Ciprofloxacin-resistant *Escherichia coli* and other Gram-negative enteric flora in healthy children in Seattle

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The increasing frequency of fluoroquinolone resistance among human pathogens is a major medical concern. Much of this resistance can be attributed to selective pressures on enteric flora from the use of fluoroquinolones in humans, but increasing evidence indicates that antibiotics employed in agriculture can also engender resistance in organisms that are then acquired by humans via food. To test the hypothesis that fluoroquinolone-resistant enteric flora can be acquired by humans without direct medical exposure to these agents, we cultured stool specimens from children, who are not likely to have taken these antibiotics, without diarrhea on MacConkey-ciprofloxacin (1 µg/mL) agar to determine the frequency of excretion of organisms resistant to this agent. Resulting isolates were identified, and ciprofloxacin MICs were determined using the E-test. Specimens from 14 (3.1 %) of 455 children had ciprofloxacin-resistant growth on the screening plate, including *Escherichia coli* (7 children), Stenotrophomonas maltophilia (5 children), Enterobacter aerogenes and Achromobacter xylosoxidans (1 child each). For *E. coli*, MICs ranged were 4 (1 isolate) or >32 µg/mL (6 isolates). MICs ranged from 1.5 to 8 mg/mL for other organisms. Neither children, nor any members of their household, consumed ciprofloxacin or were hospitalized in the 4 weeks before stool collection. Ciprofloxacin-resistant gram-negative flora are present in this North American childhood population, and appear unrelated to recent fluoroquinolone use in these children or their families. Further studies are needed to determine the source of this resistance. The frequency of fluoroquinolone-resistant Gram-negative flora in these children suggests that humans are exposed to, and acquire, resistant bacteria in their gastrointestinal tracts, without exposure to the antibiotics. Resistant pathogens might also be similarly acquired.