

SAFE FOOD NEWS

Volume VII, No. 4

Summer 2003

In This Issue

Feature Articles

Toxoplasmosis During Pregnancy ...	1
Update on Noroviruses	2
FDA Proposed Regulations for Implementing the Bioterrorism Act	3
Bare Hands or Gloves?	4

Resources

Consumer Resources	5
• Grill It Safely! (New)	
• Safe Handling of Fruits and Vegetables	
• Handling Food Safely on the Road	
• Foodborne Illness Peaks in Summer-Why?	
• Barbecue Food Safety	
High Altitude Baking Book	5
Spanish Translation Website	5
TAPS Series – New Food Safety Certification Option	5
Summaries of Rocky Mountain Food Safety Conference & Lillian Fountain Smith Conference	5

Coming Events

USDA Food Safety Mobile Events ...	6
ServSafe® Trainings	6
Course: Food Safety for High Risk Groups	6

**This newsletter can be found
on the SafeFood web site.**

Check it out at:

<http://www.colostate.edu/Orgs/safefood/>

Colorado State University
and U.S. Department of
Agriculture cooperating.
Cooperative Extension
programs are available to all
without discrimination.

TOXOPLASMOSIS DURING PREGNANCY

Pregnancy is a time in a woman's life that brings about change. Many physiological adaptations are positive, but some may have negative consequences for the pregnant woman. Hormonal changes causing suppression of the immune system increase susceptibility to infections from foodborne pathogens that would otherwise be of no concern.

Toxoplasmosis is one such infection, caused by the parasite *Toxoplasma gondii*. *T. gondii* can be transmitted to humans by water, dust, soil, or through consumption of contaminated foods, such as raw or undercooked meats and unwashed fruits and vegetables.

Cats are the primary host for *T. gondii*, and the only host where the organism can complete its life cycle. Cats shed oocysts in their feces only once in their lives, during the first two weeks following infection with the parasite. However, the sporulated oocysts are infectious and can survive for months to years in the environment. Contact with contaminated soil or water is therefore as much of a risk factor for infection as contact with cats. If animals, such as sheep, pigs and rabbits, pick up the oocytes from the environment, they become intermediary hosts and carry the parasite in the cyst form in their tissues. If the meat of an infected animal is then eaten raw or undercooked, the parasite is passed to the human or animal who consumes the meat.



Of the estimated 1.5 million *T. gondii* infections that occur each year in the U.S., most individuals experience no or minor symptoms and subsequently develop a protective immunity to the parasite. However, when women acquire *T. gondii* infections less than 6 months before pregnancy or during pregnancy, their babies are at risk for contracting congenital toxoplasmosis, affecting approximately 3,000 babies each year. Manifestations of congenital toxoplasmosis can range from severe (mental retardation and blindness) to mild (vision impairments). Also, symptoms may not be visible at birth, but express themselves several months to years later. Because *T. gondii* can cause such severe problems, toxoplasmosis accounts for \$3.3 billion to \$7.8 billion per year in economic costs. The government ranks it as one of the most expensive forms of food poisoning.

Diagnosis of toxoplasmosis can be confirmed with an IgG antibody blood test and identification of symptoms appearing about 10 days after exposure to *T. gondii*, which include fever with rash, headache, muscle aches and pain, and swelling of the lymph nodes. Once a mother is diagnosed with the infection, antibiotics can reduce transmission of the parasite to the fetus, but this treatment will not change the course of the disease if the fetus has already been exposed.

To avoid infection from *T. gondii*, pregnant women are advised to practice safe food handling procedures, such as washing all surfaces, cutting boards and utensils that have come in contact with raw meat with hot, soapy water. Pregnant women are recommended to avoid consumption of raw or undercooked meat (particularly minced meats, mutton and pork), to wash hands often, especially after handling animals or working in the garden, and for cat owners to have the litter box changed every day, preferably by another family member.

