

Foodborne illness in Australia: Annual incidence circa 2010

Questions and answers fact sheet

OVERARCHING COMMENTS

Foodborne illness can result in gastroenteritis (symptoms include diarrhoea and vomiting), non-gastrointestinal illness (such as hepatitis), sometimes serious long-term health effects (such as reactive arthritis or irritable bowel syndrome), and occasionally death.

Australia's annual incidence of foodborne illness was last estimated in 2000. Data quality and methods have improved since then. *Foodborne illness in Australia: Annual incidence circa 2010* (the report) provides the latest estimates of the incidence of foodborne illness in Australia and will assist in prioritising foodborne illnesses for intervention.

Foodborne illness is largely preventable, therefore it is important that Australian governments, industry and consumers continue to work together to reduce the incidence of foodborne illness.

QUESTIONS ABOUT THE MAIN FINDINGS

1. What are the main findings of the report?

The study found that every Australian has an episode of foodborne gastroenteritis every five years. This works out to about 4.1 million cases of foodborne gastroenteritis, 5,140 cases of non-gastrointestinal illness (such as hepatitis) and 35,840 cases of more serious long-term effects in Australia annually.

2. What were the leading causes of foodborne illness, hospitalisations and deaths?

The actual cause of most (80%) foodborne illness is unknown. Of the known causes, most are due to four organisms – norovirus, pathogenic *E. coli*, *Campylobacter* species and *Salmonella* species.

In summary,

- Norovirus causes the most illness;
- *Salmonella* species and *Campylobacter* species cause the most hospitalisations; and
- *Salmonella* species and *Listeria monocytogenes* cause the most deaths.

More information on the causes of foodborne illness can be found on the [Food Safety Information Council](#) or the [New South Wales Food Authority](#) websites.

3. Why don't we know what causes most foodborne illnesses?

Many organisms, such as bacteria, viruses and parasites, can produce symptoms of gastroenteritis.

Often, gastroenteritis is presumed to be due to an infection with one of these organisms, but the cause is not actually confirmed. This is because not every sick person goes to the doctor and has a test, or if a person is tested, the organism that made them sick may not be tested for.

Interestingly, the percentage of gastroenteritis cases due to unknown or unidentified organisms in Australia is the same as recently estimated in the United States of America (USA) (80%).ⁱ Only a few decades ago, organisms such as *Campylobacter*, Shiga toxin-producing *Escherichia coli* (STEC) and norovirus were completely unknown.

4. The study found the level of foodborne gastroenteritis had not changed much between 2000 and 2010. Why?

It's difficult to directly compare the old and new numbers as there have been many changes since the first study. This includes the use of new methods and data, as well as changes in the population over this time.

While there seems to be little change overall, there have been changes in some of the individual causes. Illnesses from *Salmonella* and *Campylobacter* have increased, while illnesses from *Shigella* and hepatitis A virus have decreased. These new estimates do not necessarily mean that there's less foodborne illness occurring, but rather, that more accurate estimates are now possible.

Reducing foodborne illness is everyone's responsibility, from government through to industry, and the consumer. All levels of government (local, state and national) are working with consumers and industry to increase awareness of foodborne illness. Many programs to improve food safety were implemented at about the time the 2010 data were collected, and since then. These initiatives are expected to affect the incidence of foodborne illness in the coming years.

5. Why has infection with *Salmonella* and *Campylobacter* species increased?

We don't really know why. According to the National Notifiable Diseases Surveillance System (NNDSS), numbers of *Campylobacter* cases have been decreasing since a peak in 2011 but numbers of *Salmonella* infections have continued to gradually increase since 2010.ⁱⁱ OzFoodNet has previously determined that poultry is the primary source of *Campylobacter* infections in Australia.ⁱⁱⁱ OzFoodNet has also reported that the use of raw or minimally cooked eggs is likely to be a significant source of the national increase in *Salmonella* infections seen in recent years.^{iv}

The report suggests that food safety initiatives should be targeted at reducing the incidence of infection with *Salmonella* and *Campylobacter* species. This information will be used by governments and industry to identify suitable ways to reduce the incidence of both infections. Since data were collected for the circa 2010 report, a number of *Primary Production and Processing Standards*, which aim to strengthen food safety and traceability throughout the food supply chain, have been implemented and should affect the incidence of *Salmonella* and *Campylobacter* infection in coming years. Consumers should also be aware that they can reduce their risk of exposure to *Salmonella* and *Campylobacter* through safe food handling and good hygiene.

6. Were any foods or settings identified as being more risky?

No, this was not included in the study.

7. How does Australia compare internationally?

Estimates of the incidence of foodborne illness are not dissimilar to other comparable countries. For example, the proportion of gastroenteritis estimated to be due to foodborne transmission in Australia (25%) is similar to estimates in the United Kingdom (UK, 26.2%)^v and the USA (25.8%),^{vi} but lower than that of the Netherlands (39%).^{vii} It should be noted that the Australian report included organisms and illnesses of particular relevance to Australia, not all of these are the same as those used in international studies.

QUESTIONS ABOUT EFFORTS TO REDUCE THE INCIDENCE OF FOODBORNE ILLNESS

8. What are governments doing to reduce the incidence of foodborne illness?

A number of strategies and initiatives have been introduced to reduce foodborne illness. For example, Australian governments have been working on [Primary Production and Processing Standards](#) to manage food safety from the paddock to the plate. Work is underway to implement the revised [Policy Guideline on Food Safety Management for General Food Service and Closely Related Retail Sectors](#) and to develop a risk management toolkit.

