Second grade handwashing experiment leads to big decrease in bacteria, illness

5 October 2017

How do you get kids to understand the importance of washing their hands? Make it an experiment, suggests one study in which second graders observed that washing or using sanitizer gel reduced the bacteria on their hands by more than 90 percent. Subsequently, the students were far more likely to wash their hands regularly, and there was a significant decrease in illness-related absences, according to the research being presented at IDWeek 2017.

Researchers helped 90 students in five second-grade classes culture their hands before and after washing or using sanitizer gel. After five days students observed a decrease in bacterial growth on clean vs. dirty hand cultures and determined that the clean-hand cultures had a 91 percent decreased growth in microbial growth (mostly bacteria and some mold).

"Hand hygiene is one of the most effective ways to prevent illness, yet is not commonly reinforced," said Kavita Imrit-Thomas, DO, lead author and an infectious disease physician with Lifenet Health, Virginia Beach, Va. "Students were enthusiastic about hand hygiene after such a fun and interactive scientific experiment. This is such an important concept and should be incorporated into the standard curriculum."

The researchers spoke to the students about the importance of hand hygiene by giving a slide presentation and a demonstration of the correct way to clean the hands using soap and water or hand sanitzer gel. They talked about important times for handwashing: before eating, after going to the bathroom, after blowing the nose and after touching animals. A poster placed by each sink helped kids remember the best way to clean their hands.

The students cultured their dirty hands by pressing them on Petri dishes filled with agar, a jelly-like substance that promotes the growth of bacteria and other microbes. Half then washed their hands with soap and water and the other half used hand sanitizer gel and all recultured their hands. The cultures were allowed to sit for five days after which the students and their teachers looked at them through microscopes and observed a reduction in bacterial and mold growth in the clean-hand cultures compared to the dirty-hand cultures ranging from 89 percent to 100 percent among the five classes. Teachers in three of the classrooms observed that hand sanitizer appeared to be more effective than hand washing. Teachers in the other two classrooms noted the two techniques were equally effective.

Researchers also sprinkled a liquid on the students' hands that simulates germs and asked the children to wash. Researchers then shined a blacklight on the students' hands, revealing spots they missed to help them improve their handwashing technique.

In the 30 days after the experiment began, the teachers reported they observed a 68 percent to 100 percent improvement in hand washing behavior among the five classes. There was a 71 percent decrease in illness-related absences when comparing the 30 days before the experiment (126 absences) to the 30 days after the experiment began (37 absences).

In addition to Dr. Imrit-Thomas, co-authors of the study are Jasmine Watson, BS, MPH, Alexandria Owens, BS, CTBS, Miranda Malone, BS, Andy Tobias, AAS, and Lakshmi Goudar, MD.

Provided by Infectious Diseases Society of America