

# This summer be very afraid to go in the water: *Cryptosporidium* outbreaks associated with swimming pools in Maricopa County AZ, 2008

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## Abstract

In the summer of 2008, three *Cryptosporidium* outbreaks were detected in Maricopa County, Arizona. These outbreaks involved recreational water facilities in public pool systems in two cities and a children's splash area in a third city. In contrast to outbreaks recently reported elsewhere, these outbreaks were not communitywide.

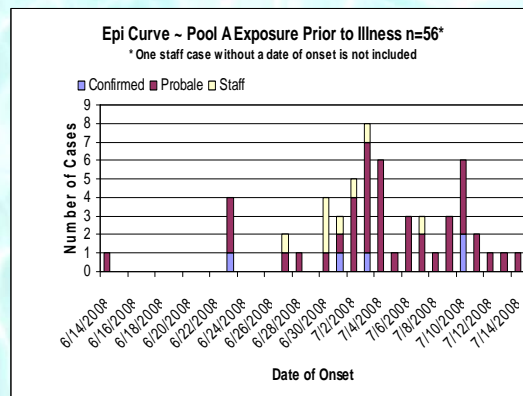
During the three outbreaks, 221 reports of illness were received. Maricopa County Department of Public Health (MCDPH) in partnership with a student team from the University of Arizona conducted 101 interviews. Fourteen specimens were collected and tested, with 13 confirmed and 64 probable cases. Thirty-seven pools were hyperchlorinated, 6 pools were fully inspected, two pools tested positive for *Cryptosporidium* oocysts. Stool specimens from individuals associated with the two public pool outbreaks yielded a genetic match. Water samples from the children's splash area showed a different genetic pattern.

One outbreak was detected by case surveillance and two were reported by the public as gastrointestinal illness complaints. In both public pool system outbreaks, the majority of confirmed cases were due to MCDPH collection and testing of specimens. Cases confirmed by private lab testing occurred much later.

In 2009, MCDPH will disseminate educational information to pool operators and the public prior to the start of the pool season to help prevent cryptosporidiosis. MCDPH will pursue single cases of cryptosporidiosis associated with recreation water exposure to facilitate the early detection of outbreaks. Increases in pool inspections this summer are also planned.

## Municipal Pool - City A

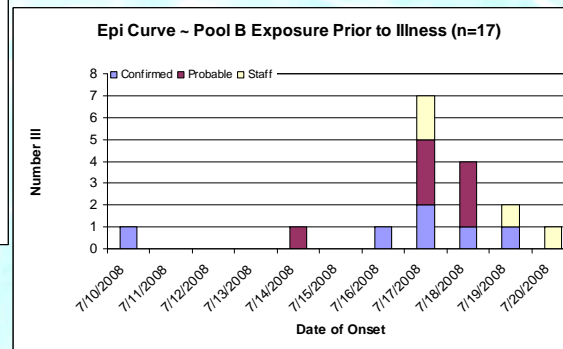
- ❖ Outbreak reported over July 4th weekend as GI complaints from multiple families with children on same swim team
- ❖ Initial hypothesis norovirus, but *Cryptosporidium* testing also ordered due to pool exposure
- ❖ First *Cryptosporidium* test positive 7/14/08
- ❖ Enhanced investigation began
  - ❖ 194 total reports of illness received
  - ❖ 83 interviews completed with help of student team Student Aid for Epidemiology Response (SAFER) from the University of Arizona
    - ❖ 5 confirmed cases
    - ❖ 52 probable cases
    - ❖ 13 cases ruled out with no exposure to suspect pool
    - ❖ 13 ruled out as not ill
- ❖ Environmental Services (ES) inspection of multiple pools, no violations noted
- ❖ Municipality closed and hyperchlorinated all pools



- ❖ Testing was conducted on pools that had been used by swim team immediately before and after illnesses (5 pools) including the team's home pool.
- ❖ The home pool was tested after initial hyperchlorination, so no *Cryptosporidium* was found. *Cryptosporidium* oocysts were found in another pool, which had no associated illnesses.

## Municipal Pool - City B

- ❖ Outbreak reported on 7/21/08 as illnesses in synchronized swim team members
- ❖ Aggressive investigation began immediately with *Cryptosporidium* considered pathogen of interest
- ❖ Interviews conducted by SAFER students with 13 team members
  - ❖ 13 of 16 (81%) of swim team members reported ill
  - ❖ 6 confirmed cases
  - ❖ ES inspection of pool revealed no violations
  - ❖ Municipality closed and hyperchlorinated all pools
  - ❖ Genetic testing revealed the strain of *Cryptosporidium* circulating in Pool A and Pool B swimmers was the same



## City C Splash Area

- ❖ Detected during investigations of confirmed *Cryptosporidium* by MCDPH
- ❖ Common water source was children's splash area
  - ❖ Four confirmed cases were reported
  - ❖ Five individuals were interviewed
  - ❖ Five symptomatic household members of confirmed cases counted as probable cases
  - ❖ Municipal testing of water revealed presence of *Cryptosporidium* oocysts
  - ❖ Genetic tests showed these oocysts not the same strain as those circulating in other two outbreaks
  - ❖ UV filtration system installed at splash pad

## Conclusions

- ❖ Though City A and City B pool outbreak cases had the same strain of *Cryptosporidium*, no shared cases were found between two outbreaks
- ❖ Presence of point source outbreaks in the community did not lead to widespread increase in number of cases
- ❖ Prompt closure and hyperchlorination of all pools may have helped to prevent additional cases
- ❖ Meeting to educate pool operators on *Cryptosporidium* completed March 2009
- ❖ No outbreaks of *Cryptosporidium* reported during 2009 swim season

