

**jhopewell**

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## April 2006 HepTalk Listserv

### Announcements from HepTalk

**Note:** HepTalk is gearing up to offer all of the participating clinics training! We are in the process of contacting you to set up either on-site or distance learning training on migration health, hepatitis basics, risk assessment and more! We think your staff will enjoy the interactive and informative HepTalk training.

**Our focus for April 2006 is on Hepatitis A and prevention. Our Guest Editor is Amy Liebman, MPA.** Ms. Liebman works as an environmental health consultant with several organizations, including the Migrants Clinicians Network (MCN). At MCN she oversees their environmental and occupational health programs. Prior to her current position, she was the Director of Outreach and Policy for the Center for Environmental Resource Management in El Paso, Texas, where she directed several programs on both sides of the US-Mexico Border. She has authored articles, bilingual training manuals and other educational materials that deal with pesticides, water and sanitation and other environmental health issues. Ms. Liebman has a Master's degree from the LBJ School of Public Affairs at the University of Texas at Austin, and a Master of Arts from the Institute of Latin American Studies at the University of Texas at Austin.

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**Hepatitis A** is a serious liver disease caused by the hepatitis A virus (HAV). HAV is found in the feces of people with hepatitis A and is usually spread by close personal contact (including sex or sharing a household). It can also be spread by eating food or drinking water contaminated with HAV.

A safe and effective vaccine to prevent HAV infection has been available in the U.S. since 1995. Safe hygiene practices are also important to prevent HAV infections along with other diseases spread through fecal oral routes of transmission.

Below are links to an article and patient education material that you may find useful in understanding HAV and other water-borne diseases and in informing your patients about preventative measures such as handwashing.

The following links and articles are available in the April Listserv:

1. ***An Overview of Drinking Water Quality and Water and Sanitation-Related Disease.*** Water and sanitation problems have had a significant negative impact on farmworker health. This 2002 article published in MCN's *Streamline* offers an overview of the problems and a summary of the fecal oral routes of disease transmission and how these diseases can be prevented. Particular attention is given to the migrant and seasonal farmworker population. [For your convenience, this article is reproduced in its entirety here.](#)

**2. *Agua que hay microbios: Una guía para el cuidado del agua e higiene en el hogar.***

**3. *Una vida sana empieza si hay comida con limpieza: Una guía para el cuidado e higiene de los alimentos en el hogar.***

**4. Excerpts from *Waterborne Illnesses* CME/CE, Sussan K. Sutphen, MD, MEd**

Please note that the articles and links in the HepTalk listserv do not comprise recommendations from HepTalk, or from the CDC. They are mainly intended to stimulate discussion of issues you may find relevant to your client population. The HepTalk team does try to pass along resources we have found useful that we think might be useful to clinics serving mobile populations.

Check the HepTalk webpage on the Migrant Clinicians Network website at <http://www.migrantclinician.org>. You can get to our page by clicking on "Clinical Excellence" on the Home page, and then clicking on "Hepatitis" on the menu at the left (<http://www.migrantclinician.org/excellence/hepatitis>).

If others at your clinic would like to be on the listserv, or if you have questions about the listserv or resources listed here, or if you would like to add something to the posts, please contact Kathryn Anderson, HepTalk listserv administrator, at [dempander@earthlink.net](mailto:dempander@earthlink.net). You can also contact the listserv administrator if you would like to unsubscribe from the list.

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**1. *An Overview of Drinking Water Quality and Water and Sanitation-Related Disease***

[http://www.migrantclinician.org/news/streamline/20020506\\_mcn\\_streamline.pdf](http://www.migrantclinician.org/news/streamline/20020506_mcn_streamline.pdf) James VanDerslice, Ph.D. and Amy K. Liebman, MPA

*The information for this article comes from presentations Jim VanDerslice made at recent MCN environmental health intensives and an outreach program that both authors developed and implemented along the US-Mexico Border.*

A little more than a hundred years ago, diseases such as typhoid and diarrheas were the third major cause of death accounting for 10% of all deaths. Outbreaks were often attributed to water supplies contaminated by human waste. Few piped water systems had any treatment, and disinfection with chlorine was yet to be discovered. Similarly examining the water for bacterial indicators of contamination was not common until the late 19th century.

