



Appendix B

Additional Pool Program Information

2003

Shigellosis Outbreak in Hubbard, Oregon

ABSTRACT

Introduction

On July 25, 2003, a physician reported seeing 5 unrelated children with diarrhea. Our ensuing investigation linked an outbreak of shigellosis to an “interactive” fountain in Hubbard, Oregon.

Methods

Confirmed cases had culture-positive *S. sonnei* infections with matching PFGE; presumptive cases had dysentery or diarrhea with fever and were epidemiologically linked to a confirmed case. Primary cases were the first ill in a household or daycare group. To identify a source, we conducted an age- and telephone prefix–matched case-control study, using the first 7 confirmed, primary cases. To estimate an attack rate, we surveyed children identified from local school records. Fountain water samples were tested. *Shigella* isolates were speciated and subtyped by PFGE.

Results

In the case-control study, illness was linked to playing in the fountain (7/7 cases, 1/15 controls, $P = 0.001$). We identified 56 fountain-associated cases: 19 confirmed, 37 presumptive. Many other persons reported fountain-associated illness not meeting the case definitions. Primary cases were exposed during at least a 10- day period ending August 1, when the fountain was closed. Two water samples yielded fecal coliforms (940 and 370/100 ml) and *E. coli* (500 and 140/100 ml), with no detectable chlorine. Of 147 local children surveyed, 51 (35%) played in the fountain during the last 2 weeks of July; of the 51, 20 (39%) subsequently developed diarrhea—compared with 3% of those without a fountain visit ($P = .001$) suggesting that ~10% of children in Hubbard alone were infected.

Conclusions

This is at least the fourth outbreak linked to interactive fountains.

Unlike public pools, these fountains are often unlicensed and unregulated. They offer unrestricted access to children and animals, utilize small volumes of recycled water, and often have inadequate disinfection. This outbreak underscores the risk of large and prolonged outbreaks from these fountains and the need to develop and implement standards for their design and maintenance. In addition to extensive cleaning, the Hubbard fountain is being re-engineered, and will have an automated chlorinator. It will henceforth be licensed and regulated as a public wading pool.