Hygiene Reduces Shigellosis in Day Care Centers

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Contributing Writer

ATLANTA — Maintaining proper hygienic practices appears to substantially reduce the spread of shigellosis in day care centers, according to an investigation of a widespread shigellosis outbreak affecting at least 645 individuals in Missouri in 2005.

The results of the case-control study were presented at the annual meeting of the American Academy of Pediatrics.

In an analysis of 39 day care centers, those with at least one sink per room reduced by 80% the likelihood of having a higher attack rate of shigellosis among children. Overall, 3 of the 18 day care centers which had a high attack rate for the disease (case centers) had at least one sink per room, compared with 13 of the 21 centers with low attack rates of shigellosis (control centers).

The presence of a diapering station in all rooms with diapered children reduced the likelihood of a widespread outbreak by 90%. Diapering stations were present in all rooms where diapered children are present in 6 of 18 day care centers with high attack rates and in 15 of 21 day-care centers with low attack rates.

"Outbreaks in day care centers can be difficult to control … *Shigella* can be transmitted from person to person and through contact with contaminated objects," explained the study's lead investigator, Dr. Wences Arvelo of the Centers for Disease Control and Prevention in Atlanta.

This makes attention to hand washing and hygiene particularly important, he said.

The *Shigella sonnei* responsible for the outbreaks was resistant to multiple antibiotics, according to in vitro analysis of 31 randomly selected isolates. Overall, 28 isolates (90%) were resistant to ampicillin and trimethoprim-sulfamethoxazole.

These high resistance rates reflect the nationwide increase toward multidrug-resistant shigellosis.

Among 210 children in which treatment choices were analyzed, 44% were treated with azithromycin, 27% with cephalosporin, 15% with trimethoprim-sulfamethoxazole, 5% with fluoroquinolones, 2% with ampicillin, and 7% with other antibiotics.

The American Academy of Pediatrics recommends using azithromycin, ceftriaxone, or fluoroquinolones to treat multidrug-resistant shigellosis, though there are no standardized methods for monitoring for resistance to azithromycin, and the safety profile of fluoroquinolones in children is uncertain.

Dr. Arvelo suggested that changing licensure requirements for hygiene infrastructure might ensure good hygiene practices and help prevent transmission of shigellosis, therefore reducing the need for antibiotic treatment.

Consider the risks and benefits of antimicrobial treatment. Physicians choosing to treat children with shigellosis should test for antibiotic resistance.

He noted that physicians choosing to treat children with shigellosis should test for antibiotic resistance, given the high resistance rates.

Finally, he encouraged clinicians to consider the risks and benefits of antimicrobial treatment of shigellosis.

Although effective antibiotic treatment improves severe symptoms and decreases the duration of shedding the bacteria, it alters the normal flora, is costly, and can lead to increased antibiotic resistance.

Expectant management—in which children are not treated but rather are kept at home or "cohorted" with other infected children within day care centers—might be a feasible alternative to antibiotic treatment.

A report on the Missouri outbreak as well as outbreaks in Kansas and Kentucky was published in the October 6 issue of Morbidity and Mortality Weekly Report (MMWR 2006;55:1068-70).

Information about patient exposures to day care settings was not collected in Kansas, the CDC said.

In Fayette County, Kentucky, there were 148 confirmed cases of *S. sonnei*, median age 4 years.

Ninety-three percent of cases occurred among attendees, family members, or staff at 16 day care centers. ■