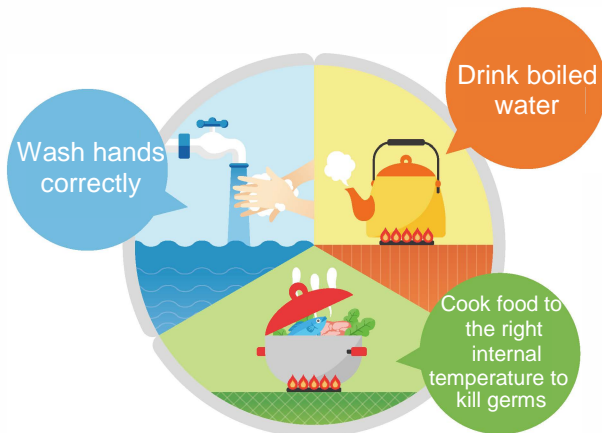


## Prevention

The risk of food poisoning increases in the summer due to rising temperatures. Therefore, it is essential to exercise extra caution when handling and preparing food at home or in communal dining areas such as cafeterias.

- \* All food should be cooked thoroughly before consumption, and water should be boiled before drinking.
- \* Do not leave cooked food at room temperature.
- \* Once cooked, food should be reheated thoroughly before eating.
- \* Raw and cooked foods should be stored separately in different bags or containers to prevent cross-contamination.
- \* Use separate knives and cutting boards for handling raw meat and seafood to avoid cross-contamination.
- \* Always wash your hands before cooking, before meals, after using the restroom, and after returning from outside.
- \* Keep the kitchen clean at all times, especially paying attention to the cleanliness of countertops, cutting boards, knives, and dishcloths.
- \* Avoid handling raw meat and seafood if you have any cuts or wounds on your hands.

### [3 steps to prevent food poisoning]



## Tests

Code No.	Test Name	Specimen	Method
72242	PCR for gastrointestinal pathogen panel (Virus)	Stool 2g	Multiplex Real-time RT-PCR
31100 etc.	Bacterial culture (disk diffusion method)	Suspected specimen	Culture, Disk-diffusion
31108 etc.	Bacterial culture (Minimum inhibitory concentration (MIC))	Suspected specimen	Culture, MIC
31065	<i>Vibrio</i> culture	Stool 5g	Culture
31066	<i>E. coli</i> O157 culture	Stool 5g	Culture

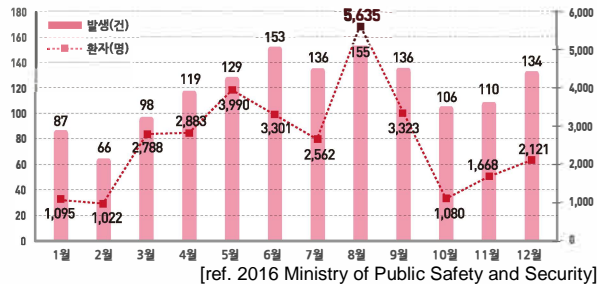
## A health threat in the summer: Food poisoning



## What is food poisoning?

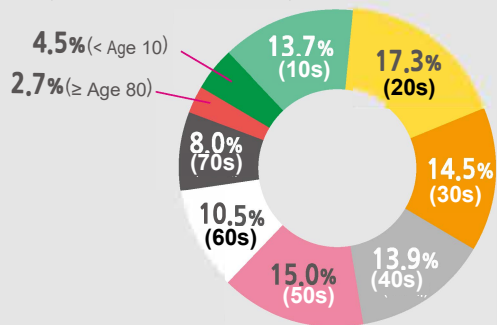
Food poisoning refers to infectious diseases or toxin-related illnesses caused by or suspected to have been caused by harmful microorganisms or toxic substances present in consumed food. While most cases are not communicable between people, some pathogens like norovirus can spread through direct contact between individuals. The bacteria responsible for causing food poisoning vary by season, with a higher occurrence during the summer months (June to August), while norovirus is more prevalent in the winter season (November to January)

[Food poisoning cases by month (unit: persons)]

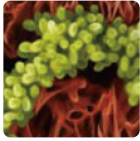









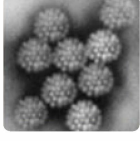



According to the Health Insurance Review and Assessment Service,, people receiving health care due to food poisoning were fairly evenly distributed across all age groups in 2016: 17.3% in the 20–29 age group (10,551), 15% in the 50–59 age group (9,131), and 14.5% in 30–39 age group (8,847).

