

experience of NaTHNaC indicates that acquisition and coordination of information with health authorities, rapid and direct communication of findings and recommendations to stakeholders, and posting of this information for access by travelers and health professionals can increase communication about global health events.

**Nicola Boddington,
Naomi Bryant,¹ and David R. Hill**

Author affiliations: National Travel Health Network and Centre, London UK (N. Boddington, N. Bryant, D.R. Hill); and London School of Hygiene and Tropical Medicine, London (D.R. Hill)

References

- Centers for Disease Control and Prevention. Swine influenza A (H1N1) infection in two children—southern California, March–April, 2009. *MMWR Morb Mortal Wkly Rep.* 2009;58:400–2.
- World Health Organization. 11 June 2009: DG statement following the meeting of the Emergency Committee [cited 2010 Sep 3]. http://www.who.int/csr/disease/swineflu/4th_meeting_1hr/en/index.html
- Health Protection Agency. Update on confirmed swine flu cases in England. 30 April 2009 [cited 2010 Sep 3]. http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1241048759904
- Fox S, Jones S. The social life of health information. Americans' pursuit of health takes place within a widening network of both online and offline resources [cited 2010 Sep 3]. http://www.pewinternet.org/~media/Files/Reports/2009/PIP_Health_2009
- Marano C, Freedman DO. Global health surveillance and travelers' health. *Curr Opin Infect Dis.* 2009;22:423–9.
- Linge JP, Steinberger R, Weber TP, Yangarber R, van der Goot E, Al Khudhairi DH, et al. Internet surveillance systems for early alerting of health threats. *Euro Surveill.* 2009;14 pii:19162.
- Brownstein JS, Clark C, Freifield BS, Madoff LC. Digital disease detection—harnessing the web for public health surveillance. *N Engl J Med.* 2009;360:2153–5. DOI: 10.1056/NEJMp0900702
- World Health Organization. Outbreak communication: best practice for communication with the public during an outbreak. Report of the WHO Expert

¹Current affiliation: Health Protection Agency, London, UK.

- Consultation on Outbreak Communications held in Singapore, 21–23 September 2004 [cited 2010 Sep 3]. http://www.who.int/csr/resources/publications/WHO_CDS_2005_32web.pdf
- Centers for Disease Control and Prevention. Novel H1N1 flu: CDC response. 2009 Aug 19 [cited 2010 Sep 3]. <http://www.cdc.gov/h1n1flu/cdcresponse.htm>
 - European Centre for Disease Prevention and Control. 2009 Pandemic influenza A(H1N1) [cited 2010 Sep 3]. [http://www.ecdc.europa.eu/en/healthtopics/Pages/Influenza_A\(H1N1\)_Outbreak.aspx](http://www.ecdc.europa.eu/en/healthtopics/Pages/Influenza_A(H1N1)_Outbreak.aspx)

Address for correspondence: David R. Hill, National Travel Health Network and Centre, 250 Euston Rd, London NW1 2PG, UK; email: david.hill@uclh.org

Zoonotic Cryptosporidiosis from Petting Farms, England and Wales, 1992–2009

To the Editor: Visits to petting farms in England and Wales recently have increased in popularity. Petting farms are commercial operations at which visitors, mainly families and organized groups, are encouraged to have hands-on contact with animals. The ≈1,000 petting farms in the United Kingdom collectively receive >2 million visitors per year, with peak visitor times during school and public holidays. Commercial farms also may host farm visits on single days for group and school visits. The farm attraction business is a substantial part of the rural economy, generating >£12 million annually (1).

During 1992–2009, a total of 55 outbreaks of infectious intestinal disease associated with petting farms in England and Wales was reported to the Health Protection Agency. Verocytotoxin-producing *Escherichia coli*

O157 (VTEC O157) caused 30 (55%) of these outbreaks (244 persons were affected [range 2–93, mean 8] and 84 were hospitalized); *Salmonella enterica* serovar Typhimurium definitive phage type 104 caused 2 (3%) of the outbreaks. A total of 23 (42%) petting farm outbreaks were caused by *Cryptosporidium* spp. (1,078 persons were affected [range 2–541, mean 45] and 29 were hospitalized). We report on these cryptosporidiosis outbreaks as a reminder of the risk to petting farm visitors.

Contributory factors reported in the cryptosporidiosis outbreaks included direct contact with preweaned lambs, calves, kids, or animal feces (e.g., diarrhea in lambs, a recognized risk factor for cryptosporidiosis; 11/23 [48%]) and inadequate hand washing facilities (7/23 [30%]). Of outbreaks in which hand washing facilities were inadequate, thumb sucking by children was also noted in 1; in another, alcohol-based hand gels and sanitizers, which are ineffective against *Cryptosporidium* spp., were used.

Cryptosporidium spp. are coccidian parasites that infect a wide range of farm livestock, including cattle, sheep, goats, pigs, horses, and deer, but are mainly a veterinary problem in neonatal ruminants. *C. parvum*, for example, is a common agent in the etiology of the neonatal diarrhea syndrome of calves, lambs, and goat kids. Widespread asymptomatic carriage of this parasite exists in livestock in the United Kingdom (2). In humans, cryptosporidiosis occurs most commonly in children <5 years of age, can be life threatening in immunocompromised persons, and is caused predominantly by *C. hominis* and *C. parvum* parasites. Fecal–oral transmission can occur directly from animal to person and from person to person or indirectly through contaminated food or water (2).