The Australian Government established OzFoodNet – Australia's enhanced foodborne disease surveillance system in 2000, to improve national surveillance and our understanding of the causes of foodborne illness. OzFoodNet has epidemiologists located in every state and territory and investigates approximately 120 outbreaks and 3-6 multijurisdictional outbreaks of foodborne illness per year. Through its National Enhanced Listeriosis Surveillance System, established in 2010, OzFoodNet is able to detect and investigate outbreaks of *Listeria* infection in a timely manner, which can prevent further cases.

9. What is industry doing to reduce the risk of foodborne illness?

The food industry has systems in place to prevent contamination of food. In addition to requirements in the [Food Standards Code](#), many food businesses have implemented food safety programs such as Hazard Analysis Critical Control Point (HACCP) due to either mandatory legislation (like food safety management programs) or voluntary requirements (like approved supplier programs). These programs help control food safety hazards to acceptable risk levels by identifying risk points in the food supply chain where steps can be taken to ensure safe food.

10. What else is being done to reduce the risk of foodborne illness?

Even with the best systems, contamination with bacteria or viruses sometimes happens. This is why Australia has a well-established system for recalling food. Recalls are coordinated by Food Standards Australia New Zealand (FSANZ) on behalf of the states and territories and the food business recalling the food. The aim of a food recall is to remove a contaminated product from the market as soon as possible.

11. What can people do to reduce their risk of foodborne illness?

Food regulations in Australia help maintain food safety up to the time it reaches the consumer. After that, the consumer can take a few simple actions to reduce the likelihood of a foodborne illness:

- **Clean** hands before and during cooking, and wash and dry utensils and cutting boards with soap and warm water before handling different sorts of foods.
- **Chill** foods that are meant to be chilled as soon as possible after purchase and refrigerate leftovers promptly. Use a fridge thermometer to ensure the temperature is at or below 5°C. Defrost frozen food in the fridge not on the kitchen bench.
- **Cook** meat (mince, burgers, sausages, stuffed meats, poultry) right through until it reaches 75°C using a meat thermometer – whole cuts of meat can be cooked to a lower temperature. Serve hot food steaming hot above 60°C. Defrost frozen meat thoroughly before cooking. Always follow cooking instructions on packaged foods.
- **Separate** raw and cooked foods when storing and preparing. Cover containers of food in the fridge and put raw meat/poultry in the bottom of the fridge so the juices don't contaminate food on lower shelves. Don't put cooked meat back on the plate the raw meat was on.

Further information and food safety tips are available from the [Food Safety Information Council](http://www.foodsafety.asn.au/) (<http://www.foodsafety.asn.au/>).

12. Is the Australian food supply safe?

Yes. Australia has a well-deserved reputation for a safe and clean food supply. The food industry, consumers, public health professionals and governments work together to ensure our food remains safe and consumers are protected.

This report provides valuable updated information about the incidence of foodborne illness in Australia and will be used to inform food policies, standards and surveillance activities so that Australia's food supply continues to be safe.

QUESTIONS ABOUT COMPARING ESTIMATES FROM 2000 AND 2010

13. Can the previous and new estimates be compared?

The new estimates are more accurate than previous estimates due to improved methodology and data quality. The new estimates cannot be *directly* compared to the previous figures. However, by applying the new model to the old data, the original circa 2000 estimate of 5.4 million cases of foodborne gastroenteritis annually was revised to 4.3 million cases of foodborne gastroenteritis circa 2000. This figure can be compared to the circa 2010 estimate of 4.1 million cases.

14. Were the circa 2000 estimates wrong? How can you be sure that the circa 2010 estimates accurately reflect the incidence of foodborne illness?

No, they were the best estimates available at the time. The new estimates reflect innovations in data and methodology that occurred over the last 10 years. Public health science is not static. Every year new methods are developed for

research and analysis, new data are added, and new surveys are conducted. Future estimates will benefit from additional innovations and improvements in data and methodology.

15. Why is it important to estimate the burden of foodborne illness?

Many people and organisations are involved in ensuring the safety of our food – farmers, processors, manufacturers, distributors, retailers, restaurant workers, governments and consumers. Whether involved in developing new or improved practices or policies in industry, or in encouraging best consumer practices, all these people and organisations need accurate and specific estimates about foodborne illness in Australia to inform and prioritise their work.

QUESTIONS ABOUT THE REPORT'S RELEASE

16. Why are estimates for circa 2010 being published in 2014?

Like other national projects to estimate the incidence of disease, this project was complex and involved unavoidable lag time. Firstly, it took considerable time to collect and analyse the data. The circa 2010 study brings together data from various sources gathered over several years, including data from the national gastroenteritis survey, which became available mid-2011; and travel-related data from the NNDSS, which became available early 2013. These data then underwent an expert elicitation process. Secondly, to test the scientific validity of the report's findings, articles about the study were submitted to a peer-reviewed journal for publication. The peer-review process takes time but was important to ensure the published circa 2010 estimates are consistent and robust. Release of the report has been timed to coincide with publication of related articles in the November 2014 issue of the journal *Emerging Infectious Diseases*.

17. What will governments do with the results of this report?

The report will help governments prioritise types of illness for intervention and develop ways to reduce foodborne illness in the future. Governments will continue to work collaboratively with food safety regulators, industry and consumers to promote good hygiene and food safety practice.

REFERENCES

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