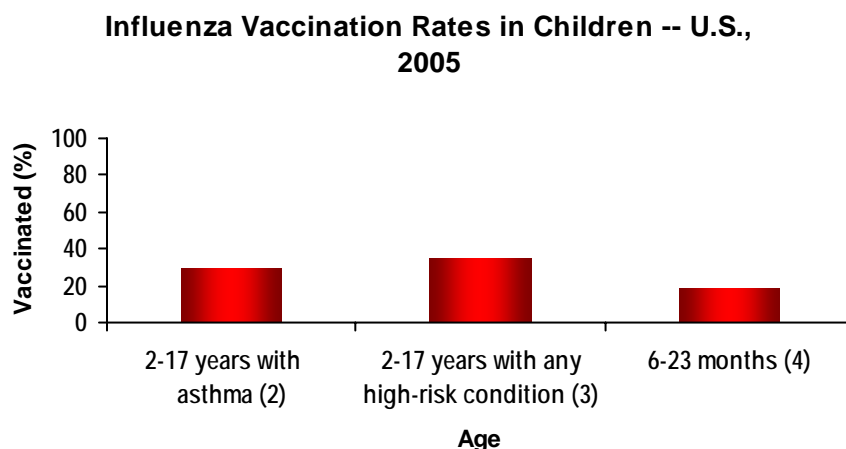


Figure 1 Sources: National Health Interview Survey; Behavioral Risk Factor Surveillance System, National Immunization Survey.<sup>2,3,4</sup>

<sup>\*</sup> In addition to recommendations to vaccinate specific groups, CDC recommends annual influenza vaccination for anyone who wishes to reduce his or her risk of influenza.

### **The impact of influenza in children is considerable.**

Influenza-related deaths occur in children of all ages. During the 2003-2004 influenza season, CDC requested that all influenza-associated deaths in children be reported to state and local health departments.<sup>5</sup> In the 2003-2004 season, 153 deaths were reported in children.<sup>6</sup> About 60 percent of those deaths were in children younger than 5 years, and nearly half had no underlying medical conditions. CDC estimates that nearly 100 U.S. children younger than 5 years of age die every year due to influenza and its complications.<sup>1</sup>

Infants and toddlers are hospitalized with influenza infection at high rates. These hospitalization rates are comparable or higher than the influenza-related hospitalization rates of any other group, including elderly persons.<sup>1,7,8</sup> In addition, a recent study demonstrates that hospitalizations of children due to influenza are underestimated. In that study, only 28 percent of hospitalized children younger than 5 years of age with laboratory confirmed influenza infection were correctly diagnosed at discharge.<sup>9</sup> The more than 70 percent of hospitalized children who were not correctly diagnosed with influenza had diagnoses that, in some cases, focused on the complications of influenza, such as bronchiolitis, pneumonia, asthma, seizure, viral illness, fever, and suspected sepsis.

Children continue to be negatively affected by influenza infection after the first two years of life. Children 24 to 59 months of age are at increased risk of influenza-related visits to health care professionals, emergency departments, and clinics.<sup>1</sup> Children with underlying medical conditions (e.g., asthma, diabetes, cardiovascular disease, immune deficiency) also experience increased office and other outpatient visits, including visits to the emergency department, and receive more antibiotic prescriptions during influenza season.<sup>4,8,9</sup>

### **Multifaceted approaches are needed to increase childhood influenza immunization rates.**

Influenza vaccination is safe and effective and has been used for decades to protect persons of all ages. Interventions that have been shown to increase immunization rates include increased educational efforts directed to parents and guardians, patients, and health care professionals; increased access to vaccines (e.g., through extended vaccination hours and vaccine-only clinics); and streamlined health care professional practices (e.g., use of standing orders and reminder and recall strategies).

In the case of influenza, an emphasis on two key areas may help increase immunization rates. First, as CDC recommends, health care professionals should offer influenza vaccination at all medical visits. Influenza vaccinations can be delivered safely with other vaccines and administered to children even when they have mild illnesses with or without fever.

Second, the influenza vaccination period should be broadened. Historically, influenza vaccination efforts drop significantly by mid-December.<sup>10</sup> However, influenza activity does not peak until February or later in most years.<sup>11</sup> Vaccination continues to offer substantial benefit when given in December, January, or even in later months and should continue even after influenza activity has been documented in a community.<sup>1</sup>

In addition, increased efforts are needed to reach and vaccinate underserved populations to reduce disparities in influenza vaccination rates. Influenza vaccination coverage is significantly lower among children 6 to 23 months who are living below the poverty level and children who are African American or Hispanic.<sup>12</sup> Underserved populations and racial and ethnic minority children have higher rates of underlying medical conditions, such as asthma, that increase their risk of influenza related complications. Compared with white children, the asthma prevalence rate is 25 percent higher in children of American Indian or Alaskan Native descent, 60 percent higher in African American children and 140 percent higher in Puerto Rican children.<sup>13</sup>

### **Vaccination of children may provide additional benefits to society.**

Although protection of children is the main goal of increasing childhood influenza immunization rates, there is evidence to suggest that vaccinating children will provide additional benefits to society. Widespread childhood vaccination can interrupt influenza transmission since influenza outbreaks usually begin in children and then move on to the community at large.<sup>14,15</sup>

Increased focus on providing influenza vaccine to children targeted for immunization now will also help to build a sound foundation for future vaccination efforts. For example, public health officials have discussed the benefits of a universal influenza vaccination policy. Discussions have focused on creating this policy in a stepwise fashion with a universal vaccination policy for children preceding universal vaccination for persons of all ages. This plan allows for an ordered growth of vaccine infrastructure and also could provide useful data about the potential for herd immunity resulting from widespread influenza vaccination in children.

