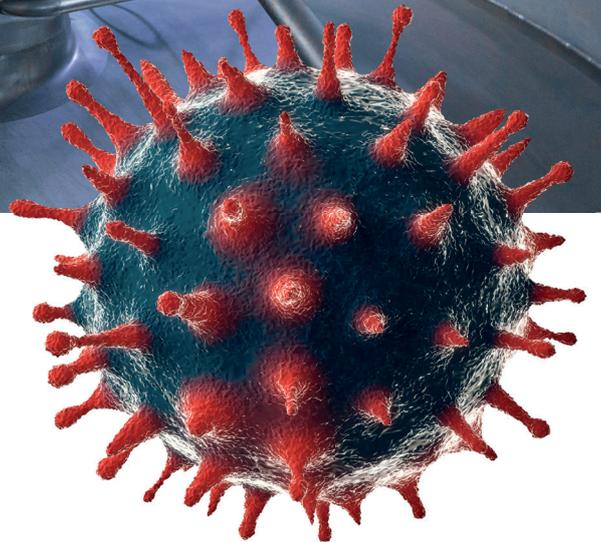


# FOOD RISKS RELATED TO COVID-19

## White Paper Series



## INTRODUCTION

Affecting more than 210 countries in the world, the COVID-19 outbreak is still highly evolving and uncertain in its final magnitude. To contain the pandemic, entire cities and regions have ordered a collective quarantine, stopping most of the local economic activity.

In this context, food facilities and retailers are considered as critical infrastructures, absolutely essential to people well-being as well as public health.

This document contains the current available information about this pandemic impacts on the food chain and the measures to adopt in response.

The chosen resources have been drastically selected to provide food industries/food sector the most up-to-date information. Nevertheless, while reading this document, please keep in mind the daily progress in our knowledge about this pandemic.

## What are the main vectors of propagation and transmission of COVID-19?

**SARS-CoV-2, which causes COVID-19, is a virus that causes respiratory illness.**

Current main symptoms reported have included mild to severe respiratory illness with fever, cough, and difficulty breathing. Some patients with COVID-19 experience gastrointestinal symptoms, particularly diarrhea, as the first sign of illness. This suggests the possible tropism of SARS-CoV-2 to the gastrointestinal tract.

More recently, loss of smell (anosmia) and taste (ageusia) were reported.

The most important transmission method is a 'droplet infection', where coronaviruses are emitted by humans and animals into the air via droplets, and then inhaled. While animals are believed to be the original source, COVID-19 spreads now from person-to-person (human-to-human transmission) through droplets that are produced.

Unlike the bacteria that cause foodborne illness, coronaviruses don't multiply on food.

They require a living host to grow as they invade the host's cells and take them over to generate millions more virus particles.

The virus is most often transferred to another individual,

-when droplets are inhaled (directly reach their nose, mouth, or eyes),

-when droplets land on surfaces that others may come into contact with, who can then get infected when they touch their nose, mouth or eyes,

-through close contact such as a handshake or by touching an object or surface with the virus on it and then touching your mouth or eyes before washing your hands.

## How long an infected person can spread SARS-CoV-2?

The incubation period for COVID-19 (i.e. the time between exposure to the virus and onset of symptoms) is currently estimated to be between one and 14 days.

The virus can be transmitted when people who are infected show symptoms such as coughing. There is also some evidence suggesting that transmission can occur from a person that is infected before showing symptoms; however, uncertainties remain about the effect of transmission by non-symptomatic persons.

The infectious period may begin one to two days before symptoms appear, but people are likely most infectious during the symptomatic period, even if symptoms are mild and very non-specific. The infectious period is now estimated to last for 7-12 days in moderate cases and up to two weeks on average in severe cases.

## How a food product or a surface can be contaminated by SARS-CoV-2?

**The preferred routes of transmission of COVID-19 are via droplets and handling.**

Aerosol and fomite transmission is plausible. The hypothesis of contamination of food by a person who is sick, or is an asymptomatic carrier of the SARS-CoV-2 virus, could occur through respiratory droplets from a contaminated patient.

A faecal-oral route was also raised, as viral particles have been detected in the faeces of some patients.

An infected person can contaminate food by preparing or handling it with dirty hands, or via infectious droplets produced when coughing or sneezing.