Sources: 1) Smith, J. Foodborne Infections during Pregnancy. *J. Food Protection*, 62(7): 818-829, 1999. 2) Smith, J. Long-Term Consequences of Foodborne Toxoplasmosis: Effects on the Unborn, the Immunocompromised, the Elderly, and the Immunocompetent. *J. Food Protection*. 60(12): 1595-1611, 1997. 3) Hill, D., Dubey, J.P., *Toxoplasma gondii*: transmission, diagnosis and prevention. *European Society of Clinical Micro. & Infect. Dis.* 8:634-640, 2002. 4) Cook, A.J.C., Gilbert, R.E., Buffolano, W., Zufferey, J. et al., Sources of toxoplasma infection in pregnant women: European multicentre case-control study. *British Medical Journal* 321:142-147, 2000.

UPDATE ON NOROVIRUSES

Norwalk-like viruses, also known as noroviruses, are common causes of viral enteritis, accounting for over 66% of the estimated cases of foodborne illnesses in the United States each year. Gastroenteritis outbreaks in the U.S. between the years 1996-2000 have been caused by noroviruses in 39% of restaurant and catered events outbreaks, 30% of outbreaks in nursing homes, 12% of those in schools and day care centers, 10% of vacation outbreaks, and 9% miscellaneous outbreaks. Its implication among cruise ship outbreaks has brought this more obscure pathogen into the limelight in recent months.

Symptoms

Noroviruses are called such because there is not just one, but rather a series of four, small RNA-viruses that are implicated in the transmission of disease. They are environmentally stable and will survive water chlorination and a wide temperature range, from freezing and heating to 140° F (60°C). Onset of illness occurs within 12-48 hours and lasts approximately 12-60 hours. Symptoms include nausea, vomiting, abdominal cramps, and diarrhea.

Transmission-Foodborne

Food contamination by infectious food handlers is the most common cause of norovirus-related gastroenteritis outbreaks. Transmission usually occurs from exposure to fecally contaminated food or water resulting from failure to wash hands properly after using the restroom. Shellfish, in particular oysters and clams, have been implicated due to the ability of noroviruses to concentrate in their tissues or to contaminate waters where the shellfish are harvested. Of particular concern is transmission through ready-to-eat foods, which do not require cooking, such as salads and deli sandwiches. Because only a very low exposure is needed to result in a substantial outbreak, attention must be given to preventive actions. These include emphasis on frequent handwashing, exclusion of ill foodworkers from the workplace, properly cleaning and disinfecting surfaces and limiting possible contamination of ready-to-eat foods by either customers or foodhandlers.



Transmission-Person-to-Person

Person-to-person spread of noroviruses occurs by direct fecal-oral and airborne transmission. This has been a factor in institutional settings such as nursing homes, day care centers and on cruise ships. Wearing masks can be effective in protecting individuals, such as hospital or nursing home staff, who clean areas contaminated by feces or vomitus. For hospital and nursing home staff, protective measures include properly disinfecting surfaces of known contamination, taking special care in laundering soiled linens, and wearing of masks by staff that clean areas contaminated with feces or vomitus.



Transmission-Water

Although infrequent, gastroenteritis outbreaks have been associated with fecal-contaminated municipal water, well water, stream water, commercial ice, lake water and swimming pool water. In such instances, high level chlorination might be required for adequate disinfection.

Bottom Line

Although it is impossible to completely eliminate possible exposure to noroviruses in our environment, we can minimize our risk by taking the following actions:

- Wash your hands frequently, especially after using the toilet and changing diapers.
- Drink only potable water.
- Avoid consuming raw shellfish, especially from contaminated waters.
- Carefully wash fresh fruits and vegetables before consuming.
- Be cautious about exposure to persons who have the “flu.”



If you or your family comes down with a norovirus infection or the “flu”:

- Flush or discard any vomitus and/or stool in the toilet and make sure that the surrounding area is kept clean.
- Thoroughly clean and disinfect contaminated surfaces immediately after an episode of illness by using a bleach-based household cleaner.
- Immediately remove and wash clothing or linens that may be contaminated with noroviruses using hot water and soap.

