



City and County of San Francisco  
**DEPARTMENT OF PUBLIC HEALTH**  
**ENVIRONMENTAL HEALTH SECTION**

Gavin Newsom, Mayor  
Mitchell H. Katz, MD, Director of Health  
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June 18, 2010

Mike Marshall  
Executive Director  
Restore Hetch Hetchy  
by email: [mike@hetchhetchy.org](mailto:mike@hetchhetchy.org)

**Re:** Cryptosporidiosis and Giardiasis rates in San Francisco

Dear Mr. Marshall,

I am responding to your email of June 10, 2010 inquiring about the relatively higher rates of reported cases of cryptosporidiosis and giardiasis in San Francisco compared to other jurisdictions in California and about the relationship between these higher rates and the public water supply.

I've been privileged to serve as the Department's expert on water quality and health since 2001, regularly monitoring both water quality data and disease surveillance data. As part of this work, I oversee an active waterborne disease surveillance program which is the only one of its kind in California. During that time, San Francisco water has met all EPA water quality standards, and we have not recorded a disease outbreak linked to the public water supply.

As you may know, the city employs several lines of defense against waterborne diseases. The watershed protection program ensures that all source water is protected from contamination by *Cryptosporidium* and *Giardia*. In addition, *Giardia* is susceptible to chlorine-based disinfection, and our water system is routinely tested for chlorine residual throughout the distribution system. Therefore we have good assurance that the chlorine levels deactivate the very low levels of *Giardia* that may be present in the source water. Water supplies are regularly monitored for both *Giardia* and *Cryptosporidium*, and most samples are non-detects. Finally, our Department has a unique and pro-active public health disease surveillance program, and the Department works actively with the SFPUC to identify and address any potential threats to safe drinking water in San Francisco.

As reported by California Department of Public Health (CDPH) in 2008 San Francisco's crude rate of cryptosporidiosis was 2.0/100,000 and giardiasis was 21.2/100,000; indeed these crude rates are much higher than most other jurisdictions in California. For example, in Los Angeles County the rates are 0.5/100,000 and 3.9/100,000, respectively. These differences in reported case rates are well known among public health professionals, and in our professional judgment should be attributed to several factors aside from drinking water quality. These include:

1. **More active public health surveillance systems;**
2. **Better access to and utilization of health care; and/or**
3. **Immune status and exposure to non-drinking water risk factors.**

### 1. PUBLIC SURVEILLANCE RESOURCES

The San Francisco Department of Public Health surveillance for communicable and infectious disease is extremely active and well resourced and we have confidence of near complete ascertainment of cases in our jurisdiction. Conversely cases are likely to be underreported in other jurisdictions. According to CDPH: [“Incidence rate comparisons between geographic entities and over time should be done with caution.”](#) CDPH further explains that differences in completeness of reporting and random variability of rates make such comparisons untenable. In a recent report of cryptosporidiosis, the Centers for Disease Control and Prevention similarly cautions: [“State incidence figures should be compared with caution because individual state surveillance systems have varying capabilities to detect cases, and reporting might vary.”](#)

### 2. ACCESS TO HEALTH CARE:

In San Francisco, health care has been widely available to people regardless of their ability to pay or legal documentation. According to the [California Health Interview Survey](#), in 2007, **92% of San Francisco residents had some health insurance coverage, compared to 84% in Los Angeles County.** In addition, compared to other jurisdictions, undocumented people in San Francisco may be more likely to seek health care when they are ill. Depending on how the population figures are counted, outside of San Francisco these people likely contribute to the denominator in an incidence calculation, but not to the numerator if they rarely get confirmed diagnoses, which could cause an underestimate of the disease incidences in jurisdictions outside of San Francisco.

### 3. IMMUNE STATUS AND OTHER RISK FACTORS FOR CRYPTOSPORIDIOSIS

Depressed immune status is an important risk factor for cryptosporidiosis, and people living with AIDS comprise an important susceptible population. Again, comparing to Los Angeles as an example, San Francisco has a comparatively higher proportion of people living with AIDS. According to Avert.org, in 2007 there were 73% more new AIDS cases in San Francisco compared to Los Angeles (26.0/100,000 new cases of AIDS in San Francisco compared to 15.0/100,000 in Los Angeles).

In 2008, the San Francisco Bay Area Cryptosporidiosis Surveillance Project interviewed 14 of the 16 cases among San Francisco residents reported to CDPH. Most cases had identifiable risk factors for cryptosporidiosis such as contact with a suspect case, travel to a foreign country, sexual activity, depressed immune status, or contact with a recreational body of water. Similar results were found among the 22 San Francisco cases reported in 2009.

If you are interested in further information, our surveillance reports may be found at [http://www.sfphes.org/water/water\\_publications.htm](http://www.sfphes.org/water/water_publications.htm). A CDC summary of cryptosporidiosis in the U.S. for the period 2006-2008 is available at: [http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5906a1.htm?s\\_cid=ss5906a1\\_x](http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5906a1.htm?s_cid=ss5906a1_x)).

As you may know, the SFPUC is engaged in a very large Water System Improvement Program. One of the projects involves the construction of a new ultraviolet disinfection facility to treat the Hetch Hetchy supply, which is planned to go into operation in 2011. The new facility is designed to ensure a 99% reduction of *Cryptosporidium* and *Giardia*, thus adding to the reliability of our high quality water.

Thank you very much for your inquiry. We remain committed to surveillance of all potentially waterborne diseases and we stay apprised of emerging trends and research so that we can anticipate and respond to issues relevant to the provision of safe drinking water. Please let me know if you have any further questions.

Very truly yours,

June M. Weintraub, Sc.D.  
Senior Epidemiologist

cc: Andrew DeGraca, Director, Water Quality Division, SFPUC  
Rajiv Bhatia, Director, Environmental and Occupational Health, SFDPH  
Duc Vugia, Chief, Infectious Diseases Branch, California Department of Public Health  
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