Small respiratory droplets through sneezing, coughing, can land on surfaces that others may come into contact with, who can then get infected when they touch their nose, mouth or eyes.

**Good hygiene practices, when properly applied, are an effective way to prevent food and surfaces from being contaminated with the SARS-CoV-2 virus.**

## How long SARS-CoV-2 can survive on food or on surfaces?

SARS-CoV-2 can survive in the outdoor environment, on food and on surfaces.

The stability of coronaviruses in the environment depends on several factors, such as temperature, air humidity and surface conditions, as well as the specific virus strains and the virus quantity.

This virus can survive,  
- probably up to 3 hours on inert dry surfaces and up to 6 days in a humid environment,  
- from several hours (on copper and cardboard) to a few days (on plastic and stainless steel) but it declines over time and may not always be present in sufficient numbers to cause infection.

Experimental study shows that it can remain infectious for up to 3 hours as an aerosol, up to 4 hours on copper surfaces, up to 24 hours on cardboard and up to 72 hours on stainless steel and plastic following heavy contamination.

Transmission of COVID-19 through aerosol or surfaces is plausible but an experimental study does not demonstrate that it occurs as an artificially-generated ae-

rosol is not representative of the natural transmission mechanisms of respiratory pathogens (e.g., coughing and sneezing) with deposition in the respiratory tract.

This virus is sensitive to cooking temperatures. Heat treatment at 63°C for 4 minutes can reduce drastically contamination of a food product.

Transmission of coronaviruses from contaminated surfaces to the hands has not been proven. However, it cannot be excluded, from surfaces freshly contaminated with secretions. A manual transmission from the environment is possible.

**It is therefore important that the measures taken to limit the risk of exposure to the SARS-CoV-2 take into account both routes of transmission - direct through droplets, and indirect by contamination of hands followed by hand-mouth or hand-face contact.**

## What is the risk of contamination by SARS-CoV-2 through food, food contact surfaces or food packaging?

In theory, the two theoretical modes of contamination of food with the SARS-CoV2 virus could be through

1- infected production animals that would transfer the virus to the food chain

2- food handling by people infected with this virus during shedding stage (while having symptoms or not)

On the basis of the scientific knowledge available at the time, there was no evidence that farmed animals,

as well as pets, played any role in the spread of the disease.

Only the second source of food contamination via a human infected with the SARS-CoV-2 virus was investigated.

### Food contamination by droplet transfer

Sneezing, coughing, or direct contact with soiled hands can contaminate food, contact surfaces or utensils.

On inert surfaces, without cleaning measures, viruses of the family Coronaviridae can persist for up to 9 days, especially when the temperature is low and the humidity relative air is low.

Transmission via surfaces which have recently been contaminated with viruses is, nonetheless, possible through smear infections. However, this is only likely to occur during a short period after contamination, due to the relatively low stability of coronaviruses in the environment.

It remains possible that asymptomatic persons may have contaminated a food directly or indirectly, via the deposition of infectious droplets at one or more stages of the food chain for animal and plant products (treatment, preparation, consumption).

However, given

- 1- the poor survival capacity of coronaviruses during cleaning and disinfection operations,
- 2- the absence of data indicating that SARS-CoV-2 behaves differently from other coronaviruses and
- 3- the application of good hygiene practices and cleaning and disinfection procedures in the context of the food industries, provided that it is correct and daily,

**contamination of food by surfaces is in principle under control.**

### Contamination of the food through the faecal-oral route

While the virus has been observed in patients' faeces, it was probably due to circulation of the virus in blood following respiratory infection rather than through the digestive tract.

Even if studies have made it possible to culture the SARS-CoV-2 virus from stool samples, no case of faecal-oral transmission of COVID-19 disease has yet been reported.

People with mild, benign or asymptomatic forms, may be difficult to detect but are theoretically likely to contaminate food, through the fecal-oral route.

In order to demonstrate possible faecal-oral transmission, additional information, such as the infectivity of viruses detected in the stool and their quantification, would be required.

## Can eating contaminated food make people sick?

SARS-CoV-2, is transmitted from person to person.

COVID-19, is a virus that causes respiratory illness and not gastrointestinal illness. There is currently no scientific evidence to suggest that SARS-CoV-2 can infect people through the consumption of contaminated food, via the digestive tract.

Scientists and authorities have not been any reports of transmission through food or via contact with contaminated articles.

