

Qualitative risk assessment on the risk of food or food contact materials as a transmission route for SARS-CoV-2

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

Background

On 31 December 2019, the National Health Commission of the People's Republic of China notified the World Health Organization (WHO) of a cluster of cases of pneumonia of unknown cause in Wuhan City, Hubei Province, China. Most early cases were associated with visiting Wuhan South China Seafood City market, which reportedly sold meat, poultry, seafood and live animals.

On the 11 and 12 January the WHO received further evidence from the National Health Commission identifying the cause of these infections as a novel coronavirus first isolated on the 7 January. The novel coronavirus has been named SARS-CoV-2 and the disease caused by it has been named COVID-19.

Overall risk estimate

We consider that the probability that UK consumers will receive potentially infectious exposures of SARS-CoV-2 via the consumption of food or the handling of food contact materials or packaging is Negligible as assessed by pathway A (food of animal origin) and Very Low ("very rare but cannot be excluded") as assessed by pathway B (contamination of food), with an overall risk of Very Low.

The uncertainty associated with this estimate is High, partly as there are significant data gaps relating specifically to SARS-CoV-2; a number of assumptions in this document are therefore based on data relating to other coronaviruses (SARS-CoV and MERS-CoV). Although an overall probability has been provided, decisions should also be informed by the individual probabilities assigned to each section (Appendix 2) as necessary.

The worldwide case fatality rate for the disease COVID-19 appears to be around 7% based on current reports (29th April 2020), meaning the severity of detriment is considered High (Severe illness: causing life-threatening or substantial sequelae or illness of long duration); high-risk groups include people with weakened immune systems, older people, and those with certain long-term conditions like diabetes, cancer, chronic lung disease and cardiovascular disease.

Uncertainty relating to severity of detriment is considered Low; significant volumes of data are now available although current case fatality estimates may be biased as a result of incomplete outcomes and the potential overrepresentation of severe cases, due to early testing strategies only testing cases severe enough to result in hospitalisation. We note that the genome of SARS-CoV-2 suggests that it is most closely related to SARS CoV, for which foodborne transmission has not been implicated in any cases of infection. This assessment represents a conservative estimate of risk whilst acknowledging and reflecting current knowledge gaps.

Limitations of this assessment

This risk assessment does not currently consider:

- The risk associated with illegal importation activities. This is due to the lack of data on volumes of product illegally entering the UK as well as their processing and transportation;
- The occupational risk to food preparers or those frequently exposed to products of animal origin, for example slaughterhouse workers;
- Implications for integrity of the food chain, including reduced availability of food handlers, packers or distributors if they themselves become ill or there is reduced availability of approved disinfectants etc for cleaning of food manufacturing equipment and food preparation areas due to shortages;
- The impacts of altered behavioural choices, for example changes in consumer preference, repackaging of bulk foodstuffs for domestic usage, home delivery;
- Potential for transmission via human breast milk;
- Potential for transmission via water.

Key uncertainties

Potential future developments which could significantly alter this assessment include:

- Evidence indicating that transmission via food is occurring, either from experimental or observational studies;
- Improved data on the incidence of infection in the UK, particularly of the proportion of infections which are subclinical;
- Evidence that food animals could become or have become infected;
- New data significantly changing our assessment of the effects of storage or processing on the activity of virus in food, or survival of SARS-CoV-2 on surfaces and in the general environment;
- Evidence of transmission of infectious SARS-CoV-2 virus via the faecal-oral route;
- Changes in production procedures due to social distancing requirements or altered PPE usage.

Results

We consider that the probability that UK consumers will receive potentially infectious exposures of SARS-CoV-2 via the consumption of food or the handling of food contact materials or packaging is Negligible as assessed by pathway A (food of animal origin) and Very Low (“very rare but cannot be excluded”) as assessed by pathway B (contamination of food), with an overall risk of Very Low.

The uncertainty associated with this estimate is High, partly as there are significant data gaps relating specifically to SARS-CoV-2; a number of assumptions in this document are therefore based on data relating to other coronaviruses (SARS-CoV and MERS-CoV). Although an overall probability has been provided, decisions should also be informed by the individual probabilities assigned to each section (Appendix 2) as necessary.

Next steps

This risk assessment has been used to inform our [business guidance](#) and [consumer guidance](#) on food and food packaging during the pandemic.

Research report
PDF

[View The risk of food or food contact materials being a source or transmission route of SARS-CoV-2 for UK consumers \(June 2020\) as PDF\(Open in a new window\) \(414.78 KB\)](#)