Despite advances in water supply and treatment, many farmworkers remain vulnerable to contaminated water supplies. Most of the water sources used to provide water to farmworkers in the fields or in the camps are private wells. These supplies are not regulated under the federal Safe Drinking Water Act of 1974 as this law applies only to systems serving 25 or more people for at least 60 days per year. Further, only a handful of states have regulations in place, which cover these smaller systems or systems specifically serving farmworkers. As a result a very small proportion of these wells are tested for microbiological or chemical contamination, and few are inspected to assure that the source waters are protected from contamination.

This is of particular concern in agricultural areas where rain and irrigation water can carry pesticides, fertilizers and human and animals wastes through the soil and into the underlying aquifer. It is these aquifers that are tapped by the shallow domestic wells typically used to provide drinking water to farmworkers in the fields and at labor camps. A recent study by the US Geological Survey showed that nitrate, found in fertilizers and animals wastes, was the most commonly found contaminant of wells.

Historically, water and sanitation problems have had a significant impact on farmworker health. Studies

dating back to the early 1980s have documented high levels of enteric disease and poor sanitary conditions (Ortiz, 1980). Arbab and colleagues (1986) found that migrants displayed a clinic utilization rate for diarrhea 20 times higher than that of urban poor. In a North Carolina study Ciesielski et. al. (1992) found a high prevalence of intestinal parasites, and an association between having parasites and poor sanitary conditions. Moreover, a 1988 EPA study conducted in Wisconsin found that sanitation problems increased during the summer months when more workers are in the region. Wells tested in May showed no signs of microbiological contamination, whereas nearly 50% of the wells tested in July tested positive for microbiological contamination.

While more recent information from National Agricultural Worker's Survey and the California Worker Health Survey in 1999 indicates that there have been significant improvements in field sanitation, there are still troubling reports that water and sanitation problems remain a concern. In a 1999 sanitary survey of wells serving temporary farmworkers and their families in the Washington State, 101 out of 179 wells showed problems and 23 of the wells obtained water from unacceptable sources. A recent series of focus groups conducted with farmworkers in Washington State found that water and sanitation continues to be problematic both in the field and at housing sites (Washington State Department of Health, 2002).

There are two important aspects for clinicians to understand regarding water and sanitation. 1) While pesticide and nitrate contamination of water is a problem, fecal contamination is a primary source of enteric disease. 2) Enteric disease is not only water-borne, but transmitted through fecal-oral routes of transmission. Figure 1 provides a simplified illustration of the various routes of fecal-oral transmission. This diagram shows that fecal contamination of water, hands, and the environment sets the stage for transmission of disease. The following are all methods for disease transmission:

- Water sources may be directly contaminated (i.e. a poorly maintained latrine or septic system can contaminate water wells).
- Stored water can be contaminated through contact with contaminated hands or utensils.
- Contaminated water may be ingested directly or used to wash dishes and utensils or to prepare food.
- Contaminated hands may directly contact the mouth, drinking or cooking water, utensils, food etc.
- Vectors such as flies may also contribute to the transmission of disease as contact both feces and food. (*Actions Speak*, 1993).

Figure 1: Fecal Oral Routes of Disease Transmission. Source: *Actions Speak*, 1993.

[To view this figure, please go to

[http://www.migrantclinician.org/news/streamline/20020506\\_mcn\\_streamline.pdf](http://www.migrantclinician.org/news/streamline/20020506_mcn_streamline.pdf)]

Farmworkers and their families often live and work in settings where there are multiple routes of transmission as described above. Farmworkers may or may not be exposed to contaminated water via poorly maintained wells. Facilities for hand washing and properly maintained excreta disposal systems may or may be available to farmworkers. Knowing that enteric infection may be an issue for farmworkers has several implications for clinicians, outreach workers, and health educators.