Sources: 1) “Norwalk-Like Viruses” Public Health Consequences and Outbreak Management. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report (CDC/MMWR). Recommendations and Reports. June 1, 2001/Vol. 50/No. RR-9. 2) Epidemiology of Noroviruses by Craig Hedberg; Environmental and Occupational Health, School of Public Health, University of Minnesota. Rocky Mountain Food Safety Conference. Boulder, CO. May 13, 2003. 3) Norovirus Q & A. Centers for Disease Control and Prevention. Last reviewed January 21, 2003. available at <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-qa.htm>

FDA PROPOSED REGULATIONS FOR IMPLEMENTING THE BIOTERRORISM ACT

As a result of the recently passed Bioterrorism Act, four regulations, all designed to protect our food supply from possible terrorist activities, are being finalized by the U.S. Food and Drug Administration (FDA). All are expected to be in place by December 12, 2003. The new regulations include:

Registration of Food Facilities:

This regulation will require all owners, operators or agents in charge of domestic or foreign facilities that manufacture/process, pack or hold food for human or animal consumption in the United States to register with the FDA. The proposal exempts farms, restaurants, other retail food establishments, nonprofit food establishments in which food is prepared for, or served directly to, the consumer, fishing vessels, and facilities (such as meat and poultry slaughterhouses) that are regulated exclusively by the U.S. Department of Agriculture. Those who manufacture or process a food ingredient that is further manufactured/processed outside the U.S. are also considered exempt, although some “mixed type” facilities may be subject to registration for some of their activities. Registration must occur by December 12, 2003.

Prior Notice of Imported Food Shipments:

The Bioterrorism Act also requires that the FDA receive prior notice of food imported or offered for import into the U.S., beginning December 12, 2003. The prior notice must include the identity of the article, manufacturer and shipper, grower (if known), originating country, the country from which it was shipped and the anticipated port of arrival. Those items not subject to these proposed requirements include meat, poultry and egg products that at the time of importation are subject to USDA’s exclusive jurisdiction. If adequate notice is not given, articles will be refused admission and held until proper notice is provided.

Administrative Detention:

The Act also spells out how the FDA can detain food from facilities that are not registered or did not give prior notice of shipments. Further, the FDA is authorized to detain any food if there is credible evidence or information indicating the food may pose a serious health threat to humans or animals.

Records Maintenance:

Finally, the proposed rule will require all manufacturers, processors, packers, distributors, receivers, holders and importers of food to keep records identifying the immediate source from which they received the food. Records will also be required regarding the immediate subsequent recipient to whom they sent the product. This recordkeeping proposal is designed to help the FDA track foods implicated in future emergencies, such as terrorism-related contamination. Current information on the FDA's efforts, including fact sheets on each of the proposed regulations can be obtained at:

<http://www.fda.gov> under Bioterrorism Act.

Source: U.S. Department of Agriculture/Center for Food Safety & Applied Nutrition (CFSAN). Protecting the Food Supply: FDA Actions on New Bioterrorism Legislation. May 2003.



BARE HANDS OR GLOVES?

The debate continues as to whether food is more safely prepared by workers using bare hands or those wearing gloves. Published data on the effectiveness of handwashing and glove use in a foodservice setting are limited. Most data on glove effectiveness have originated from the healthcare literature, which have evaluated surgical gloves using a method which doesn't simulate gloves in use, especially foodservice. Let's take a look at both sides of the issue.

Handwashing vs. Gloves

Many believe that proper handwashing is sufficient. They say that mandatory glove use can lead to a false sense of security due to the fact that gloves are commonly misused. However, as glove proponents point out, because handwashing is often neglected, an

additional glove barrier is needed. So-called "restroom germs," including Hepatitis A, noroviruses, *Giardia*, and *Shigella* can be carried to food by hands that are not properly washed after using the restroom. Therefore, any measures to minimize hand contact with food stand to reduce the chances of contracting a foodborne illness. This stance is reflected in the 1999 FDA food code, which states that employees may not contact ready-to-eat foods with bare hands, except when washing fruits and vegetables and when otherwise approved. From a customer standpoint, seeing employees wear gloves is a reassuring sign that the food is safe.

