

Risk assessment to support guidance for norovirus outbreaks in oysters

Area of research interest: [Foodborne pathogens](#)

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Background

This assessment has been commissioned in response to recurring outbreaks of norovirus linked to the consumption of raw oysters. Each outbreak requires food safety and health protection resource to manage, as well as having a direct and indirect impact on consumers and on businesses involved, and further guidance has been requested to deal with norovirus outbreaks.

Summary

Norovirus is a type of virus which can cause a mild illness. Norovirus can sometimes contaminate food, accounting for up to 16% of infections. Oysters are a notable source of norovirus, in terms of risk per serving, particularly because oysters are typically consumed raw. In England, between 2013 – 2022, there were 1,307 reported cases of norovirus infection linked to oysters. In Scotland, between 2017 – 2023, there were 259 reported cases of norovirus linked to oysters. The virus can be detected and quantified in foods including oysters, but tests can't distinguish between infectious virus and damaged virus which is unable to cause infection. The number of infectious norovirus particles required to make susceptible people ill varies between studies, but even low amounts of virus can be sufficient to make people ill.

Norovirus contamination in oysters largely occurs due to human sewage releases close to oyster beds. Oysters are filter feeders who take up norovirus as they filter seawater. The levels of norovirus vary widely depending on season, with higher levels in winter months than in summer months. We compared norovirus levels in oysters at retail to levels in oyster batches linked to outbreaks and found that outbreak batches had significantly higher levels.

Outcome

We conclude that if oysters are eaten raw and there is potential human wastewater contamination from sewerage spills or if the oyster batch is linked to outbreaks, there is a risk of illness from norovirus. The risk varies from low (rare, but does occur) to very high (events occur almost certainly), depending on the levels of norovirus in the oyster batch. All these scenarios have high uncertainty. The risk of illness is unknown in the case of norovirus PCR test results in isolation, without other information, such as wastewater flow into catchment or current outbreak linked to the oyster bed.

England, Northern Ireland, Scotland and Wales

PDF

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