

March 4, 2019

Robert R. Redfield, MD  
Director  
Centers for Disease Control and Prevention  
1600 Clifton Road, Atlanta, GA 30329

Dear Dr. Redfield,

The undersigned member and ally organizations of Keep Antibiotics Working write to call your attention to an opportunity for CDC to improve its risk communication on antibiotic resistant foodborne pathogens. Currently, CDC's reporting on foodborne illness outbreaks includes—appropriately—information on the antibiotic resistance of outbreak isolates. Some recent reports, however, have inappropriately downplayed the risks associated with the identified resistance. In future reporting on outbreaks caused by antibiotic resistant pathogens, we urge CDC to include warnings for at-risk populations, and to describe the additional risks that antibiotic-resistant pathogens present to all consumers.

Consistent with these steps, CDC should take care that its reporting *not* indicate, without basis, that the identified resistance will not affect treatment. CDC's recent reports on the *Salmonella* Reading outbreak associated with raw turkey included such an indication, despite the outbreak strain being resistant to antibiotics recommended for treatment of salmonellosis. More specifically, on July 19, 2018, CDC reported that the outbreak strain of *Salmonella* Reading was resistant to ampicillin. Its report went on, however, to say, "This resistance likely will not affect the choice of antibiotic used to treat most people since these antibiotics are not normally used to treat *Salmonella* infections."

However, the CDC says, in its own [Salmonella: Information for Healthcare Professionals and Laboratories webpage](#), that ampicillin is normally used to treat *Salmonella* infections. That page notes that the recommended treatments for serious *Salmonella* infections are fluoroquinolones, third-generation cephalosporins, and ampicillin. In fact, in the absence of resistance, the narrower spectrum ampicillin is preferred for its lower risk of significant side effects. Cephalosporins and fluoroquinolones are associated with increased risk of [Clostridium difficile infection](#)<sup>1</sup> and [extended-spectrum beta-lactamase resistant urinary tract infections](#)<sup>2</sup>. Use of

---

<sup>1</sup> Brown K, Khanafer N, Daneman N, Fisman D. 2013. Meta-analysis of Antibiotics and the Risk of *Clostridium difficile* Infection. Antimicrobial Agents and Chemotherapy.

<sup>2</sup> Goyal D, et al. 2019. Risk Factors for Community-Acquired Extended-Spectrum Beta-Lactamase-Producing Enterobacteriaceae Infections—A Retrospective Study of Symptomatic Urinary Tract Infections. Open Forum Infectious Diseases.

fluoroquinolones is also associated with [numerous other serious side effects](#) such as tendinitis, tendon rupture, coma with hypoglycemia, and mental health effects.<sup>3</sup>

The initial report language thus ignores the important role of ampicillin as the treatment of choice for susceptible *Salmonella* infections. Later, when CDC updated the outbreak report on [November 8](#), it indicated that isolates of the outbreak strain were also resistant to the other two common treatment options for *Salmonella* infections—fluoroquinolones and third-generation cephalosporins.<sup>4</sup> Yet the updated report continues to downplay the significance of the resistance stating, “[m]ost of the infections in this outbreak are susceptible to the antibiotics that are commonly used for treatment, so this resistance likely will not affect the choice of antibiotic used to treat most people.”

CDC should acknowledge when outbreak isolates are resistant to treatments of choice, and indicate that using second- or third-choice drugs have associated costs and risks. In addition, CDC should inform the public about other potential risks associated with multi-drug resistant isolates.

In particular, CDC should warn people who have recently taken a course of antibiotics that they are more susceptible to infection from an antibiotic-resistant organism. The evidence for this heightened risk is well established. One 2002 [study](#) estimates that such antimicrobial resistance results in an additional 29,379 *Salmonella* infections and additional 17,668 *Campylobacter jejuni* infections yearly in the United States alone.<sup>5</sup> Similarly, a [2010 Danish study](#) found a significantly higher risk of resistant *Salmonella* infection in those patients that had taken fluoroquinolones within the last year.<sup>6</sup> Given the broad scope of the outbreaks on which CDC is reporting, and the millions of people who might be exposed, including warnings for people who have recently taken antibiotics is an important step to help minimize morbidity and mortality from antibiotic resistant infections, not to mention an important means of increasing public awareness of the threat of antibiotic resistance.

CDC should also inform the public that certain types of resistance in *Salmonella* are also associated with increased virulence. For example, [fluoroquinolone resistance in \*S. Typhimurium\* is associated with higher risk of invasive disease, and certain mutations conferring polymyxin resistance in \*S. enterica\* are associated with increased virulence in gastric infections.](#)<sup>7</sup> Simply stating that infections are still treatable in risk communications ignores the reality that antibiotic-resistant infections are often more dangerous, and may lead some people who are sick to underestimate the severity of an illness and delay seeking treatment.

In conclusion, CDC should improve its risk communication on antibiotic resistance by more precisely describing the implications of resistance for treatments of choice, warning at-risk

---

<sup>3</sup> <https://www.fda.gov/newsevents/newsroom/pressannouncements/ucm612995.htm>

<sup>4</sup> <https://www.cdc.gov/salmonella/reading-07-18/updates.html>

<sup>5</sup> Barza M, Travers K. 2002. Excess Infectious Due to Antimicrobial Resistance: The “Attributable Fraction”. *Clinical Infectious Diseases*.

<sup>6</sup> Koningstein M, et al. 2010. The interaction between prior antimicrobial drug exposure and resistance in human *Salmonella* infections. *Journal of Antimicrobial Chemotherapy*.

<sup>7</sup> Beceiro A, Tomas M, Bou G. 2013. Antimicrobial Resistance and Virulence: a Successful or Deleterious Association in the Bacterial World?. *Clinical Microbiology Reviews*.

populations that have recently taken a course of antibiotics, and informing the public about the correlation between certain antibiotic resistance and virulence traits.

We appreciate your consideration of this request and would welcome the opportunity to meet with you to discuss it further.

Sincerely,

Food Animal Concerns Trust  
Consumer Federation of America  
Center for Food Safety  
Government Accountability Project  
Natural Resources Defense Council  
Consumer Reports  
Center for Biological Diversity  
Center for Foodborne Illness Research and Prevention  
Johns Hopkins Center for a Livable Future  
Antibiotic Resistance Action Center, the George Washington University  
US PIRG