Effects and information

There are multiple differenthealthproblems that may result from the presence of infectious microorganisms in recreational waters. Epidemiological studies have shown a number of adverse health outcomes such as gastrointestinal and respiratory infections, to be associated with fecally polluted recreational water. Evidence from the World Health Organization (2003), suggests that the most frequent adverse health outcome associated with exposure to fecally contaminated recreational water is enteric illness, such as self-limiting gastroenteritis.

Most of the pathogenic water-borne organisms are acquired by ingesting contaminated water because they affect the digestive tract. Pathogenic organisms in feces such as Salmonella, Giardia, Campylobacter and Cryptosporidium are known to cause gastrointestinal illnesses, skin, ear, and eye infections can also result from contact with contaminated water (Peeples, 2007). There has been a documented association of transmission of Salmonella paratyphi, the causative agent of paratyphoid fever, with recreational water use.

Also, rates of typhoid in Egypt have been observed in among bathers from beaches polluted with untreated sewage (WHO, 2003). Other illnesses associated with recreational waters in the USA are listed below (Center for Disease Control and Prevention, 2007): Vibrio vulnificus is a bacterium in the samefamilyas those that cause cholera. It normally lives in warm seawater because they require salt. Cryptosporidium is one of the most frequent causes of waterborne disease (drinking water and recreational water) among humans in the United States and can be life threatening in persons with weakened immune systems.

Vibrio parahaemolyticus is a bacterium in the same family as those that cause cholera. It lives in brackish saltwater and causes gastrointestinal illness in humans. V. parahaemolyticus naturally inhabits coastal waters in the United States and Canada and is present in higher concentrations during summer. Pseudomonas aeruginosa, often called Swimmer’s Ear, is frequently caused by infection with a germ. This germ is common in theenvironmentand is microscopic so that it can’t be seen with the naked eye.

Shigella bacteria may contaminate water if sewage runs into it, or if someone with shigellosis swims in or plays with it, Shigella infections can then be acquired by drinking, swimmingin, or playing with the contaminated water. Noroviruses are a group of viruses that cause the “ stomach flu,” or gastroenteritis (in people. Noroviruses are found in the stool or vomit of infected people and people can become infected with the virus by eatingfoodor drinking liquids that are contaminated with norovirus. Giardia intestinalis , a microscopic parasite which causes Giardia.

Giardia causes diarrheal illness, and is a common cause of waterborne disease in humans in the United States. Current recreational water-quality guidelines are based on studies conducted in the 1970s and 1980s (Cabelli et al. 1975, 1979, 1982; Dufour1984). The customary method used to measure recreational water quality require at least 24-48 hrs toculturefecal indicator bacteria colonies, such as Enterococcus spp. or Escherichia coli. The culturing along with counting the colony-forming units, makes it impossible for beach managers to assess the quality of water

within a single day. A significant drawback is that microbial water quality can change rapidly (Boehm et al. 2002). Guidelines based on indicator organisms that require almost two days to develop, the great diversity of pathogenic microorganisms transmitted by contaminated water, and the difficulty in addition to the cost of directly measuring all microbial pathogens in environmental samples (Wade, Calderon, Sams, Beach, Brenner, Williams, Dunfor, 2006), are likely to result in both unnecessary beach closings and the exposure of swimmers to poor-quality water.

Also, current indicator microbes are based solely on fecal contamination and may not accurately assess the risk of disease due to countless other potential pathogens that cause skin, upper respiratory tract, eye, ear, nose, and throat diseases. A study done in 2004, estimated that up to 40% of beach closures are in error (Kim and Grant 2004). Earth911. com(n. d.) provides the public with specific information regarding the most recent water quality conditions at local beaches. Beaches911 provides information generated and uploaded directly by local government agencies to include the type of bacteria detected, or why the warning is in place.

Independent analysis or historical reporting of water quality is not provided by Beaches911. The Beaches Environmental Assessment and Coastal Health Act (BEACH Act) required EPA to develop and publish a list of discrete coastal recreation waters adjacent to beaches or similar points of access that are used by the public that specifies whether the waters are subject to a monitoring and notification program. EPA's BEACON, Beach Advisory and Closing Online Notification has the latest information that states have sent to

the EPA. BEACON is a breakdown of monitored and unmonitored coastal beaches by county and answers the following questions:

• How many notification actions were reported and how long were they? • What percentage of days were beaches under a notification action? • How do 2007 results compare to previous years? • Whatpollutionsources affect monitored beaches? States and local governments decide whether to open or close a beach. They report that information to EPA, but because the states vary in how quickly the information is sent, the EPA doesn’t always have real-time reports. If BEACON doesn't have up-to-date information, anyone searching for beach information would need to find their state's information by contacting the regional EPA office.

Although there is a lot of information about which beaches are tested and when, the different monitoring agencies do not give specific information regarding water test results i. e. - type of bacteria detected, warning information regarding those results, and information describing the health risks of any detected environmental hazard. References Boehm A. , Grant S. , Kim J. , Mowbray S. , McGee C. , Clark C. , et al. (2002). Decadal and shorter period variability of surf zone water quality at Huntington Beach, California. Environ Sci Technol 36(18): 3885–3892. Retrieved 12 January 2009, from http://pubs.

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