



Expert Elicitation for Estimation of the Proportion Foodborne for Selected Microbial Pathogens in New Zealand

Peter J. Cressey, Robin J. Lake, Craig Thornley, and Donald Campbell

Published Online: 2 May 2019 | <https://doi.org/10.1089/fpd.2018.2576>

Abstract

Objectives: To estimate the proportions of human cases of nine specific microbial diseases in New Zealand that were due to transmission by food and the proportion of the foodborne burden that was due to transmission by some specific foods.

Materials and Methods: Subjective probability distributions were elicited from 10 food safety experts using a modified Delphi approach. In addition to uniform weighting of experts' opinions, two techniques were used to measure individual's expertise; self-assessment and performance-based weighting using Cooke's classical method. Aggregate estimates were derived by simulation.

Results: Food was estimated to be the primary route of transmission for infections due to *Campylobacter* spp., *Listeria monocytogenes*, nontyphoid *Salmonella* spp., *Vibrio parahaemolyticus*, and *Yersinia enterocolitica*. Uncertainties were lowest for organisms where the self-assessed expertise level was highest.

Conclusions: Foodborne proportion estimates were more "polarized" than for a similar elicitation in 2005. That is, where food was the primary transmission route the estimated proportion on account of food was higher (62.1–90.6% in the current study for self-assessed expertise weighted estimates, compared to 56.2–89.2% in 2005); where food was not the primary transmission route the estimated proportion because of food was lower (27.6–34.0% in the current study compared to 31.5–39.5% in 2005). These estimates represent an essential resource for determining the burden of foodborne disease in New Zealand.