

Copper Toxicosis Associated with a Middle School

January

Clay County

On January 5, 2017, the Minnesota Department of Health (MDH) Drinking Water Protection Section (DWP) received a call reporting that at least four students at a middle school in Moorhead, Minnesota started vomiting soon after ingesting water from a drinking fountain near the gyms at the school on January 4. MDH Waterborne Diseases Unit staff were notified on January 5, and an investigation was initiated.

The school nurse provided MDH with contact information for students who reported gastrointestinal illness January 3-5. MDH epidemiologists interviewed students and their parents about their illness and exposure histories. A case was defined as an individual who became ill with vomiting after consuming water at the school. Water samples were collected by the school, with assistance from the City of Moorhead. MDH DWP staff provided technical assistance.

Illness and exposure histories were obtained from seven students; five (71%) met the case definition. The other two students reported nausea only and were excluded from further analyses. All five cases reported vomiting, four (80%) reported nausea, and three (60%) reported diarrhea. All cases reported symptoms starting within 2-30 minutes after ingestion of the water. The median duration of illness was 54.5 hours (range, 7 to 115.5 hours).

All of the reported exposures occurred between 9:00 a.m. and 12:00 p.m. on January 4. Cases reported consuming water from several different drinking fountains before becoming ill, including the tall fountain in the orange gym, the tall fountain in the white gym, the tall fountain in the black gym, the short fountain in the black gym, and an unknown fountain outside the gym. All of the cases reported the water tasted funny, most often reporting a metallic taste. One case reported the water was blue in color.

The school was in the process of constructing an addition to the building, and during the winter break the new plumbing in the addition was connected to the older plumbing and disinfected. The school did not have a routine flushing program, so no flushing occurred prior to classes resuming on January 3.

A sample collected from the unflushed black gym drinking fountain on January 5 was 161,000 ug/L, well above the Environmental Protection Agency Action Limit of 1,300 ug/L; all other sample locations were within acceptable limits. After flushing, levels remained elevated at 5,100 ug/L, but returned to levels consistent with other areas within the school on January 8 (25.4 ug/L) following repeated flushing. Bottled water was provided at the school for drinking and cooking until January 9.

This was an outbreak of copper toxicosis associated with a drinking fountain at a middle school. The lack of adequate flushing following the construction over winter break most likely led to the outbreak.