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## Extensively Drug-Resistant (XDR) *Shigella* Infections

March 2, 2023

Dear Colleague:

We are writing to bring to your attention the recently released Centers for Disease Control (CDC) [Health Alert Network \(HAN\) Advisory](#) about an observed increase in extensively drug-resistant (XDR) *Shigella* infections (shigellosis). CDC defines XDR *Shigella* bacteria as strains that are resistant to all commonly recommended empiric and alternative antibiotics — azithromycin, ciprofloxacin, ceftriaxone, trimethoprim-sulfamethoxazole (TMP-SMX), and ampicillin. XDR *Shigella* infections have increased nationally from 0% in 2015 to 5% in 2022. Although shigellosis in the United States has historically predominantly affected young children, more recently, CDC has observed an increase in antimicrobial-resistant *Shigella* infections among adult populations especially gay, bisexual, and other men who have sex with men (MSM), people experiencing homelessness, international travelers, and people living with HIV.

XDR *Shigella* infections have been identified in Maryland.

Additional information about XDR *Shigella* infections is provided at the end of this letter, but **MDH wants to make sure Maryland providers are aware of the following recommendations:**

### Diagnostic Recommendations

- Consider shigellosis in the differential diagnosis of acute diarrhea, especially for patients at higher risk for *Shigella* infection, including:
  - Young children
  - MSM
  - People experiencing homelessness
  - International travelers
  - Immunocompromised persons
- If shigellosis is suspected,
  - **Ask the patient about relevant exposures and social history**, including sexual activity, housing status, and international travel.
  - **When ordering diagnostic testing for *Shigella*, stool culture is preferred for patients who will require antimicrobial treatment.**

- If a culture-independent diagnostic test (CIDT) is performed instead of culture and *Shigella* bacteria are detected, request on sample submission that the clinical laboratory perform reflex culture.
  - If a culture is positive for *Shigella*, order antimicrobial susceptibility testing (AST) to inform antimicrobial selection.
  - Be aware that isolates may carry a quinolone resistance mechanism but still be susceptible on AST (see <https://emergency.cdc.gov/han/han00411.asp> for more details). People infected with a *Shigella* strain carrying a quinolone resistance mechanism may also be at increased risk for clinical treatment failure.
- People with acute proctitis and concern for sexually transmitted proctocolitis or enteritis should be tested for other STIs, including HIV, syphilis, gonorrhea, and chlamydia at exposed sites.

### **Clinical Management Recommendations**

- Most patients recover from shigellosis without antimicrobial treatment. Oral rehydration may be sufficient for many people with shigellosis.
- Use AST results to guide antimicrobial treatment selection, when possible.
- Encourage patients to inform you if symptoms do not improve within 48 hours after beginning antibiotics.
- To date, there are no CDC recommendations regarding treatment of XDR shigellosis in the United States; however a recent publication from the United Kingdom outlined a possible strategy for the treatment of severe XDR shigellosis using oral pivmecillinam and fosfomycin (for patients with prolonged symptoms or as oral step-down after intravenous treatment) or IV carbapenems and colistin (for hospitalized patients with severe infections or complications).
  - XDR *Shigella* isolates in the United States typically do not carry resistance mechanisms for fosfomycin or carbapenems
  - Note: Pivmecillinam is not commercially available for use in the United States.
- Healthcare providers treating XDR shigellosis should consult with a specialist knowledgeable in the treatment of antibiotic-resistant bacteria to determine the best treatment options.
- Be aware that overusing antibiotics can contribute to the development of antimicrobial resistance. Use antibiotics only when clinically indicated.

### **Patient Counseling Recommendations**

Counsel patients with suspected or confirmed shigellosis about measures they can take to keep others healthy. Patients taking antibiotics should continue to follow prevention measures. All patients with suspected or confirmed shigellosis should:

- Stay home from school or from healthcare, food service, or childcare jobs while sick or until the health department says it's safe to return.
- During diarrhea and for 2 weeks after it ends,
  - Abstain from sex (anal, oral, penile, or vaginal).

- Wash hands often with soap and water for at least 20 seconds, including at key times such as after using the toilet, before and after changing diapers, cleaning up after someone who is sick, and before preparing or eating food.
- Do not prepare food for others, if possible.
- Stay out of recreational water, including swimming pools, hot tubs, water playgrounds, oceans, lakes, and rivers.
- Closely follow safer sex practices for at least 2 weeks after resuming sex to prevent the spread of *Shigella* bacteria that may remain in stool.
  - Wash hands, genitals, and anus with soap and water before and after sexual activity.
  - Wash hands after touching sex toys, external and internal condoms, dental dams, and any other items that might have been in contact with the vagina or anus.
  - Use condoms or dental dams during oral-genital sex and oral-anal sex.
  - Use latex gloves during anal fingering or fisting.
  - Wash sex toys with soap and water after each use.

### **Maryland Reporting Requirements**

- In Maryland, shigellosis is a reportable condition.
- Healthcare providers, hospitals, and other healthcare institutions should promptly report all shigellosis infections to the health department.
- Laboratories should promptly submit clinical materials to the Maryland Department of Health Laboratory.
- For more information, see <https://health.maryland.gov/phpa/pages/what-to-report.aspx>.

### **Additional Information About Shigellosis and XDR *Shigella*:**

- Shigellosis is an acute, highly transmissible, enteric infection that usually causes inflammatory diarrhea that can be bloody and may also lead to fever, abdominal cramping, and tenesmus.
- *Shigella* bacteria are transmitted by the fecal-oral route, directly through person-to-person contact including sexual contact, and indirectly through contaminated food, water, and other routes.
- Infections are generally self-limiting; however, antimicrobial treatment may be indicated to
  - Shorten the duration of illness (by about 2 days), or
  - Reduce the likelihood of transmission, for example
    - During outbreaks,
    - In institutional settings,
    - From food handlers,
    - To immunocompromised persons or those being treated with immunosuppressive drugs, and
    - To people living with HIV.

- In the United States, recommended empiric antimicrobial agents include azithromycin, ciprofloxacin, or ceftriaxone. Ampicillin or TMP-SMX are recommended as alternative treatments for susceptible strains.
- Between January 1, 2015, and January 22, 2023, CDC received reports of 239 XDR *Shigella* isolates, with *Shigella sonnei* accounting for the largest percentage (66%) followed by *Shigella flexneri* (34%).
  - The median age of patients was 42 years (range 1–83 years). Among 232 patients with available information, 82% were men, 13% were women, and 5% were children.
  - Among 41 patients who answered questions about recent sexual activity, 88% reported male-to-male sexual contact.

**For More Information:**

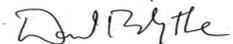
[CDC \*Shigella\* - Shigellosis Information for Healthcare Professionals](#)

We appreciate your attention to this important antibiotic resistance concern. If you have any questions, contact your local health department or reach out to the MDH Infectious Disease Epidemiology and Outbreak Response Bureau at 410-767-6700.

Sincerely,



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State Epidemiologist and Director  
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