Immigrant Child Health Task Force (ICHTF)

Infectious Disease Case Review – Giardia Outbreak

Case Presentation

A 9-year-old immigrant child recently arrived from rural Guatemala presented to the pediatric clinic with persistent diarrhea and fatigue. The family, residing in Hopkins County, KY, reported that symptoms began 10 days prior. The child had a history of untreated water exposure during migration and poor sanitation conditions while traveling.

Parents, who spoke limited English, reported similar gastrointestinal symptoms in two other children at home. A Spanish interpreter was used during the visit. On physical exam, the patient appeared tired but hemodynamically stable, with mild abdominal tenderness. Stool testing with direct fluorescent antibody (DFA) confirmed *Giardia lamblia* infection. The child was treated with metronidazole, and the local health department was notified within one business day, as required.

The case was part of a larger outbreak, which included 66 lab-confirmed cases across Hopkins, Muhlenberg, and Webster Counties, primarily linked to exposures in Hopkins County. An investigation is ongoing, with environmental testing of potential sources such as a local restaurant. *

Q & A Session

1. What is Giardia and why is it a concern in immigrant populations?

Giardia lamblia is a protozoan parasite that causes giardiasis, a diarrheal illness. It spreads via the fecal-oral route, especially through contaminated water, food, or surfaces. Giardia is found worldwide, including in every region of the United States. Giardia is the most prevalent pathogenic intestinal parasite among newly arrived refugees. During migration, risks increase due to poor sanitation and unsafe drinking water.

Immigrant populations are particularly vulnerable due to:

- Limited access to clean water.
- Crowded or unsanitary housing.
- Limited healthcare access or health literacy.
- Language barriers delaying diagnosis and treatment.

2. How common is Giardia in Kentucky and globally?

- **100–300 cases/year in Kentucky.**
- More common in **summer and early fall**, linked to **recreational water.**
- **Globally**, Giardia is one of the most common waterborne parasites, with an estimated **280 million symptomatic infections per year.** Giardiasis spans temperate and tropical regions, with prevalence rates between 4% and 42%.
- Refugee and immigrant populations—especially from Central America, Sub-Saharan Africa, and South Asia—have significantly **higher Giardia rates.**
- The recent study to investigate the prevalence of parasites in migrant children and factors associated with parasitic diseases showed giardiasis (35.3%) among 813 migrant children screened. Most cases were referred for a health exam; only 52.3% of children were symptomatic.

3. What are the symptoms and clinical manifestations of Giardia?

- Watery diarrhea.
- Abdominal cramps.
- Bloating and gas.
- Nausea or vomiting.
- Weight loss and fatigue.
- Giardiasis is **NOT** associated with eosinophilia.

Symptoms typically appear **1–2 weeks after exposure** and may persist for **2–6 weeks,** which can result in malnutrition, growth delays, or school absenteeism in children. Some cases become chronic, and individuals may remain asymptomatic while shedding infectious cysts.

4. How is giardiasis diagnosed and treated?

Who to test:

- Testing is recommended for those with symptoms.
- Children are often asymptomatic, and thus active screening for parasitosis should be considered among high-risk populations such as immunocompromised.

Diagnosis:

- **Direct Fluorescent Antibody (DFA)** testing is the gold standard.
- Stool ova and parasite testing has low sensitivity. Stool antigen is the preferred test for identifying Giardia infections.

Treatment:

- Encourage **adequate hydration (either oral or IV) and nutritional support.**
- Educate on preventing reinfection through hygiene and safe water.
- FDA approved medications:
    - **Tinidazole** for age ≥3 years: 50 mg/kg orally, single dose (maximum dose 2 g).
    - **Nitazoxanide**:
        - Age 1 to 3 years: 100 mg orally 2 times per day for 3 days.
        - Age 4 to 11 years: 200 mg orally 2 times per day for 3 days.
        - Age ≥12 years: 500 mg orally 2 times per day for 3 days.
    - **Metronidazole:** < 12 months of age. Metronidazole is an option due to lack of safety data with use of tinidazole and nitazoxanide in this age group. 15 mg/kg orally divided 3 times per day for 5 to 7 days.
      Metronidazole is also effective in all age groups, but may be associated with more side effects than tinidazole or nitazoxanide.
- Alternative treatment regimens for giardiasis include mebendazole, albendazole, and paromomycin, furazolidone and quinacrine.

5. What are public health and infection control measures?

- **Immediate reporting to the local health department.**
- Emphasize **strict hand hygiene**, especially after toileting and before eating.
- Exclude symptomatic individuals from:
    - **Food service, healthcare, and daycare** settings
    - **Swimming or recreational water use** until **diarrhea is completely resolved.**
- **Return to school/daycare/work**: they may return to school or work 24 hours after diarrhea stops and the child can maintain personal hygiene (e.g., proper handwashing and toilet use).

Disinfection of homes and daycares:

- **Clean and disinfect bathroom surfaces daily** using a product with effectiveness against *Giardia* (e.g., bleach-based cleaners).
- **Disinfect diaper changing stations**, toys, and high-touch areas (doorknobs, faucets).
- **Laundry**: Wash contaminated clothes and linens with hot water (≥130°F) and dry on high heat.
- **Hand hygiene**: Soap and water is more effective than alcohol-based sanitizers in removing Giardia cysts.

- **Water safety**: Use boiled or filtered water (≤1 micron filter) for drinking and food prep in areas of concern.

Summary:

Pediatricians, school nurses, and primary care providers should remain vigilant in identifying signs of parasitic infections like Giardia, especially in children from underserved or immigrant communities. Comprehensive history-taking—including recent travel, water exposure, and housing conditions—is essential. Multilingual education and culturally appropriate care can significantly reduce the burden of preventable infections in vulnerable populations.

Educational Resources for Families

1. **CDC Giardia Fact Sheets**
   English
   Spanish

2. **Wisconsin Department of Health Services – Giardia Fact Sheets**
   Hmong
   Spanish
   English

3. Mass.gov **offers parent handouts in Spanish, Portuguese and English**

4. SafeWater.org **- French**

5. Mayo Clinic **- Arabic**

6. Handwashing & Sanitation Guides **(WHO)**

7. Waterborne Disease Fact Sheet **(WHO)** Information available in English, Chinese, Arabic, French, Spanish and Russian.

8. Kentucky Department for Public Health

References:

*****_Fictional case based on the giardia outbreak in the summer of 2025 in Hopkins county, KY._

1. **Giardia. Centers for Disease Control and Prevention (CDC).** https://www.cdc.gov/immigrant-refugee-health/hcp/domestic-guidance/intestinal-parasites.html#cdc_generic_section_6-giardia
2. **Giardia Infection Prevention and Control (CDC).** https://www.cdc.gov/giardia/prevention/index.html
3. **Hopkins County Health Department & Kentucky Department for Public Health.** Public advisory and press release (July 21, 2025) on Giardia outbreak.
4. **WHO Hand Hygiene Guidelines.** https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene
5. **Screening for parasites in migrant children.** Jorge Bustamante, Talía Sainz et al. Travel Med Infect Dis. 2022 May-Jun:47:102287. https://doi.org/10.1016/j.tmaid.2022.102287
6. **Kentucky Department for Public Health.** https://www.chfs.ky.gov/agencies/dph
7. **Giardiasis.** Dunn N, Juergens AL. [Updated 2024 Feb 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK513239/

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