In evaluating farmworkers or their family members that present with symptoms of enteric infection, clinicians should keep in mind the research that suggest that many of these infections are due to parasites, particularly *giardia* and *cryptosporidium*, which could often persist if not treated accordingly.

For clinicians who want to know more about water-borne disease, Physicians for Social Responsibility has a clinical resource guide entitled *Drinking Water and Disease: What Health Care Providers Should Know*. This primer was developed specifically for the health care provider to serve as an introduction to this timely issue and to answer common questions about the impact of drinking water on health. While the primer does not specifically address water and disease issues as it relates to farmworkers, it does provide information that migrant clinicians may find useful. The American College of Preventative Medicine and PSR offer *Drinking Water and Disease: What Health Care Providers Should Know* as an on-line educational module for health care providers ([www.psr.org](http://www.psr.org)). Physicians who view the conference can earn a maximum of 6.5 hours of Category I credit toward the AMA Physicians Recognition Award.

There are also preventive measures with a significant health impact, which are best initiated through an intensive outreach effort. One such program is called *Agua Para Beber (Water to Drink)* a community-based program for improving water quality and promoting safe hygiene practices started in areas along the US-

Mexico border that lack potable water and sewerage services. The program combines outreach education with the distribution of low-cost water receptacles and utilizes volunteer health promoters for implementation.

Numerous resources are available from this program including *Agua Para Beber—A Training Guide in Hygiene Education and Water Purification for Community Volunteers/Agua Para Beber—Una Guía de Entrenamiento para Promotores Comunitarios de Salud sobre Educación en Higiene y Purificación del Agua* (El Paso, TX: Center for Environmental Resource Management, 1995). This bilingual manual consists of five workshops to train community health promoters. It focuses on water purification techniques, safe hygiene practices, behavioral change and popular education. Included in the manuals are support materials for distribution to health promoters. For more information contact Veronica Corella-Barud at (915) 747-5961 or [vcorella@utep.edu](mailto:vcorella@utep.edu) at the Center for Environmental Resource Management in El Paso, Texas.

#### Sources

Arbab DM and BL Weidner, "Infectious Diseases and Field Water Supply and Sanitation among Migrant Farmworkers," *American Journal of Public Health*, 1986 Jun; 76(6):694-5.

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Villarejo, Don et. al. *Suffering in Silence: A Report on California's Agricultural Workers*, (Davis, CA: California Institute for Rural Studies, 2000).

Washington State Department of Health, "Drinking Water Serving Temporary Farmworker Facilities: Water System Inspection and Testing Report," January 2000.

Washington State Department of Health, "Learning from Listening: Results of Farmworker Focus Groups about Pesticides and Health Care," Presentation by Joanne Bonnar Prado at the Western Stream Forum, Sacramento, CA, January 2002.

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### 2. ***Agua que hay microbios: Una guía para el cuidado del agua e higiene en el hogar*** [http://www.migrantclinician.org/\\_resources/Agua\\_que\\_hay\\_microbios.pdf](http://www.migrantclinician.org/_resources/Agua_que_hay_microbios.pdf)

A Spanish educational comic book that promotes safe hygiene and water disinfection techniques. Includes instructions on how to safely chlorinate and boil water as well as ways to safely store potable water.

### 3. ***Una vida sana empieza si hay comida con limpieza: Una guía para el cuidado e higiene de los alimentos en el hogar*** [http://www.migrantclinician.org/\\_resources/Una\\_vida\\_sana\\_empieza\\_si\\_hay\\_comida\\_con\\_limpieza\\_lr.pdf](http://www.migrantclinician.org/_resources/Una_vida_sana_empieza_si_hay_comida_con_limpieza_lr.pdf)

A Spanish educational comic book that promotes safe food handling practices and handwashing.

The comic books were developed by the University of El Paso at Texas as part of their *Agua Para Beber* (Water to Drink) program. This program utilizes health *promotores* to educate families who live without water and wastewater services along the US-Mexico border. For more information about the program or comic books, contact the Veronica Corella-Barud [vcorella@utep.edu](mailto:vcorella@utep.edu) or (915) 747-5961.