Problems with Gloves

Although estimates range widely as to how often gloves fail, the possibility exists that large numbers of bacteria could pass from hands to the outside of gloves. However, one document presented to the FDA showed that even gloves that leaked prevented hand contamination 77% of the time when tested. Results of a study conducted by the Food Risk Analysis Institute at Rutgers University indicate that gloves may reduce both bacterial transfer from food to hands of foodservice workers and subsequent transfer from hands back to food. However, their findings also showed that the majority of gloves are permeable to bacteria during use; therefore, glove size and type are factors that must be considered when designing a disposable glove program. Employees need proper training and constant reinforcement regarding guidelines on glove usage, and handwashing should always occur before using gloves.

Bottom Line

Taking extra precautions to prevent foodborne illness makes sense. The combination of handwashing and glove use appears to be more effective than either alone. Both sides agree that proper training is the key. A hand sanitation program that combines proper handwashing and disposable glove use along with other barriers can provide one more layer of protection to keeping our food safer.

Sources: 1) *Gloves! The Controversy Continues* by Megan Bradley. Food Safety Solutions. Summer 2002. 2) *Glove Barriers to Bacterial Cross-Contamination between Hands to Food*. R. Montville, Y. Chen, D. Schaffner. Journal of Food Protection. Vol 64, No. 6, 2001, pgs 845-849.

RESOURCES

Summertime consumer handouts worth checking out:

1) *Grill It Safely! (New)*



Available through the University of Nebraska Lincoln, Cooperative Extension, this publication is sure to help answer consumer questions for summer cookouts. The handout (2 pgs.) can be downloaded at:

<http://www.lancaster.unl.edu/food/grill-flyer.pdf>

2) *Safe Handling of Fruits and Vegetables (4 pgs.)*

The Ohio State University Extension Fact Sheet is another excellent consumer resource, with information ranging from safe produce washes to safety of edibles from flooded gardens. It can be accessed at:

<http://ohioline.osu.edu/hyg-fact/5000/5353.html>.

From FSIS:

3) *Handling Food Safely on the Road (3 pgs.)*

In addition to road trips, this covers food safety tips when camping, boating, at the beach, and while using recreational vehicles.

<http://www.fsis.usda.gov/OA/pubs/onroad.htm>

4) *Foodborne Illness Peaks in Summer-Why? (3 pgs.)*

This one reinforces the Fight Bac! principles. Always a good refresher.

<http://www.fsis.usda.gov/OA/pubs/illpeaks.htm>

5) *Barbecue Food Safety (3 pgs.)*

Covers everything from defrosting to marinating, smoking meats and pit roasting.

http://www.fsis.usda.gov/OA/pubs/facts_barbecue.htm

High Altitude Baking (NEW Book)

A compilation of various CSU Cooperative Extension pamphlets regarding high altitude baking, as well as additional signature recipes included by the publisher. Available for sale through CE Resource Center for \$18.50 (price includes S/H & tax). Contact the Resource Center at 1-877-692-9358 or 970-491-6198 or their web site: <http://www.cerc.colostate.edu>

Spanish Translation Website

The FSIS website has a new gateway to all documents that have been translated into Spanish. Food safety materials for consumers, educators, health professionals and producers are currently available, with additional documents to come. The website is part of FSIS's on-going effort to reach non-English speakers. Currently, the agency has food safety materials available in five languages. Reach the new index at:

<http://www.fsis.usda.gov/spanish/index.htm>.

TAPS Series - New Food Safety Certification Option

For those looking for a new and convenient way to obtain food safety training, this electronic Food Safety Managers Certification Training Course is now available through the



Foodservice Operator's Training Achievement Program (TAP) website. For \$86.95, the course includes a CD-ROM and 10 self-study modules, complete with progress quizzes and a certification exam at the end. Pilot test results were comparable to those who attended similar trainings in-person.

