

# Yes, they can! Comparing foodborne illness estimates, and the need for greater transparency

Elaine Scallan Walter <sup>1</sup>, Martyn D Kirk,<sup>2</sup> Shannon E Majowicz<sup>3</sup>

To the Editor,

In their recent paper, Holland *et al.*<sup>1</sup> compared foodborne illness rates in the UK, Australia, Canada, and the USA, asking whether such comparisons across countries can legitimately inform trade decisions based on food safety risks. The authors highlighted methodological differences as a major barrier to making accurate comparisons. While we agree that comparing estimates between countries should be done with caution, in our view, the major reason that foodborne burden estimates should not be used for trade purposes is that they do not reflect the food safety risks associated with exported foods, which must meet the standards of the importing country. Foodborne illness estimates reflect food safety risks associated with foods consumed within that country, which is why foodborne burden estimates are used for prioritising and directing food safety efforts within a country.

Comparison between countries is feasible and can provide important insights. In analyses of the burden of foodborne disease in Australia, Canada, Ireland, and the USA that used similar methods and a common case definition, we were able to directly compare rates

of acute gastroenteritis between countries, revealing consistencies in age and sex patterns and medical care seeking behaviours.<sup>2</sup> After accounting for differences in healthcare delivery, we concluded that overall rates of *Campylobacter* infections were truly higher in Australia than in the USA.<sup>3</sup> While cohort studies, such as the Infectious Intestinal Disease studies in the UK, have some methodological advantages, they are complex and costly. Thus, many countries rely on data from surveillance and other sources coupled with cross-sectional surveys that assess underdiagnosis due to laboratory testing, medical care seeking, and stool sample submission.<sup>4</sup> Cross-sectional studies also provide data that we and others have found consistent and valid to estimate diarrheal disease incidence. Indeed, most of the uncertainty arising from foodborne gastroenteritis estimates comes from the expert elicitations used to derive the proportion of illness attributable to foodborne transmission, where data are mostly lacking.<sup>5</sup>

That said, there is more that we as a community of investigators should do to improve interpretability, comparability, and reproducibility. Comparative analyses would be greatly enhanced if all burden of foodborne illness studies published raw data and models, along with clear, detailed methods,

an assessment of statistical and non-statistical uncertainty and a clear rationale for how agents and data sources were selected.<sup>4</sup> These efforts would not only benefit individual countries wanting to compare estimates over time, but they would also contribute to larger, international efforts to estimate the burden of foodborne disease, namely, the global estimates produced by the WHO's Foodborne Disease Burden Epidemiology Reference Group (FERG), which are currently being updated. Whether for global estimation, better scientific understanding, or advancing methods comparing and synthesizing across foodborne burden of illness studies is something that we should be doing—just not for the purpose of informing trade decisions.

**Contributors** Conceived and designed the work: ESW, MDK, SEM. Drafted and critically revised the manuscript: ESW, MDK, SEM. Final approval of the version to be published: ESW, MDK, SEM. Agreement to be accountable for all aspects of the work: ESW, MDK, SEM.

**Competing interests** The authors are members of the WHO's Foodborne Disease Burden Epidemiology Reference Group (FERG).

**Patient consent for publication** Not applicable.

**Ethics approval** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.



**To cite** Scallan Walter E, Kirk MD, Majowicz SE. *BMJ Open Gastro* 2023;10:e001144. doi:10.1136/bmjgast-2023-001144



▶ <http://dx.doi.org/10.1136/bmjgast-2023-001144>

*BMJ Open Gastro* 2023;10:e001144.

<sup>1</sup>Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA

<sup>2</sup>The Australian National University, Canberra, Australian Capital Territory, Australia

<sup>3</sup>School of Public Health Sciences, University of Waterloo, Waterloo, Ontario, Canada

**Correspondence to** Dr Elaine Scallan Walter; ELAINE.SCALLANWALTER@CUANSCHUTZ.EDU

doi:10.1136/bmjgast-2023-001144

**ORCID ID**

Elaine Scallan Walter <http://orcid.org/0000-0003-1766-0307>

**REFERENCES**

- 1 Holland D, Clifford R, Mahmoudzadeh N, *et al.* Can foodborne illness estimates from different countries be legitimately compared?: case study of rates in the UK compared with Australia, Canada and USA. *BMJ Open Gastroenterol* 2023;10:e001009.
- 2 Scallan E, Majowicz SE, Hall G, *et al.* Prevalence of diarrhoea in the community in Australia, Canada, Ireland, and the United States. *Int J Epidemiol* 2005;34:454–60.
- 3 Vally H, Hall G, Scallan E, *et al.* Higher rate of culture-confirmed *Campylobacter* infections in Australia than in the USA: is this due to differences in healthcare-seeking behaviour or stool culture frequency? *Epidemiol Infect* 2009;137:1751–8.
- 4 Scallan Walter EJ, Griffin PM, Bruce BB, *et al.* Estimating the number of illnesses caused by agents transmitted commonly through food: a scoping review. *Foodborne Pathog Dis* 2021;18:841–58.
- 5 Glass K, Ford L, Kirk MD. Drivers of uncertainty in estimates of foodborne gastroenteritis incidence. *Foodborne Pathogens and Disease* 2014;11:938–44.