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### 4. Excerpts from ***Waterborne Illnesses*** CME/CE, Sussan K. Sutphen, MD, MEd <http://www.medscape.com/viewprogram/5047>

## Hepatitis A and E

Hepatitis A remains the most reported vaccine-preventable disease in the United States.[23] For 2003, the estimated number of new infections was 61,000 with 33,000 acute cases, which is down from a high of 380,000 new infections with roughly 35,700 acute cases in 1989. The decline has been attributed to the increased rate of vaccination for hepatitis A in infants and children.[33] Fifty-two percent of infected individuals with no identified source had an asymptomatic child younger than 6 years. In fact, 70% of children younger than 6 are asymptomatic.[23] Of those infected, 11% to 22% are hospitalized and an average of 28 working days are lost to the illness. Certain states have a greater incidence than others.[35] A map of the areas of greater prevalence for hepatitis A in the United States is available at:

<http://www.cdc.gov/ncidod/diseases/hepatitis/a/fact.htm>.

Hepatitis E is the most common cause of non-A, non-B hepatitis worldwide.[36] It was first recognized in the 1980s during a large waterborne outbreak in India. The largest outbreak was in the Xingjian Province in China, which resulted in 100,000 cases.[37] The most common group affected are young to middle-aged adults.

## Pathogenicity

Hepatitis A virus is an mRNA virus with an incubation period of 28 days ranging from 15 to 50 days. Signs and symptoms include an abrupt onset of jaundice, fatigue, abdominal pain, anorexia, nausea, diarrhea, and fever. The virus replicates in the liver and is excreted in bile. Infected individuals shed virus in stools and are infectious 2 weeks prior to the onset of jaundice or elevated liver enzymes. The case fatality rate is 0.3%. In the United States, 100 people will die each year from fulminant hepatitis secondary to hepatitis A. The risk is greater (1.8%) for individuals older than 50 years and is even greater for individuals with chronic liver disease.[35,37,38]

Hepatitis E virus is a single-stranded RNA virus with an incubation period of 15-60 days with an average of 40 days. Symptoms are similar to hepatitis A. Virus may be shed for 2 weeks after infection.[36,39] The case fatality rate is 1% to 3% but is 15% to 25% for pregnant women.[36, 38-40]

Transmission is fecal-to-oral via contaminated food, water, or shellfish or is person-to-person. Poor water sanitation, contaminated sewage, or inadequately treated water systems pose the greatest risk.[23] Flooding increases the risk of waterborne outbreaks[40] (Table 5).

**Table 5. Hepatitis A and Hepatitis E** [Please go directly to <http://www.medscape.com/viewprogram/5047> page 7 to view the Table]

## Prevention

Infection with hepatitis A or E confers lifetime immunity. Prevention includes general personal hygiene measures as previously noted, boiling water during periods of water contamination, and avoiding uncooked foods, including fruits and vegetables. Hepatitis A vaccine is recommended for age 12 months or older, travelers to or children living in areas with increased rates, substance abusers, men having sex with men, and individuals with clotting factor disorders or chronic liver disease.[36] Vaccine recommendations are available at the CDC's National Immunization Program Web site: <http://www.cdc.gov/nip/vaccine/hep/default.htm>. No vaccine is currently available for hepatitis E.

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HepTalk is a project of the Migrant Clinicians Network and Community Health Education Concepts. HepTalk is funded by the Centers for Disease Control and Prevention. The goal of HepTalk is to help clinicians serving migrants and recent immigrants engage in productive discussions about hepatitis risks with their clients and help them make prevention plans. The HepTalk listserv is a support service for clinics participating in the project. This is a post-only listserv and postings will come from HepTalk staff about once a month. If others at your clinic would like to be on the listserv, or if you have questions about the listserv or resources listed here, or if you would like to add something to the posts, please contact Kathryn Anderson, HepTalk training and education coordinator and listserv administrator, at [dempander@earthlink.net](mailto:dempander@earthlink.net). You can also contact the listserv administrator if you would like to unsubscribe from the list.