### ***Childhood Influenza Immunization Coalition – The Power of “One Strong Voice”***

The goal of the *Childhood Influenza Immunization Coalition* is to bring together the nation’s leading public health, medical, patient, and parent organizations to develop “one strong voice” to call for and design strategies that will improve influenza immunization rates and encourage vaccination of children and their close contacts.

Strategies to help make influenza immunization a national health priority and increase immunization rates include:

- **Educating health care professionals** about CDC target vaccination groups, influenza immunization recommendations, and the medical rationale for influenza immunization recommendations. Well-informed health care professionals are best equipped to educate parents and guardians.
- **Using every opportunity to vaccinate** against influenza, such as well-child, acute care or back-to-school visits, and “influenza vaccine only” clinics.
- **Broadening the influenza immunization season** by encouraging health care professionals to begin vaccinating as soon as vaccine becomes available as well as into January and later because the vaccine continues to be of benefit while the virus circulates.
- **Educating parents, guardians, and other caregivers** throughout the year about the serious nature of influenza and motivating them to seek annual influenza immunization for their children.

The following *Coalition* members agree annual influenza immunization rates among children and their close contacts need to improve to reduce influenza-related illness and deaths in children.

### ***Childhood Influenza Immunization Coalition Members***

Allergy & Asthma Network Mothers of Asthmatics  
American Academy of Pediatrics  
American College of Cardiology  
American College of Obstetricians and Gynecologists  
American Lung Association  
American Medical Association  
American Public Health Association  
Asian & Pacific Islander American Health Forum  
Association of State and Territorial Health Officials  
Asthma and Allergy Foundation of America  
Canyon Ranch Institute  
Families Fighting Flu, Inc.  
Immune Deficiency Foundation  
Immunization Action Coalition  
Kaiser Permanente Northern California  
National Association for the Education of Young Children  
National Association of Pediatric Nurse Practitioners  
National Association of School Nurses  
National Foundation for Infectious Diseases  
National Hispanic Medical Association  
National Medical Association  
Parents of Kids with Infectious Diseases  
Society for Adolescent Medicine

### **National Foundation for Infectious Diseases**

Founded in 1973, NFID is a non-profit organization dedicated to educating the public and health care professionals about the causes, treatment, and prevention of infectious diseases.

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This document is available at: <http://www.nfid.org>.

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## REFERENCES

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- <sup>1</sup> Centers for Disease Control and Prevention. Prevention and control of influenza. Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Morb Mortal Wkly Rep* 2007;56(RR-6):1-54.
- <sup>2</sup> Centers for Disease Control and Prevention. Influenza vaccination coverage among children with asthma—United States, 2004-05 influenza season. *MMWR Morb Mortal Wkly Rep* 2007;56(9):193-196.
- <sup>3</sup> Centers for Disease Control and Prevention. Estimated influenza vaccination coverage among adults and children—United States, September 1, 2004-January 31, 2005. *MMWR Morb Mortal Wkly Rep* 2005;54(12):304-307.
- <sup>4</sup> Centers for Disease Control and Prevention. Childhood influenza vaccination coverage. United States, 2004-2005 influenza season. *MMWR Morb Mortal Wkly Rep* 2006;55(38):1062-1065.
- <sup>5</sup> Centers for Disease Control and Prevention. Update: Influenza-Associated Deaths Reported Among Children Aged <18 Years—United States, 2003–04 Influenza Season. *MMWR Morb Mortal Wkly Rep* 2004;52(51&52):1254-1255.
- <sup>6</sup> Bhat N, Wright PF, Broder KR, et al. Influenza-associated deaths among children in the United States, 2003-2004. *N Engl J Med* 2005;353(24):2559-2567.
- <sup>7</sup> Neuzil KM, Mellen BG, Wright PF, Mitchell EF, Griffin MR. Effect of influenza on hospitalizations, outpatient visits, and courses of antibiotics in children. *N Engl J Med* 2000;342:225-231.
- <sup>8</sup> Neuzil KM, Wright PF, Mitchell EF, Griffin MR. Burden of influenza illness in children with asthma and other chronic medical conditions. *J Pediatr* 2000;137:856-864.
- <sup>9</sup> Poehling KA, Edwards KM, Weinberg GA, et al, for the New Vaccine Surveillance Network. The underrecognized burden of influenza in young children. *N Engl J Med* 2006;355:31-40.
- <sup>10</sup> Fishbein DB, Fontanesi J, Kopald D, et al. Why do not patients receive influenza vaccine in December and January? *Vaccine* 2006;24:798-802.
- <sup>11</sup> Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Atkinson W, Hamborsky J, McIntyre L, Wolfe S, eds. 10th ed. Washington DC: Public Health Foundation, 2007.
- <sup>12</sup> Santibanez TA, Santoli JM, Bridges CB, Euler GL. Influenza vaccination coverage of children aged 6 to 23 months: the 2002-2003 and 2003-2004 influenza seasons. *Pediatrics* 2006; 118(3):1167-1175.
- <sup>13</sup> Akinbami LJ. The state of childhood asthma, United States, 1980-2005. Advance data from vital and health statistics; no. 381, Hyattsville, MD: National Center for Health Statistics. 2006. Available at: <http://www.cdc.gov/nchs/data/ad/ad381.pdf>. Accessed July 23, 2007.
- <sup>14</sup> Glezen WP, Couch RB. Interpandemic influenza in the Houston area, 1974-1976. *N Engl J Med* 1978;298(11):587-592.
- <sup>15</sup> Elvebeck LR, Fox JP, Ackerman E, Langworthy A, Boyd M, Gatewood L. An influenza simulation model for immunization studies. *Am J Epidemiol* 1976;103(2):152-165.