Proportion of age groups among people receiving treatment for food poisoning (2016)



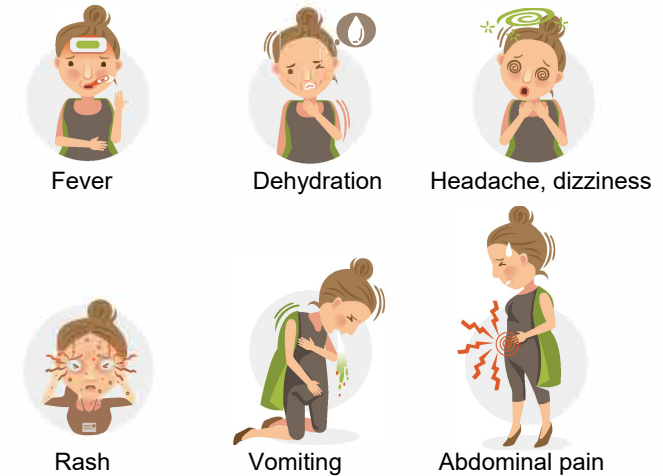
## Common pathogens of food poisoning

Microorganism	Contaminants
 <p><b>Staphylococcus aureus</b></p> <ul style="list-style-type: none"> <li>• Produces toxins that can cause food poisoning</li> <li>• Even heating (up to 100°C) may not destroy the toxins</li> <li>• Can survive dry conditions</li> </ul>	 <ul style="list-style-type: none"> <li>• Common in human or animal skin and mucosa</li> <li>• Food handled and prepared by a person with purulent disease</li> </ul>
 <p><b>Vibrio cholerae</b></p> <ul style="list-style-type: none"> <li>• Proliferate at seawater temperature <math>\geq 15^{\circ}\text{C}</math></li> <li>• Grows well at 2–5% salinity but is heat-sensitive</li> <li>• Outbreak primarily occurs from June to October</li> </ul>	 <ul style="list-style-type: none"> <li>• Seafood and raw fish caught near the coast during the summer season</li> <li>• Utensils such as knives and cutting boards used to handle contaminated seafood</li> </ul>
 <p><b>Clostridium perfringens</b></p> <ul style="list-style-type: none"> <li>• Spore-forming bacterium that survives even when heated</li> <li>• Can survive without oxygen</li> </ul>	 <ul style="list-style-type: none"> <li>• Present in animal feces, soil</li> <li>• Leaving soups, stews, curries, and other foods cooked in large containers without proper storage</li> </ul>
 <p><b>Salmonella</b></p> <ul style="list-style-type: none"> <li>• Can survive for long periods in soil or water</li> <li>• Can survive even in dry conditions</li> </ul>	 <ul style="list-style-type: none"> <li>• Commonly found in human and livestock feces and insects</li> <li>• Eggs, meats, and their processed products</li> <li>• Foods directly and indirectly contaminated with feces</li> </ul>
 <p><b>Pathogenic E. coli 0157</b></p> <ul style="list-style-type: none"> <li>• A small number (10–100) of bacteria cause food poisoning</li> <li>• Produces verotoxins that cause food poisoning</li> <li>• In severe cases, the patient may die from hemolytic uremic syndrome (HUS)</li> </ul>	 <ul style="list-style-type: none"> <li>• Foods directly and indirectly contaminated with patient's or animal feces</li> <li>• Foods minced with contaminated knives or cutting boards</li> </ul>
 <p><b>Norovirus</b></p> <ul style="list-style-type: none"> <li>• Proliferates only in the human intestine</li> <li>• Can survive for long periods in the natural environment</li> </ul>	 <ul style="list-style-type: none"> <li>• Water and foods contaminated with human feces</li> <li>• Secondary infection from a person infected with norovirus</li> <li>• Common in the winter season</li> </ul>

## Symptoms

The typical symptoms of food poisoning include diarrhea, vomiting, abdominal pain, fever, dehydration, and skin rashes.

Mild symptoms may resolve on their own, but in severe cases, there may be blood in stool, and immunocompromised people, older adults, and children may develop breathing difficulties, sepsis, and encephalomyelitis (brain and spinal cord infection).



## Diagnosis

With the exception of some cases, the symptoms of food poisoning are similar, making it difficult to determine the specific causative bacteria based solely on symptoms. In severe cases, stool examination and culture are performed to identify the causative agent.

In recent years, multiple polymerase chain reaction (PCR) testing has been used because it allows early diagnosis of infection and provides quick results, which facilitates prompt prescription and effective patient management.