A risk of respiratory tract infection after ingestion of a contaminated food has not been observed with coronaviruses. However, the possibility of the respiratory tract becoming infected when chewing contaminated food cannot be completely ruled out. In these cases, the route of entry for the virus remains the respiratory tract during chewing.

It remains possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

- Cooking (4 minutes at 63 ° C) could be considered effective in inactivating coronaviruses in **food intended to be eaten cooked.**
- A risk of respiratory tract infection after ingestion of a contaminated food has not been observed with coronaviruses, and therefore seems unlikely in **prepared, raw or undercooked food.**

## Preventive measures in food facilities

In general, **general hygiene measures** must be applied during the preparation of food (consumer or agrifood operators):

-regular and frequent hand washing: hand washing with soap before and during meal preparation, and after any contaminating gesture (after coughing, after blowing your nose, etc.) and systematic after going to

the toilet

-regular surface cleaning, and maintenance of surfaces, materials and utensils: disinfectant in agrifood industries (advise for food environment) used and meeting a virucidal standard are effective against SARS-CoV-2

-separation of food raw and cooked

### Workers in Human & Animal food are considered part of the essential critical infrastructure work force

Even if the virus is present on food, or if a person cooking food is infected, it does not replicate in food and the chance of spread the disease is very low when **preventive measures are correctly followed**.

**Food industry should reinforce personal hygiene measures and provide refresher training on food hygiene principles to employees.**

### Should we look for the presence of the virus in food or food contact surfaces?

Knowing that there is currently no scientific evidence to suggest that SARS-CoV-2 can infect people through the consumption of contaminated food and knowing that preventive hygiene, cleaning and disinfection measures in the food industry are efficient, the value of carrying out tests on food or surface in contact with food is not currently demonstrated nor recommended by scientific authorities.

In addition, anyone who is sick should know the importance of not handling food or cooking for others or preparing and serving food if they have symptoms of gastroenteritis (diarrhea, fever, vomiting, headache).

Employees who have symptoms of acute respiratory illness should stay home and not come to work until they are free of fever (100.4° F [37.8° C] or greater using an oral thermometer), signs of a fever, and any other symptoms for at least 24 hours, without the use of fever-reducing or other symptom-altering medicines (e.g. cough suppressants).

Employees should notify their supervisor and stay home if they are sick.

Food workers should also stay home when they are sick with digestive illnesses, according to usual hygiene rules.

Food companies should provide employees enough hand washers with hot water, detergent, disposable hand towels.

They must thoroughly clean and disinfect the surfaces and, enforce barrier gestures.

### WHO: COVID-19 and food safety: guidance for food businesses (7 April 2020)

[https://apps.who.int/iris/bitstream/handle/10665/331705/WHO-2019-nCoV-Food\\_Safety-2020.1-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331705/WHO-2019-nCoV-Food_Safety-2020.1-eng.pdf)

In addition, for more information on workers protection, critical infrastructures, food facilities, please refer to your local health departments and follow the local authorities requirements. e.g.

<https://www.pma.com/global-pma/anz/news/2020/covid-19/recording-covid19-and-food-safety>  
<https://travail-emploi.gouv.fr/actualites/l-actualite-du-ministere/article/coronavirus-covid-19-fiches-conseils-metiers-pour-les-salaries-et-les>  
<https://www.anses.fr/en/system/files/AIR2020SA0046.pdf>  
[https://www.bfr.bund.de/en/can\\_the\\_new\\_type\\_of\\_coronavirus\\_be\\_transmitted\\_via\\_food\\_and\\_objects\\_-244090.html](https://www.bfr.bund.de/en/can_the_new_type_of_coronavirus_be_transmitted_via_food_and_objects_-244090.html)  
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<https://www.fda.gov/food/retail-food-industryregulatory-assistance-training/retail-food-protection-employee-health-and-personal-hygiene-handbook>

## Scientific Affairs and Global Marketing – bioMérieux Food Industry - April 2020

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## BIOMÉRIEUX IS HERE TO HELP

With its deep roots and leadership in growth-based microbiology, bioMérieux continuously brings innovation to this diagnostic discipline, which remains unsurpassed in its ability to identify a very wide range of microorganisms as well as their susceptibility to antibiotic treatments. Research and Development efforts focus on enhancing Laboratory automation, reducing time to results and expanding our range of tests for resistant bacteria and viruses