

## The Effect of Grade on Compliance using Non-Pharmaceutical Interventions to Reduce Influenza in an Urban Elementary School Setting

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### **Abstract**

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### **Objectives**

The Pittsburgh Influenza Prevention Project (PIPP) has previously shown that school-aged children in grades K – 5 can learn hygiene-based non-pharmaceutical interventions (NPIs) and persist in these behavioral changes over the duration of an influenza season. The purpose of this study is to determine if age (as estimated by grade) plays any role in this ability.

### **Methods**

PIPP is a prospective, controlled, randomized trial of the effectiveness of a suite of hygiene-based NPIs, including daily use of alcohol-based hand sanitizer, in controlling influenza and related illnesses in elementary schools in the City of Pittsburgh. During the 2007-08 school year, the project measured adoption of NPIs by students in five elementary schools through surveys of home-room teachers before, during, and after influenza season. An additional five schools served as controls; these home-room teachers were surveyed once.

### **Results**

Results showed large, statistically significant improvements and persistence over time in students' concern about influenza and their daily practice of the two categories of NPIs that can be characterized as promoting health behaviors – “wash or sanitize your hands often” and “cover your coughs and sneezes.” Similar improvements were seen across all grade levels. No reliable improvements were seen in the category of NPIs characterized as extinguishing unhealthy behaviors, such as “avoid touching your eyes, nose and mouth,” nor in the category of NPIs that may best be achieved by parental action, “home is where you stay when you are sick.”

### **Conclusions**

The study provides evidence that elementary school-aged children can understand and implement protective NPIs and maintain these activities throughout influenza season and beyond. Children in younger grades performed equally well as their older schoolmates. Across all grades, improvements were most prominent when teaching students to engage in particular health-promoting behaviors. Attempts to extinguish habitual behaviors (unconscious touching) and to change behaviors within the larger family dynamic (staying home) appeared to be less susceptible to intervention aimed at students. These results will be useful to public health policy makers and practitioners considering methods of infectious disease prevention in school-based settings.