Typing of *Cryptosporidium* spp. has been undertaken by the UK *Cryptosporidium* Reference Unit since 1999. *C. parvum* was identified from

human feces in 12 (75%) of the 16 petting farm outbreaks since 1999 (feces were not submitted for typing in 4). Additionally, *Cryptosporidium* spp. oocysts were detected and confirmed as *C. parvum* from suspected sources (lambs, calves) in 4 (33%) of these 12 outbreaks and linked by GP60 subtype to human cases in 3 outbreaks. Zoonotic risk factors in case-control studies of sporadic cryptosporidiosis cases in England and Wales also have identified an association between *C. parvum* infection and touching farm animals or visiting a farm (3).

In petting farm outbreaks, *Cryptosporidium* spp. displayed a seasonal pattern, as did VTEC O157. Cryptosporidiosis outbreaks occurred more often in springtime (18 vs. 5; $p = 0.0001$) than did VTEC O157 outbreaks, which occurred more frequently during the summer (25 vs. 5; $p < 0.00001$), especially in August (Figure). During spring 2010, two additional *C. parvum* outbreaks associated with contact with lambs at petting farms were reported in England. Control measures included restricting bottle feeding of lambs and enhancing the supervision of hand washing. The associations with outbreaks of cryptosporidiosis in spring and contact with young farm animals also has been reported in Scotland (4).

Despite the 2 separate seasonal peaks of infection, care should be

exercised throughout the year. The importance of careful attention to hygiene and supervision of children visiting farms and the need for appropriate facilities, such as those for hand washing, are covered in the UK Health and Safety Executive standards; operators of petting farms are expected to meet these standards (5). These guidelines also apply to commercial farms hosting open days. A good practice reminder on managing the risks from VTEC O157 in a petting farm context was published by the Health Protection Agency, Health and Safety Executive, and the Local Government Regulation (6). Guidance on the control of VTEC O157 infections for farms open to public access applies equally to most gastrointestinal pathogens, including *Cryptosporidium* spp. The need for a sound approach to managing hygiene control measures at petting farms cannot be overemphasized.

Acknowledgments

We thank all reporting investigators in England and Wales, including HPA Health Protection Units (England), Public Health Wales, microbiologists, local authorities, and environmental health practitioners for their continual support in reporting to the electronic foodborne and nonfoodborne gastrointestinal outbreaks surveillance system.

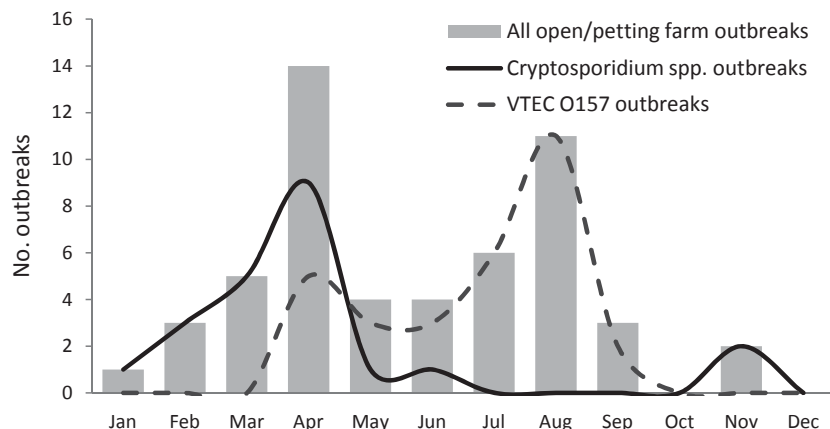


Figure. Outbreaks of cryptosporidiosis and verocytotoxin-producing *Escherichia coli* O157 linked to petting farms, England and Wales, 1992–2009.

**Fraser J. Gormley,
Christine L. Little,
Rachel M. Chalmers,
Nalini Rawal,
and Goutam K. Adak**

Author affiliations: Health Protection Agency, London, UK (F.J. Gormley, C.L. Little, N. Rawal, G.K. Adak); and Public Health Wales, Swansea, UK (R.M. Chalmers)

DOI: 10.3201/eid1701.100902

References

1. Restoring confidence in open farms to educate our children. *Farmers Guardian* 2010, January 29 [cited 2010 May 25]. <http://www.farmersguardian.com/home/rural-life/country-view/restoring-confidence-in-open-farms-to-educate-our-children/29936.article>
2. Chalmers RM, Giles M. Zoonotic cryptosporidiosis in the UK—challenges for control. *J Appl Microbiol.* 2010;109:1487–97. DOI: 10.1111/j.1365-2672.2010.04764.x
3. Hunter PR, Thompson RC. The zoonotic transmission of *Giardia* and *Cryptosporidium*. *Int J Parasitol.* 2005;35:1181–90. DOI: 10.1016/j.ijpara.2005.07.009
4. McGuigan CC, Steven K, Pollock KGJ. Cryptosporidiosis associated with wildlife center, Scotland [letter]. *Emerg Infect Dis.* 2010;16:895–6.
5. Health and Safety Executive. Avoiding ill health at open farms—advice to farmers (with teachers' supplement) [cited 2010 May 25]. <http://www.hse.gov.uk/pubns/ais23.pdf>
6. Health and Safety Executive, Local Authorities Coordinators of Regulatory Services, and Health Protection Agency. Understanding and managing the risks from *E. coli* O157 in an open farm context [cited 2010 May 25]. http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1267551712693

Address for correspondence: Fraser J. Gormley, Health Protection Agency—Gastrointestinal, Emerging and Zoonotic Infections, Health Protection Services: Colindale, 61 Colindale Ave, London NW9 5EQ, UK; email: fraser.gormley@hpa.org.uk

All material published in *Emerging Infectious Diseases* is in the public domain and may be used and reprinted without special permission; proper citation, however, is required.