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## Letter to the Editor

# The Impact of Influenza Viruses on Gastrointestinal Complications

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To the editor,

Influenza viruses are primarily known for their respiratory symptoms; however, increasing evidence shows their involvement in extrapulmonary systems, especially the gastrointestinal tract. [1] Although the relationship between respiratory viruses and gastrointestinal clinical symptoms was historically underappreciated, recent prevalence studies involving seasonal influenza and avian influenza strains have attracted considerable attention for their potential systemic involvement.

Gastrointestinal complications related to influenza include nausea, vomiting, diarrhea, abdominal pain, and, in rare cases, intestinal ischemia or hemorrhagic colitis. While these manifestations are more prevalent in children, they are not exclusive to the preceding or occurring in the absence of classic respiratory symptoms. [2] The underlying mechanisms of this involvement are multifactorial and not completely understood, but may contain direct viral invasion, immune-mediated damage, and secondary effects of systemic inflammation.

Influenza A viruses, particularly H1N1 and H5N1 subtypes, have shown the ability to replicate in human intestinal epithelial cells. [3] Studies have found viral RNA and antigens in intestinal biopsies and stool samples, confirming the concept of gastrointestinal tropism. [4]

Furthermore, in severe cases, especially those involving avian influenza, high viral loads have been identified in extrapulmonary tissues, including the gut, which contributes to the severity of systemic disease. [5]

The existence of viral particles in stool also increases concerns about fecal-oral transmission, although this route is not clear in influenza. Nevertheless, it reinforces the significance of careful hygiene and sanitation measures, especially in healthcare settings and during disease outbreaks.

Additionally, the impact of influenza on the gut microbiota has emerged as an important area of interest. Influenza infection can induce dysbiosis, altering gut microbial composition and disrupting the intestinal barrier performance, which in turn may increase systemic inflammation and susceptibility to secondary infections. [6] This interaction between respiratory viral infection and gut health illustrates the concept of the "gut-lung axis," in which disorders in one system may affect the other. [7]

Another concern is the gastrointestinal toxicity seen in some patients receiving antiviral therapy, especially with oseltamivir, which can cause nausea and vomiting. These side effects, while generally self-limiting, can complicate clinical management and patient

compliance, particularly in those who are already experiencing gastrointestinal symptoms related to the virus itself. [8]

From a public health perspective, understanding the gastrointestinal manifestations is essential for early detection and isolation of atypical influenza presentations. It also emphasizes the need for physicians to adopt a comprehensive approach to controlling influenza infections, especially in vulnerable cases such as children, the elderly, and immunocompromised patients.

Consequently, while influenza is primarily a respiratory pathogen, its potential to cause significant gastrointestinal complications should not be neglected. Further research into the pathophysiology, epidemiology, and clinical implications of these manifestations will increase our knowledge and improve patient outcomes. A multidisciplinary approach that integrates infectious disease, gastroenterology, and virology expertise is necessary to advance our response to the evolving spectrum of influenza-related diseases.

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#### **CONFLICT OF INTEREST**

None.

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