Information about the program is available at:

<http://www.tapseries.com>

SUMMARIES OF ROCKY MTN FOOD SAFETY CONFERENCE AND LILLIAN FOUNTAIN SMITH CONFERENCE

Both were successful and well attended events.

Attendees at the RMFS conference received updates on *Listeria monocytogenes* and noroviruses, food allergens and labeling issues, the proposed FDA Bioterrorism Act regulations, and highlights from a large consumer food handling behavior study, to mention a few.

Those at the Smith conference were presented with thought-provoking ideas on genes and futuristic nutrition. A sampling of other topics included an overview of phytochemicals, the glycemic index as a tool in dietary selection, and research outcomes of new dietary approaches in treating hypercholesterolemia. For those unable to attend, synopsis packets of the Smith conference are available upon request for \$10 while supplies last. Please contact Linda Quaratino with the Department of Food Science & Human Nutrition Cooperative Extension office at 970-491-7334.

COMING EVENTS

USDA's Food Safety Mobile Events

Take advantage of this unique opportunity to visit the mobile during its brief time in Colorado this summer. Plans are underway for the mobile to be at Colorado Mills on July 15, then at the Larimer County Farmer's Market on the evening of Thursday, July 17. The mobile will be at the Cheyenne, Wyoming, Frontier Days from July 18 to July 20. It will then head down to Boulder on Monday, July 21 for an event with Albertsons. From there, it may make a visit to the El Paso County Fair outside Colorado Springs on July 22 or 23 before heading north to Montana.

USDA Food Safety Listening Session

Colorado State University is coordinating a CSREES-USDA and ARS-USDA sponsored National



Stakeholder Listening Session on Food Safety Research Priorities on **June 30, 2003**, from 8:30 a.m. - 4:00 p.m. at the Radisson Hotel Denver Stapleton Plaza. The

purpose is to identify the current and 5-year food safety research priorities for industry, university, consumer, and Federal partners and stakeholders. The event is free and open to the public. For more information or to register, go to <http://www.cahs.colostate.edu/fshn/foodsafety/>.

Food Safety for High Risk Groups

FN580 Fall 2003

A 10-week course from Sep. 24 - Dec. 3, 4:30 - 7:20 p.m., Room 235, Gifford Bldg., CSU, Fort Collins, CO. 2 Credits. Tuition: \$395.40. Instructors: Pat Kendall, Lydia Mederrior & Val Hillers. Contact Pat Kendall at (970) 491-1945 for more information, or see the course website at: <http://www.hec.ohio-state.edu/highriskfoodsafety/>

SERVSAFE® TRAININGS

Denver Metro Region

Manager level ServSafe® trainings are offered monthly in the Denver metro area through the Colorado Restaurant Association. Cost: members - \$130; non-members - \$170. Please call 303-830-2972 for a complete schedule of dates and locations.

Eastern Region

Contact Joy Akey (970) 332-4151

Date	Location	Intended Audience	Fee
7/17/03 2 - 6 p.m.	Yuma, CO	Food Handler Trng	\$20
9/10/03 2 - 6 p.m.	Ft Morgan, CO	Spanish Food Handler Trng	\$20
10/08/03 7:45 a.m. - 5:30 p.m.	Brush, CO	Mgrs Certification Trng	\$80, or after 9/8/03, \$95

Western Region

Contact Mesa County Cooperative Extension (970)244-1834

Date	Location	Intended Audience	Fee
10/27/03	Delta, CO	Mgrs Certification Trng	\$100, or after 10/10/18/03, \$120



This newsletter was prepared by Food Science & Human Nutrition Extension Specialists:

Mary Schroeder, M.S., R.D.

Pat Kendall, Ph.D., R.D.

Direct comments about the newsletter to Mary Schroeder at:

Colorado State University
Dept. of Food Science & Human Nutrition - 1571
Fort Collins, CO 80523-1571
Phone: (970) 491-7334 FAX: (970) 491-7252
E-mail: mary.schroeder@colostate.edu