

New estimates suggest noroviruses cause around a fifth of all cases of acute gastroenteritis worldwide

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Noroviruses are a leading cause of acute gastroenteritis (diarrhoea and vomiting) across all age groups, responsible for almost a fifth (18%) of all cases worldwide. New estimates, published in *The Lancet Infectious Diseases*, highlight the importance of developing norovirus vaccines, say the authors.

"Including data from 48 countries and involving more than 187 000 gastroenteritis cases worldwide, these new estimates are the largest analysis of norovirus infection and disease to date. There has been a proliferation of research on norovirus globally in the last five years, and we harnessed that data for this study"*, says lead author Dr Benjamin Lopman from the Centers for Disease Control and Prevention in the USA.

"Norovirus spreads from person to person and through contaminated food or water and contact with contaminated surfaces. The virus is so contagious that as few as 18 viral particles may be enough to infect a healthy person, while more than a billion viruses can be found in a single gram of an infected person's stool. Currently, there is no vaccine or treatment for norovirus."

Lopman and colleagues analysed 175 published reports to compile data on the prevalence of norovirus in individuals with acute gastroenteritis between 1990 and 2014. They found that norovirus tended to be more

common in cases of acute gastroenteritis in the community (24%) and outpatient (20%) settings than in emergency department visits and hospitalisations (17%), supporting the notion that norovirus is a more common cause of mild disease. However, because of its sheer frequency, norovirus causes a substantial amount of severe disease.

Norovirus was also found in a considerable proportion of cases of acute gastroenteritis cases in both developing countries (14–19%) and developed countries (20%). "This highlights that norovirus, unlike bacterial and parasitic pathogens, cannot be controlled just by improved water and sanitation"*, explains Lopman.

He concludes, "Our findings show that norovirus infection contributes substantially to the global burden of [acute gastroenteritis](#), causing both severe and mild cases and across all [age groups](#). Diarrhoea remains one of the leading causes of death of children in developing regions of the world. We have much to learn about norovirus in those settings, and how it can best be controlled."

Writing in a linked Comment, Dr Ulrich Desselberger and Professor Ian Goodfellow from the University of Cambridge in the UK say, "Inconsistent age stratification across studies prevented an indepth analysis of the burden in people older than 65 years, typically more susceptible to complications and at a greater risk of [norovirus](#)-associated death. Furthermore, many countries have not studied the prevalence of [noroviruses](#) in sufficient detail to gain reliable burden estimates. Most notably is the paucity of data from Africa where the effect of [gastroenteritis](#) probably has more severe consequences. Estimates suggest that 200 000 deaths per year happen in children younger than 5 years of age in developing countries. Therefore, additional high quality studies in these settings will be crucial to improve disease estimates."

More information: *The Lancet Infectious Diseases*,

[www.thelancet.com/journals/lan ... \(14\)70767-4/abstract](http://www.thelancet.com/journals/lan... (14)70767-4/abstract)

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